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AUTH. NAME AUTHOR AFFILIATION
HAYNES, J. G. Arizona Nuclear Power Project (formerly Arizona Public Serv
RECIP. NAME RECIPIENT AFFILIATION
KNIGHTON, G. W. PWR Project Directorate 7

SUBJECT: Forwards Rev 0 to "Pump & Valve Inservice Testing Program" for Units 1, 2 & 3. Fee paid.

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August 11, 1986
ANPP-37730-JGH/KLM/98.05

Director of Nuclear Reactor Regulation
Attention: Mr. George W. Knighton, Project Director
PWR Project Directorate #7
Division of Pressurized Water Reactor Licensing - B
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Units 1, 2 and 3
Docket Nos. STN 50-528 (License NPF-41)
STN 50-529 (License NPF-51)
STN 50-530
PVNGS ASME Section XI Pump and Valve
Testing Program - Unit Specific
File: 86-A-056-026

References: 1) Letter to G. W. Knighton, NRC, from E. E. Van Brunt, Jr., ANPP, dated August 21, 1984 (ANPP-30290). Subject: PVNGS ASME Section XI Pump and Valve Testing Program.

2) Letter to G. W. Knighton, NRC, from E. E. Van Brunt, Jr., ANPP, dated June 28, 1985 (ANPP-32925). Subject: PVNGS ASME Section XI Pump and Valve Testing Program.

Dear Mr. Knighton:

The PVNGS Units 1, 2 and 3 ASME Section XI Pump and Valve Testing Program was previously submitted to the NRC in Reference 1) and supplemented by Reference 2). Since this time, the testing program has been completely revised. It has also been determined that, due to the different implementation schedules of design modifications, it was necessary to make the program unit specific. Therefore, attached are the three revised, unit specific Pump and Valve Testing Programs.

This submittal is in accordance with 10 CFR 50.55a(g)(4)(i) and 10 CFR 50.55a(g)(5)(iii). Also attached, in accordance with 10 CFR 170.12, is the approval application fee of $150.00.

If you should have any questions concerning the matter, please contact Mr. W. F. Quinn of my staff.

Very truly yours,

J. G. Haynes
Vice President
Nuclear Production

8608210205 860811
PDR ADOCK 05000528
P PDR

A047
1/1

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Attachments

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cc: E. A. Licitra (all without attachments)
R. P. Zimmerman
E. E. Van Brunt, Jr.
A. C. Gehr

PALO VERDE NUCLEAR GENERATING STATION

PUMP AND VALVE
INSERVICE TESTING PROGRAM PV-2
UNIT 2
REVISION 0

PREPARED BY: Ron Kyger — PROJECT ENGINEER — DATE: 3/31/86

REVIEWED BY: Nelson C. Hallas — TECHNICAL REVIEWER — DATE: 3-31-86

APPROVED BY: [signature] — OPERATIONS ENGINEERING MANAGER — DATE: 3/31/86

APPROVED BY: [signature] — PLANT REVIEW BOARD (PRB) CHAIRMAN — DATE: 4/17/86

CONCURRED BY: James C Keenan — ANII — DATE: 6-25-86

8608210205

PROGRAM: PV-2

UNIT: 2
REV: 0

INSERVICE TESTING

OF

SAFETY RELATED PUMPS AND VALVES

DN-5213C/0718C

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Appendix C - ISI Pump Program
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INTRODUCTION

The Inservice Inspection Program for Palo Verde Nuclear Generating Station is developed in compliance with the rules and regulations of 10CFR50.55a and Section XI of the ASME Boiler and Pressure Vessel Code, 1980 Edition, Winter 1981 Addenda. Where these rules were determined to be impractical, specific relief was written.

Section 1.0 discusses the Inservice Testing Program for applicable Class 1, 2 and 3 pumps. Section 2.0 discusses the Inservice Testing Program for applicable Class 1, 2 and 3 valves.

1.0 INSERVICE TESTING OF PUMPS

1.1 General Information

The Inservice Testing Program for ASME Class 1, 2 and 3 pumps was developed in accordance with, and meets the requirements of ASME Boiler and Pressure Vessel Code, Section XI, Subsection IWP, 1980 Edition, Winter 1981 Addenda.

The Inservice Testing Program for pumps will remain in effect through the next 10 year inservice inspection interval commencing at commercial operation.

Appendix C lists all Class 1, 2 and 3 pumps which are to be tested, along with the applicable parameters to be measured.

1.2 Program Information

The following information is included in the Inservice Testing Program for pumps:

A. Pump Number lists the pump identification number as shown on the P&ID's.

B. Pump Name describes the pump's functional identification as it is related to system operation.

C. ISI CLASS is the Owner's classification of the pump per ISI requirements and per FSAR Table 3.2-1.

D. P&ID and Coordinates indicates the drawing and grid location where the pump appears.

E. Test Parameters indicates the required test quantities required per Table IWP-3100-1.*

F Notes are general statements which can be referred to in the ISI Testing Program.

1.3 Reference Values

Reference values shall be established when the pump is known to be operating acceptably. All subsequent test results shall be compared to the reference values.

After a pump has been replaced, a new set of reference values shall be determined from the results of the first inservice test run after the pump is put into service. When a reference value has been affected by a repair or routine servicing of the pump, a new reference value or set of values shall be determined or the previous value confirmed by an inservice test run prior to return of the pump to service.

IWP-3230 (c) and (d) permits analysis and recalibration of instruments as methods of corrective action for pumps which exceed the values in Table IWP-3100-2 (Required Action Range). Pumps which fall into the Required Action Range at high values (ie. increased/improved performance) will be analyzed and/or the test rerun subsequent to instrument recalibration prior to declaring the pump inoperable per IWP-3230 (b). This applies to pumps wherein pump flow and differential pressure is measured/observed.

*These quantities will be either measured, observed, or calculated (denoted by "M", "O", or "C" in the ISI Testing Program). "PRR-(1)" will denote a specific request for relief concerning that parameter.

1.4 Test Frequency

An inservice test shall be run on each pump nominally every three months during plant operation. The auxiliary feedwater pumps will be tested monthly as required per Tech Spec 3/4.7.1.2. Where a pump is not tested on a three month frequency during plant shutdown, it will be tested prior to declaring the system operable, per Technical Specifications.

1.5 Request for Relief

Where ASME Section XI requirements are determined to be impractical, a request for relief is written per the provisions of 10CFR50.55a (g) (6) (i), and incorporated into the Palo Verde Inservice Testing Program.

Relief requests are shown in Appendix A.

1.6 Pump Listing

The listing of Pumps is located in Appendix C.

2.0 INSERVICE TESTING OF VALVES

2.1 General Information

The Inservice Testing Program for ASME Class 1, 2 and 3 valves was developed in accordance with, and meets the requirements of ASME Boiler and Pressure Vessel Code, Section XI, Subsection IWV, 1980 Edition, Winter 1981 Addenda.

The Inservice Testing Program for valves will remain in effect throughout the next 10 year service inspection interval, commencing at commercial operation.

2.2 Preservice Test

Each valve, after installation and prior to service, shall be tested. These tests shall be conducted under conditions similar to those to be experienced during subsequent inservice tests. Safety and relief valves which will be removed and bench tested during subsequent inservice test need not be installed prior to the preservice test.

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.

2.3 Program Information

The following information is included in the Inservice Testing Program for valves:

A. Valve Number lists the valve identification number as shown on the P&ID's.

B. Coordinates reference the grid on the P&ID where the valve appears.

C. ISI Class is the Owner's classification of the valve per ISI requirements & FSAR Table 3.2-1.

D. Valve Category indicates the category assigned to the valve based on the definition of IWV-2200.

E. Valve Size lists the nominal size of the valve in inches.

F. Valve Type lists the valve design.

G. Actuator Type lists the type of valve actuator.

H. Valve Position indicates the normal position of valve during plant operation; either normally open (O), normally closed (C), or both (O/C).

I. Stroke Direction indicates the direction which an active valve must stroke to perform its safety function. Also, the direction in which the valve will be stroked to satisfy the exercising requirements of IWV-3410 and IWV-3520. This may be specified as open (O), closed (C), or both (O/C).

J. Test lists the test or tests that will be performed for each valve to fulfill the requirements of Subsection IWV.

Appendix J Leak Test (AJLT)

Valve will be leak tested in accordance with 10CFR50, Appendix J requirements.

Leak Test (LT)

Leak test performed for category A valve.

Full Stroke Test (FST)

Valve will be full stroke exercised for operability in the direction necessary to fulfill its safety function.

Partial Stroke Test (PST)

Valve will be partial stroke exercise when full stroke exercising is impractical.

Fail-Safe Test (FT)

All valves with fail-safe actuators will be tested to verify proper fail-safe operation upon loss of actuator power. If operation of the normal control switch causes the valve to fail to its fail-safe position through loss of control power or loss of air, no further testing will be required. However, if fail-safe operation cannot be verified by repositioning of the control switch alone, a specific fail-safe test will be performed.

Verify Position Indicator (VPI)

Automatically actuated valves with remote indication will be verified in accordance with IWV-3300.

Pressure Safety Valve Testing (PSVT)

Relief and safety valve set points will be verified in accordance with IWV-3510.

Throttled Position (TP)

Measurement of position of valve stem will be made to ensure valve moves to correct throttled position per Tech Specs 4.5.2.g.

K. Test Mode indicates the frequency at which the preceeding mentioned tests will be performed. The following abbreviations are used:

Cold Shutdown (CS)

Valve testing at cold shutdown is valve testing which commences not later than seventy-two (72) hours after cold shutdown (and Control Room activities permit testing evolutions) and continues until required testing is completed or plant startup, whichever occurs first. Completion of all required valve testing is not a requisite to plant startup. Valve testing which is not completed during cold shutdown will be performed during subsequent cold shutdowns to meet the Code specified testing requirements. No valve is required to be tested more often than once every 92 days.

Note: Completion of all valve testing during cold shutdown is not required if plant operating conditions will not permit the testing of specific valves.

Normal Operation (OP)

Valve tests with this designation will be performed once every three months.

Note: An additional caveat such as -3 may be added to CS or RF test modes to indicate specific Tech Spec Mode (e.g., 1 to 6) in which testing will occur due to plant conditions, e.g., RF-3. This indicates that test will be performed in Mode 3 going into or coming out of refueling outage.

Reactor Refueling (RF)

Valve tests with this designation will be conducted at reactor refueling outages only.

L. Max Stroke Time lists the maximum allowed full stroke time measured in seconds from signal initiation until stroke completion is indicated. Testing is to be completed for all stroke times listed whenever the valve is full stroke tested (ref. IWV-3413).

M. Relief Request references the relief request contained in Appendix B that applies to the particular valve.

N. Remarks lists clarification remarks.

The Inservice Test Program lists all ASME Class 1, 2 and 3 valves that have been assigned valve categories. Active valves were selected from all ASME III Class 1, 2 and 3 valves in the plant if they met the two criteria of IWV-1100, i.e.;

- Required to perform a specific function in shutting the reactor down to cold shutdown condition.
- Required to mitigate the consequences of an accident.

Valves were selected based on a review of the following documents:

- P&ID's
- Technical Specifications
- CESSAR
- FSAR

Valves which are passive (e.g., normally closed and remain closed, or normally open and remain open) are not included in the plan except Containment Isolation Check Valves. These valves are included for information only, and are tested by Local Leak Rate Testing per 10CFR50, Appendix J and Technical Specification 3/4.6.1.

Valves exempt by the Code per IWV-1200 are not listed.

All ASME Section III Pressure Safety and Relief Valves are included in the program. However, only the Pressurizer safety valves, main steam safety valves, and the Low Temperature Over Pressure (LTOP) safety valves perform specific active functions to mitigate an accident or assist in the shutdown of the plant. All remaining safety and relief valves are included in the program to ensure that they are periodically tested per PTC 25.3 on a schedule of approximately 5 year intervals.

The listing of valves is located in Appendix D.

The tables are organized by system.

2.4 Request for Relief

Where ASME Section XI requirements were determined to be impractical, a request for relief was written. Relief Request are shown in Appendix B.

2.5 Explanation of Abbreviations and Notes

See the following pages.

PALO VERDE NUCLEAR GENERATING STATION

ANPP

INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: _____

System: _____ Rev.: _____ Page _____ of _____ Pages

VALVE NUMBER	P & ID COORDINATES					ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
									ANG								ANGLE	
									BTF								BUTTERFLY	
									CK								CHECK	
									DIA								DIAPHRAGM	
									GA								GATE	
									GL								GLOBE	
									PSV								PRESSURE SAFETY VALVE	
									AO								AIR OPERATOR	

PALO VERDE NUCLEAR GENERATING STATION

ANPP

INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: _ _____

System: _____ Rev.: _____ Page _____ of _____ Pages

VALVE NUMBER	P & ID COORDINATES					ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
										HY							HYDRAULIC	
										MAN							MANUAL	
										MO							MOTOR OPERATOR	
										SA							SELF ACTUATED	
										SOL							SOLENOID	
											O						OPEN	
											C						CLOSED	
											O/C						OPEN/CLOSED	

PALO VERDE NUCLEAR GENERATING STATION

ANPP

INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: _____

System: _____ Rev.: _____ Page _____ of _____ Pages

VALVE NUMBER	P & ID COORDINATES					ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
													AJLT				APPENDIX J LEAK TEST	
													FST				FULL STROKE TEST	
													PST				PARTIAL STROKE TEST	
													LT				LEAK TEST	
													FT				FAIL TEST	
													VPI				VERIFY POSITION INDICATOR	
													PSVT				PRESSURE SAFETY VALVE TEST	
													TP				THROTTLED POSITION	

PALO VERDE NUCLEAR GENERATING STATION

ANPP

INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: _____

System: _____ Rev.: _____ Page _____ of _____ Pages

VALVE NUMBER	P & ID COORDINATES					ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
														OP			NORMAL OPERATION	
														CS			COLD SHUTDOWN	
														RF			REACTOR REFUELING	
														RF-3			REFUELING - MODE 3 PERFORMANCE	
																VRR	VALVE RELIEF REQUEST	

Appendix A

PUMP RELIEF REQUESTS

PROGRAM: PV - 2

UNIT: 2
Rev.: 0

PUMP RELIEF REQUEST NO. 1

SYSTEM:	Auxiliary Feedwater System (AF)
COMPONENT:	AFN-P01, AFA-P01, AFB-P01
P&ID COORDINATE:	13-M-AFP-001 @ H8, D8, B8
CLASS:	3
FUNCTION	AFN-P01, AFA-P01, and AFB-P01 are the non-essential Auxiliary Feedwater Pump, the steam driven Aux Feedwater Pump and motor driven Aux Feedwater Pump, respectively, and supply make-up water to the Steam Generator during start-up/shutdown conditions and subsequent to receipt of an AFAS (aux feed actuation signal). Note AFN-P01 does not receive an AFAS.
TEST REQUIREMENT:	IWP-3100 requires that either the pump differential pressure or flow rate be set and the other pump criteria (differential pressure or flow rate) be measured.
BASIS FOR RELIEF:	The hydraulic circuits for the ASME Section XI test for these pumps is via minimum flow recirculation loop. Minimum flow orifices installed in the line control constant flow. High velocity fluid through the orifice ensures that they do not become plugged and orifice erosion would be detected as pump degradation and investigated accordingly.
ALTERNATE TESTING:	None; flow is constant but not measured.

PUMP RELIEF REQUEST NO 2

SYSTEMS:	Chemical and Volume Control, Safety Injection
COMPONENTS:	CHA-P01, CHB-P01, CHE-P01, SIA-P05, and SIB-P05
P&ID COORDINATES:	13-M-CHP-002 @ B3, D3, and G3 13-M-SIP-001 @ C14 and D14
CLASS:	2
FUNCTION:	CHA-P01, CHB-P01, and CHE-P01 are the three charging pumps. SIA-P05 and SIB-P05 are the containment spray chemical addition pumps (SCAP). The charging pumps provide makeup to the reactor coolant system for chemistry and volume control. In addition they provide auxiliary spray to the pressurizer during the final stages of shutdown. The SCAP inject a controlled amount of hydrazine into the containment spray flow to remove radioactive elemental iodine from the containment atmosphere.
TEST REQUIREMENTS:	The inlet pressure and differential pressure shall be measured or observed and recorded.
BASIS FOR RELIEF:	These pumps are of positive displacement design and as such are designed to deliver constant capacity irrespective of inlet pressure or differential pressure across the pump. The parameters important to monitoring pump degradation are discharge pressure and flow rate. Measuring Inlet pressure and differential pressure provides no meaningful information.
ALTERNATE TESTING:	No alternate testing for these parameters is meaningful. However, discharge pressure will be set and recorded and flow rate will be measured & recorded as per Section XI. Flow Rate will be trended.

PUMP RELIEF REQUEST NO. 3

SYSTEM:	Diesel Generator Fuel Oil Transfer System
COMPONENTS:	DFA-P01 and DFB-P01
P&ID & COORDINATES:	13-M-DFP-001 @ B-6 and B-2
CLASS:	3
FUNCTION:	To provide fuel oil to the standby diesel generators.
TEST REQUIREMENTS	Measure displacement vibration amplitude of pump.
BASIS FOR RELIEF:	These pumps are immersible centrifugal sump pumps located in the emergency fuel oil storage tanks, therefore, are inaccessible for this type of testing.
ALTERNATE TESTING	No alternate testing for this parameter is practical, however, all other parameters will be tested per Section XI requirements to show pump integrity.

PUMP RELIEF REQUEST NO. 4

SYSTEM: Diesel Generator System

COMPONENTS: DGA-P02, DGB-P02, DGA-P03, DGB-P03, DGB-P05, DGB-P05

P&ID AND COORDINATES: 13-M-DGP-001: sht 4 @ F7, F3; sht 3 @ C7, C3; sh 7 @ D7, D3.

FUNCTION:

DG-P02 This pump is the diesel generator driven jacket water pump. This pump functions after the D/G starts up.

DG-P03 This pump is the diesel generator driven lube oil pump. This pump functions after the D/G starts up.

DG-P05 This is the diesel generator driven fuel booster pump.

TEST REQUIREMENTS: Test Requirements: An inservice test shall be conducted with the pump operating at nominal motor nameplate speed. The resistance of the system shall be varied until either the measured flow rate or differential pressure equals the reference value. The test parameters shall then be measured and observed and compared to the corresponding reference values.

BASIS FOR RELIEF: These pumps are supplied as an integral part of the Diesel Generator skid package. The operational readiness of these pumps will be ascertained by assuring the capacity of the pumps to fulfill their function during the monthly diesel generator Technical Specification surveillance test. The Diesel Generator is required to obtain rated speed, frequency & voltage within 10 secs.

Individual pump performance equipment (e.g. suction & discharge pressure indicator, and flowrate Indicators) was not supplied on skid package. Pump Degradation will be exhibited by failure of Diesel Generator to obtain performance requirements set in Technical Specification.

PROGRAM: PV - 2

UNIT: 2
Rev.: 0

PUMP RELIEF REQUEST NO. 4

ALTERNATE TESTING

Operate the pumps monthly when the Diesel Generator is functionally tested in accordance with Technical Specifications 3/4.8.1.

PUMP RELIEF REQUEST NO. 5

SYSTEM:	Safety Injection System (SI)
COMPONENT:	SIA-P01, SIB-P01
P&ID COORDINATES:	13-M-SIP-001 @ B-11, G-11
CLASS:	2
FUNCTION:	SIA-P01 and SIB-P01 are Low Pressure Safety Injection Pumps (LPSI). They function to inject borated water into the core post accident (Emergency Core Cooling) and also serve function as shutdown cooling pumps.
TEST REQUIREMENT:	ASME Section XI, IWP-4120 requires that each instrument used shall be three times the reference value or less.
BASIS FOR RELIEF:	The discharge pressure of the LPSI pump ranges from 220 to 240 psig under minimum recirculation flow. Under conditions of shutdown cooling, the discharge pressure under full flow conditions ranges from 300 psig to 480 psig. The discharge Pressure Indicator for the LPSI pump (SIA-PI-306 and SIB-PI-307) range from 0 - 750 psig. Loop accuracy is nominally 1.14%, compared to Code requirement of 2.0% per IWP-4110-1. It is necessary for the pressure indicator to provide information for both ASME XI and normal plant operation. Indicator range is 3.4 times discharge pressure vice 3.0 times value as per Code. Installation of temporary discharge pressure gauge is impractical due to ALARA considerations ie LPSI discharge piping is 2R/hr. Based on increased accuracy, ALARA considerations and Code intent to use installed instrumentation, PI-306 and 307 should be used. Additionally, IWA-5263 utilizes pressure gauges with a range of 4.0 times the pressure value.
ALTERNATE TESTING:	None, testing to be performed as scheduled.

PROGRAM: PV - 2

UNIT: 2
Rev.: 0

PUMP RELIEF REQUEST NO. 6

SYSTEM: Safety Injection System (SI)

COMPONENTS: SIA-P01, SIB-P01
SIA-P02, SIB-P02
SIA-P03, SIB-P03

P&ID COORDINATES: 13-M-SIP-001 @ B-11, G-11, A-11, E-11, C-11, H-11

CLASS: 2

FUNCTION: SIA-P01 and SIB-P01 are Low Pressure Safety Injection Pumps. SIA-P02 and SIB-P02 are High Pressure Safety Injection Pumps and also serve as shutdown cooling pumps. SIA-P03 and SIB-P03 are Containment Spray Pumps. These pumps provide Emergency Core Cooling functions (P01 and P02), residual heat removal function (P02) and containment heat removal function (P03).

TEST REQUIREMENT: IWP-3100 requires that either the pump differential pressure or flow rate be set and the other pump criteria (differential pressure or flow rate) be measured.

BASIS FOR RELIEF: The hydraulic circuits for the ASME Section XI test for these pumps is via minimum recirculation loop. Minimum flow orifices installed in the line control constant flow. High velocity fluid through the orifice ensures that they do not become plugged and orifice erosion would be detected as pump degradation and investigated accordingly. A flow indicator is installed but its range (0 - 3333 gpm) far exceeds the normal miniflow output of individual pumps (eg 85 - 200 gpm). The flow indicator is on the combined minimum recirculation line. This indicator cannot be used per IWP-4120. Testing is required to be performed using miniflow lines per Technical Specifications 3/4.5.2 and 3/4.6.2.1

ALTERNATE TESTING: None, flow is constant but not measured.

PUMP RELIEF REQUEST NO. 7

SYSTEM:	Safety Related
COMPONENT:	All pumps listed in the program.
CLASS:	2 & 3
FUNCTION:	To provide pumped liquid to safety related systems.
TEST REQUIREMENTS:	To measure bearing temperature.
BASIS FOR RELIEF:	Industry data has shown that bearing temperature changes due to degrading bearings only occurs after major degradation has occurred at the pump. Prior to this, the vibration measurement would provide the necessary information to warn the operator of an impending malfunction. Therefore, this parameter will not be measured, since its information is after the fact.
ALTERNATE TESTING:	None.

PUMP RELIEF REQUEST NO. 8

SYSTEM:	Various
COMPONENT:	Centrifugal Pumps
P&ID COORIDNATES:	Various
CLASS:	2 & 3
FUNCTION:	Various
TEST REQUIREMENT:	Table IWP-3100-2 requires that Pump Alert Range for High Values be established at 2% above reference values and Pump Required Action Range High Values be established at 3% above reference values.
BASIS FOR RELIEF:	Small increases in differential pressure (ΔP) which activate Alert and Action range for centrifugal pump, are meaningless. Small positive increases in observed differential pressure caused by instrument uncertainty, water density, difficulty in obtaining accurate discharge pressures (due to pressure oscillations as noted in IWP-4150), and instrument error result in spurious actuation of alert required action. Increasing the alert and required action ranges to parallel the low level alert/required action range will prevent needless pump testing and equipment unavailability.
ALTERNATE TESTING:	None. Testing performed as scheduled. Acceptance Range to be 0.93 to 1.05 ΔP_r High Alert Range to be 1.05 to 1.07 ΔP_r High Required Action Range to be > 1.07 ΔP_r

APPENDIX B

VALVE RELIEF REQUESTS

PROGRAM: PV - 2

UNIT: 2
Rev.: 0

VALVE RELIEF REQUEST NO. 1

SYSTEM:	Auxiliary Feedwater (AF)
COMPONENTS:	AFA-V007, AFB-V022, AFA-V137, AFB-V138
P&ID COORDINATES:	13-M-AFP-001 @ D7, C7, D6, C6
CATEGORY:	C
CLASS:	3
FUNCTION:	Suction and Discharge check valves on essential steam driven auxiliary feedwater pump and on essential motor driven auxiliary feedwater pump.
TESTING REQUIREMENT:	Full stroke exercise every three months or partial stroke exercise every three months and full stroke at cold shutdown.
BASIS FOR RELIEF:	Stroking these valves during power operation would result in injection of cold auxiliary feedwater into a hot steam generator. In addition to causing an unwarranted plant transient, this could thermally shock main feedwater piping and/or steam generator.
ALTERNATE TESTING:	Partial stroke test, on minimum recirculation flow, every 31 days on a STAGGERED BASIS, per Technical Specification 4.7.1.2a. Full stroke after refueling outages on a STAGGERED BASIS per Technical Specification 4.7.1.2c. Full Flow Test conducted in Mode 3.

VALVE RELIEF REQUEST NO. 2

SYSTEM:	Auxiliary Feedwater (AF)
COMPONENTS:	AFA-V015, AFB-V024
P&ID COORDINATES:	13-M-AFP-001 @ D5, C5
CATEGORY:	C
CLASS:	3
FUNCTION:	Provide flow path to each steam generator from essential auxiliary feedwater pumps
TEST REQUIREMENTS:	Full stroke exercise every three months or partial stroke exercise every three months and full stroke exercise every cold shutdown.
BASIS FOR RELIEF:	Stroking these valves during power operation (full or partial stroking) is not possible without injecting cold water into the steam generator. This causes unwarranted thermal transients in the steam generator and may cause thermal shocking of feedwater pipe or steam generator.
ALTERNATE TESTING:	Full flow stroke test valves during refueling on a staggered basis in accordance with and concurrent with full flow testing required by Technical Specification 4.7.1.2c. Note: Testing of AF-V015 may be delayed to Mode 3 in that steam is required to operate the turbine driven auxiliary feedwater pump.

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VALVE RELIEF REQUEST NO. 3

SYSTEM:	Auxiliary Feedwater (AF)
COMPONENTS:	AFA-V079, AFB-V080
P&ID COORDINATES:	13-M-AFP-001 @ D2, B2
CATEGORY:	C
CLASS:	2
FUNCTION:	Provide flow path auxiliary feedwater (essential) to each steam generator
TEST REQUIREMENT:	Full stroke exercise every three months or partial stroke exercise every three months and full stroke exercise every cold shutdown.
BASIS FOR RELIEF:	Stroking these valves during power operation would result in the injecting of cold aux. feedwater into a hot steam generator. In addition to possibly causing an unwarranted transient, this could thermally shock the feedwater pipe and/or steam generator.
ALTERNATE TESTING:	The valves will be full stroke tested during the flow test required by PVNGS Technical Specification 4.7.1.2c. Full stroke test performed in Mode 3.

VALVE RELIEF REQUEST NO. 4

SYSTEM:	Chemical and Volume Control (CH)
COMPONENTS:	CHA-V177, CHA-V190, CHE-HV536, CHN-UV514
P&ID COORDINATES:	13-M-CHP-002 @ B8, A8, A14, B10
CATEGORY:	C, C, B, B
CLASS:	2, 2, 2, 3
FUNCTION:	Valve opens during emergency boration to provide flow from Refueling Water Tank (RWT) to the suction of the charging pumps via gravity feed or Boric Acid Make-up Pumps.
TEST REQUIREMENT:	Check Valves - Full stroke exercise every three months or partial exercise every three months and full stroke exercise at cold shutdown. Isolation Valves - Full stroke exercise and full stroke time every three months or partial stroke exercise every three months and full stroke exercise and stroke time at cold shutdown.
BASIS FOR RELIEF:	The emergency boration flow path is isolated (eg valves normally closed) during operation. Stroking of these valves during operation would cause unwarranted transients (boration) or needless increases in boron level beyond shutdown margin requirements.
ALTERNATE TESTING:	Full stroke test check valves during refueling per Technical Specification 3/4.1.2.2b. Full stroke test power operated valves isolation valves during cold shutdown when charging pumps are secured.

VALVE RELIEF REQUEST NO. 5

SYSTEM:	Chemical and Volume Control (CH)
COMPONENTS:	CHE-HV239, CHE-PDV-240, CHN-UV-501
P&ID COORDINATES:	13-M-CHP-001 @ G11, G11 13-M-CHP-002 @ C-7
CATEGORY:	B, B, B
CLASS:	2, 1, 2
FUNCTION:	CHN-UV-501 is Volume Control Tank (VCT) Discharge Isolation Valve. UV-501 closes on low VCT level to protect charging pumps from loss of NPSH. CHE PDV-240 is charging back-pressure control valve. PDV-240 provides sufficient back-pressure to ensure positive pressure for seal injection and auxiliary spray. CHE-HV-239 is isolation valve for PDV-240.
TEST REQUIREMENT:	Full stroke exercise and time test once every three months or part stroke every three months and full stroke exercise and time test during cold shutdown. Quarterly fail test for HV-239 and PDV-240.
BASIS FOR RELIEF:	Disrupting normal charging system flow path which would be required in order to stroke these valves would cause unwarranted transients in the RCS volume. Thermal transients are possible due to interruption of charging flow (eg Regenerative Heat exchanger, and charging nozzle). Closing UV-501 will result in loss of NPSH to charging pumps and is an unwarranted challenge to pump integrity. Closing either HV-239 or PDV-240 essentially dead heads the charging pumps (eg with two pumps in service, 88 gpm is discharged into header, of which 12-16 gpm is used for seal injection. Seal injection cannot handle 88 gpm).
ALTERNATE TESTING:	Valves to be tested during cold shutdown with charging secured.

VALVE RELIEF REQUEST NO. 6

SYSTEM:	Chemical and Volume Control (CH)
COMPONENTS:	CHB-V305, CHA-V306
P&ID COORDINATES:	13-M-CHP-002 @ C-15
CATEGORY:	C
CLASS:	2
FUNCTION:	Valves are discharge check valves from the Refueling Water Tank (RWT) to the suction of Low Pressure Safety Injection (LPSI) pump, High Pressure Safety Injection (HPSI) pump, and Containment Spray Pump. Valves open to pass borated water (4400 ppm) to ECCS pumps.
TEST REQUIREMENT:	Full stroke exercise once every three months or part stroke every three months and full stroke exercise at cold shutdown.
BASIS FOR RELIEF:	Valves can be part stroke during operation in support of quarterly testing of LPSI, HPSI and Containment Spray surveillance testing. However, valves require in excess of 6000 gpm in order to full stroke valves open. Flow rates of this magnitude are not practical during operations, shutdown or refueling. Injecting into reactor vessel during refueling creates a significant ALARA concern due to airborne activity from crud burst.
ALTERNATE TESTING:	Part stroke valves every quarter and during refueling (cavity fill). Dissassemble one valve every ten years.

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VALVE RELIEF REQUEST NO. 7

SYSTEM:	Chemical and Volume Control (CH)
COMPONENTS:	CHE-V431, CHB-HV-203, CHA-HV-205
P&ID COORDINATES:	13-M-CHP-001 @ H9, H10, G11
CATEGORY:	C, B, B
CLASS:	1
FUNCTION:	Valves open to provide a flow path for Auxiliary Spray to the pressurizer.
TEST REQUIREMENT:	Full stroke exercise and full stroke time every three months or partial stroke every three months and full stroke exercise and time during cold shutdown.
BASIS FOR RELIEF:	Their function is to protect the charging system from Reactor Coolant System pressure during normal operations and to provide auxiliary spray to cool/depressurize the pressurizer when the Reactor Coolant pumps are not operating. Partial stroking is not possible since CHB-HV-203 and CHA-HV-205 are solenoid valves and control flow to CHE-V431. Stroking these valves during operation introduces unwarranted transients in RCS pressure and unwarranted thermal cycling of the pressurizer spray nozzle (reference Tech. Specs. 5.7.1). Exercising these valves is not practical during power operation.
ALTERNATE TESTING:	Full stroke test during cold shutdown.

VALVE RELIEF REQUEST NO. 8

SYSTEM:	Chemical and Volume Control (CH)
COMPONENTS:	CHE-V440
P&ID COORDINATES:	13-M-CHP-002 @ C-1
CATEGORY:	C
CLASS:	2
FUNCTION:	Valve V440 opens to pass charging flow through High Pressure Safety Injection (HPSI) as a boration flow path (discharge portion of boration flow path). Boration paths required per Technical Specifications 3.1.2.1 and 3.1.2.2
TEST REQUIREMENT:	Full stroke exercise and every three months or part stroke every three months and full stroke exercise at cold shutdown.
BASIS FOR RELIEF:	Valve is normally isolated by closed manual isolation valves and is not required. Valve will be tested per Code whenever valve is required as a flow path. Testing during operation is impractical since it would require injection through the HPSI header. This would cause thermal transients in the Regenerative Heat Exchanger and Charging nozzle. Additionally it would require performance of leak testing per Technical Specification 4.4.5.2.2. This leak testing (per 4.4.5.2.2) is not possible during operation due to ALARA in that a Containment entry would be required.
ALTERNATE TESTING:	None; Valve will be tested per Code when the associated boration flow path is required to be operable or at least once refueling.

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VALVE RELIEF REQUEST NO. 9

SYSTEM:	Chemical and Volume Control (CH)
COMPONENTS:	CHB-UV-505 and CHA-UV-506
P&ID COORDINATES:	13-M-CHP-002 @ G13 and G14
CATEGORY:	A, A
CLASS:	2
FUNCTION:	Valves provide containment isolation on Reactor Coolant seal water bleed off line.
TEST REQUIREMENT:	Full stroke exercise and time every three months or partial stroke exercise every three months and full stroke exercise and time at cold shutdown Quarterly Fail Testing.
BASIS FOR RELIEF:	These valves are open during normal operation to provide seal water bleed-off from the reactor coolant pumps. Stroking these valves would require discontinuing seal injection to the pumps and compromise Reactor Coolant pump seal integrity. Partial stroking is not possible since the valves are not jog capable.
ALTERNATE TESTING:	Full stroke test during cold shutdown.

VALVE RELIEF REQUEST NO. 10

SYSTEM:	Chemical and Volume Control (CH)
COMPONENTS:	CHB-UV-515, CHA-UV-516, CHB-UV-523
P&ID COORDINATES:	13-M-CHP-001 @ H15, H15, F13
CATEGORY:	B, A, A,
CLASS:	CHB-UV-515 and CHA-UV-516 are Class 1, all others are Class 2
FUNCTION:	Valves are contain in the normal letdown/volume control make-up loop
TEST REQUIREMENT:	1. Full stroke exercise once every three months or part stroke exercise every three months and full stroke during cold shutdown. 2. Full stroke timing once every three months. 3. Fail Test every three months.
BASIS FOR RELIEF:	Disrupting normal flow paths in order to full stroke these valves could cause unwarranted transients in the RCS volume/boron concentration. Valves do not have part stroke capabilities.
ALTERNATE TESTING:	Full stroke test these valves during cold shutdown.

VALVE RELIEF REQUEST NO. 11

SYSTEM:	Chemical and Volume Control System
COMPONENTS:	CHB-HV530, and CHA-HV531
P&ID COORDINATES:	13-M-CHP-002 @ C15, and C14
CATEGORY:	B
CLASS:	2
FUNCTION:	Safety Injection Pump to Refueling Water Tank Suction Isolation Valves.
TEST REQUIREMENT:	Full stroke exercise and stroke time test every three months or partial stroke test every three months and full stroke exercise and timing test during cold shutdown.
BASIS FOR RELIEF:	Stroking these valves during operation would violate PVNGS Technical Specifications, Limiting Conditions for Operation, requiring two independent flow paths capable of taking suction from the Refueling Water Tank on a safety injection actuation signal. Valve is normally open. If valve failed in closed position, this would render one complete safety injection train (eg HPSI, LPSI and Containment Spray Pump) in-operable. This is considered to be unsafe.
ALTERNATE TESTING:	Full stroke test at cold shutdown.

VALVE RELIEF REQUEST NO. 12

SYSTEM:	Chemical and Volume Control (CH)
COMPONENTS:	CHN-V835, CHE-HV-255
P&ID COORDINATES:	13-M-CHP-001 @ G3, G4
CATEGORY:	CHE-HV-255 is Category A CHN-V835 is Category AC
CLASS:	2
FUNCTION:	Valves are open to provide a flow path for seal injection to the reactor coolant pumps.
TEST REQUIREMENT:	Full stroke exercise and time power operated valve every three months or partial stroke every three months and full stroke test at cold shutdown.
BASIS FOR RELIEF:	These valves are open during normal operation to provide seal injection to the reactor coolant pumps. Stroking these valves closed would require discontinuing seal injection to the pumps and compromising reactor coolant pump seal integrity. CHE-HV-255 is not jog capable so CHE-HV-255 and the check valve down stream cannot be part stroked.
ALTERNATE TESTING:	Full stroke test during cold shutdown.

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VALVE RELIEF REQUEST NO. 13

SYSTEM:	Containment Purge (CP)
COMPONENTS:	CPA-UV-2A, CPA-UV-2B, CPB-UV-3A, CPB-UV-3B
P&ID COORDINATES:	13-M-CPP-001 @ D6, D3, D5, D2
CATEGORY:	A
CLASS:	2
FUNCTION:	These valves are 42" containment purge supply and exhaust isolation valves.
TEST REQUIREMENT:	Full stroke exercise and timing test every three months or partial stroke test every three months and full stroke exercise and timing test during cold shutdown.
BASIS FOR RELIEF:	PVNGS Technical Specifications (3.6.1.7a) requires each 42" containment purge supply and exhaust isolation valve to be sealed closed during operation.
ALTERNATE TESTING:	Full stroke test these valves during cold shutdown.

VALVE RELIEF REQUEST NO. 14

SYSTEM:	Condensate Transfer (CT)
COMPONENTS:	CTA-V016, CTB-V020
P&ID COORDINATES:	13-M-CTP-001 @ C4, A-4
CATEGORY:	C
CLASS:	3
FUNCTION:	Valve strokes open to provide make-up water from Condensate Storage tank (CST) to Diesel Generator Cooling Water Surge Tank, Essential Chill Water Expansion Tank, Essential Cooling Water Surge Tank and Spent Fuel Pool.
TEST REQUIREMENT:	Full stroke exercise every three months or part stroke exercise every three months and full stroke exercise at cold shutdown.
BASIS FOR RELIEF:	Valves can be part stroked during operation. To full stroke exercise during operation or during cold shutdown is impractical. The only flow path which is practical for full stroke exercising is from Condensate Transfer Pump to spent fuel pool. Condensate Transfer Pump flow rate is approximately 130 gpm. The injection of non-borated water into Spent Fuel Pool on a routine basis is unwarranted. The Normal make-up to the Spent Fuel Pool is via Boric Acid Make-up Pump.
ALTERNATE TESTING:	Part stroke valves every three months. Full stroke exercise valves each refueling.

VALVE RELIEF REQUEST NO. 15

SYSTEM:	Diesel Generator (DG)
COMPONENTS:	DGA-V002, DGA-V003 DGB-V011, DGB-V012
P&ID COORDINATES:	13-M-CHP-001, Sht 1 @ F7, F7 F3, F3
CATEGORY:	C
CLASS:	3
FUNCTION:	To provide isolation between Demineralizer Water system and Diesel Generator Jacket Water Cooler Tank.
TEST REQUIREMENT:	Full stroke exercise every three months or partial stroke exercise every three months and full stroke exercise at cold shutdown.
BASIS FOR RELIEF:	Plant design does not provide the means for testing each valve individually. Valves are in series.
ALTERNATE TESTING:	Test the series of two valves as a unit for backflow prevention. Note: The request for relief is needed until the end of the first fuel cycle. Test connections will be added during the first refueling outage.

VALVE RELIEF REQUEST NO. 16

SYSTEM:	Diesel Generator (DG)
COMPONENTS:	DGA-UV-3, DGB-UV-4, DGA-UV-5, DGB-UV-6, DGA-UV-7 DGB-UV-8, DGA-UV-9, DGB-UV-10, DGA-UV-11, DGB-UV-12 DGA-UV-15, DGB-UV-16
P&ID COORDINATES:	13-M-CHP-001, sh 5 @ F-7, F-3, d-7, D-3, F-6, F2 13-M-DGP-001, sh 8 @ F-6, F-3, F-6, F-3 13-M-DGP-001, sh 6 @ D-6, D-2
CATEGORY:	B
CLASS:	Non-Classed
FUNCTION:	Valves UV-3, UV-4, UV-5, UV-6, UV-7, UV-8, UV-15, and UV-16 are part of the Diesel Generator Air Starter system. Valves DG-UV-9, Uv-10, UV-11, and UV-12 are part of the Diesel Generator control air system to the Fuel Control Linkage.
TEST REQUIREMENT:	Full stroke exercise and time test every three months or part stroke test every three months and full stroke test at cold shutdown.
BASIS FOR RELIEF:	The valves are totally enclosed solenoid valves and it is not possible to observe any stem movement. Additionally there are no remote indicator lights. There is no practical way to stroke time the valve since there is no obtainable evidence of valve movement. Valves were purchased as part of Diesel Generator skid. Valves UV-3, UV-5, UV-7, & UV-15 are controlled from a single handswitch. Valves UV-4, UV-6, UV-8 and UV-16 are controlled from a single handswitch. Valves UV-9 and UV-11 are controlled from a single handswitch. Valves UV-10 & UV-12 are controlled from a single handswitch. Independent operation of individual valves is not possible without rendering other valves inoperable. Technical Specifications 3/4.8.1.1.2a(4) requires monthly starting of Diesel Generator. The Diesel must start and attain speed, frequency and voltage within 10 seconds. Valve malfunction or degradation of opeation will reduce D/G starting capacity and D/G will be inoperable.
ALTERNATE TESTING:	Test valves concurrent with monthly Diesel Generator start test.

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VALVE RELIEF REQUEST NO. 17

SYSTEM: Essential Cooling Water (EW)

COMPONENTS: EWB-V029, EWB-V077
EWA-V018, EWA-V103

P&ID COORDINATES: 13-M-EWP-001 @ H-3, H-3
H-7, H-7

CATEGORY: C

CLASS: 3

This VRR is not applicable to Unit 2. The design noted on VRR-17 for Units 1 and 3 has already been installed in Unit 2.

VALVE RELIEF REQUEST NO. 18

SYSTEM:	Essential Cooling Water (EW)
COMPONENTS:	EWA-UV-65 and EWA-UV-145
P&ID COORDINATES:	13-M-EWP-001 @ C8 and C4
CATEGORY:	B
CLASS:	3
FUNCTION:	Valves open to provide Nuclear Cooling (NC) water system with Essential Cooling Water (EW) in the event, that the Nuclear Cooling water system is inoperable.
TEST REQUIREMENT:	Full stroke exercise test and full stroke time test every three months or part stroke test every three months and full stroke test during cold shutdown.
BASIS FOR RELIEF:	Full stroking these valves during operation will produce high pressure in the Nuclear Cooling Water system. this could lead to the system becoming inoperable and necessitate shutdown of the reactor coolant pumps. Valves do not have part stroke capability.
ALTERNATE TESTING:	Perform full stroke testing during cold shutdown.

VALVE RELIEF REQUEST NO. 19

SYSTEM:	Service Gas, Instrument Air, Chill Water System.
COMPONENTS:	GAE-V011, GAE-V015, IAE-V021 and WCE-V039
P&ID COORDINATES:	13-M-GAP-001 @ D6, F2, 13-M-IAP-003 @ G5 and 13-M-WCP-001 @ G7
CATEGORY:	AC
CLASS:	2
FUNCTION:	In board containment isolation valves.
TEST REQUIREMENT:	Check valves shall be exercised at least once every three months.
BASIS FOR RELIEF:	Valves must be tested in a manner that proves that the disk is on its seat. Plant conditions and ALARA concerns make test impractical during plant operation.
ALTERNATE TESTING:	Check valves will be exercised during refueling.

VALVE RELIEF REQUEST NO. 20

SYSTEM:	Instrument Air (IA)
COMPONENTS:	IAA-UV-2
P&ID COORDINATES:	13-M-IAP-003 @ G7
CATEGORY:	A
CLASS:	2
FUNCTION:	Instrument Air Containment Isolation Valve
TEST REQUIREMENT:	Full stroke exercise and timing test during normal operation every three months or partial stroke every three months and full stroke exercise and timing during cold shutdown. Quarterly Fail testing.
BASIS FOR RELIEF:	Stroking this valve during normal operation would isolate Letdown from Reactor Coolant system which causes unwarranted transients in the RCS volume and the charging piping temperature. Valve is on solenoid valve and cannot be partial stroked.
ALTERNATE TESTING:	Full stroke test during cold shutdown.

VALVE RELIEF REQUEST NO. 21

SYSTEM:	Nuclear Cooling Water (NC)
COMPONENTS:	NCE-V118, NCB-UV-401, NCA-UV-402, NCB-UV-403
P&ID COORDINATES:	13-M-IAP-003 @ E6, E7, F7, F6
CATEGORY:	AC, A, A, A
CLASS:	2
FUNCTION:	Valves open to provide a flow path for nuclear cooling water supply/return to the reactor coolant pump lube oil coolers, reactor coolant pump seal coolers, and CEDM air coolers.
TEST REQUIREMENT:	Full stroke exercise test and stroke time power operated valves every three months or partial stroke test every three months and full stroke test at cold shutdown.
BASIS FOR RELIEF:	These valves are open during normal operation to allow a supply of nuclear cooling water to the reactor coolant pump coolers. Stroking these valves could cause overheating of the reactor coolant pump motor air coolers, lube oil coolers and compromise the integrity of the reactor coolant pump seals. Stroking these valves could also cause overheating of the CEDM's and cause CEAs to drop into the core. Partial stroking is not possible since the valves are not jog capable.
ALTERNATE TESTING:	Full stroke test these valves during cold shutdown.

VALVE RELIEF REQUEST NO. 22

SYSTEM:	Reactor Coolant System (RC)
COMPONENTS:	RCA-HV-101, RCB-HV-102, RCA-HV-103, RCB-HV-105 RCA-HV-106, RCB-HV-108, RCB-HV-109
P&ID COORDINATES:	13-M-IAP-001, G-15, F-15, G-14, G-13
CATEGORY:	B
CLASS:	1 and 2
FUNCTION:	High point vent for reactor vessel and pressurizer for venting noncondensibles from Reactor Coolant System.
TEST REQUIREMENT:	Full stroke exercise and timing test every three months or partial stroke test every three months and full stroke exercise and timing test during cold shutdown. Quarterly Fail Test.
BASIS FOR RELIEF:	Valves are part of reactor coolant pressure boundary and form part of the double isolation valve required by 10CFR50.2v. Valves are solenoid valves and cannot be part stroked. Full stroke testing of these valves violates reactor coolant pressure boundary. Valve malfunction eg struck open valve during Mode 1 increases the probability of a LOCA. Additionally, stroking of RC-HV-106 (vent to containment) would release reactor coolant this constitutes an ALARA and radiation protection concern.
ALTERNATE TESTING:	Full stroke test valves during cold shutdown.

VALVE RELIEF REQUEST NO. 23

SYSTEM:	Main Steam (SG)
COMPONENTS:	SGE-V003, SGE-V005, SGE-V006, SGE-V007 SGE-V642, SGE-V652, SGE-V653, SGE-V693
P&ID COORDINATES:	13-M-SGP-002, @ E-10, A-10, A-10, E-10 G-11, G-10, C-10, C-11
CATEGORY:	C
CLASS:	2
FUNCTION:	The normal function of the valves is to open and provide a flow path for feedwater flow to the steam generators. The safety function is to close.
TEST REQUIREMENT:	Full stroke exercise every three months or partial stroke exercise every three months and full stroke exercise at cold shutdown.
BASIS FOR RELIEF:	These valves are in the feedwater inlet lines to each steam generator and are open during power operations. Full stroke or partial stroke testing of these valves during operation would require securing feedwater flow to the steam generator and cause a reactor trip. Per Technical Specifications, Main Steam System is required to be operable prior to entering Mode 4. These valves require Steam Generator pressure to back pressure test the valves for closing. Adequate pressure in Steam Generator does not exist until in Mode 3.
ALTERNATE TESTING:	Test valves in Mode 3 when sufficient pressure is available for stroking valves to the closed position at cold shutdown.

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VALVE RELIEF REQUEST NO. 24

SYSTEM:	Main Steam (SG)
COMPONENTS:	SGB-UV-130, SGB-UV-135, SGA-UV-172, SGA-UV-175
P&ID COORDINATES:	13-M-SGP-002 @ G12, C12, G12, and C12.
CATEGORY:	B
CLASS:	2
FUNCTION:	Downcomer feedwater isolation valves
TEST REQUIREMENT:	1. Full stroke exercise test every three months or partial stroke tests every three months and full stroke exercise and time test at cold shutdown. 2. Fail Test every Quarter.
BASIS FOR RELIEF:	These valves are normally open during operation. Full stroke testing of these valves during power operation would isolate up to 15% of the normal feedwater flow to the steam generators and could cause an unwarranted plant transient and plant trip. Partial stroking is not possible as the valves are not jog capable.
ALTERNATE TESTING:	Full stroke testing at cold shutdown.

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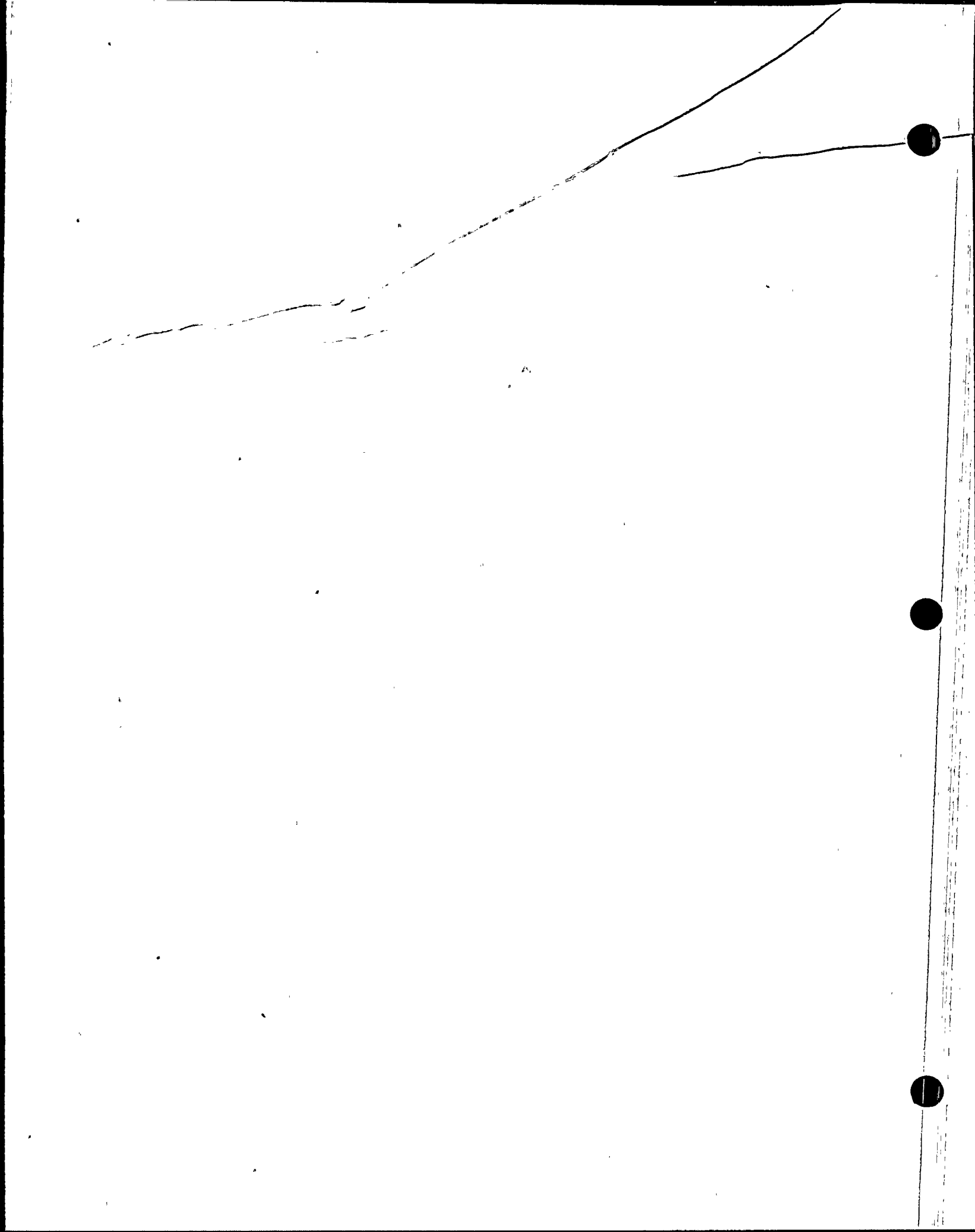
VALVE RELIEF REQUEST NO. 25

SYSTEM:	Main Steam (SG)
COMPONENTS:	SGA-UV-134A, SGA-UV-138A
P&ID COORDINATES:	13-M-SGP-001 @ E14, C14
CATEGORY:	B
CLASS:	2
FUNCTION:	The above valves are used for isolation of the Auxiliary Feedwater turbine warm-up line.
TEST REQUIREMENT:	Perform Valve position indication verification per IWV-3300 once every two years perform stroke time test once every three months per IWV-3412.
BASIS FOR RELIEF:	Technical Specifications 4.7.1.2d does not require the Turbine driven Auxiliary Feedwater pump to be tested (operable) until Mode 3. Also, steam is required to obtain physical evidence that valve is open/closed.
ALTERNATE TESTING:	Test position verification of the above valves in conjunction with the operability testing of the turbine driven Auxiliary Feedwater pump in Mode 3. Stroke time testing will be performed prior to entry to Mode 4, as per ASME Section XI.



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VALVE RELIEF REQUEST NO. 26

SYSTEM:	Main Steam (SG)
COMPONENTS:	SGB-HV-178, SGA-HV-179, SGA-HV-184, SGB-HV-185
P&ID COORDINATES:	13-M-SGP-001 @ E14, A14, F14, C14
CATEGORY:	B
CLASS:	2
FUNCTION:	Main Steam atmospheric dump valves for plant cooldown during off-normal or emergency conditions.
TEST REQUIREMENT:	Full stroke exercise and time every three months or partial stroke exercise every three months and full stroke exercise and timing at cold shutdown. Quarterly Fail testing.
BASIS FOR RELIEF:	Stroking the atmospheric dump valves during normal operations could initiate an unwarranted transient and/or uncontrolled Primary side/Secondary side cooldown.
ALTERNATE TESTING:	Full stroke test during cold shutdown.

VALVE RELIEF REQUEST NO. 27

SYSTEM:	Main Steam (SG)
COMPONENTS:	SGA-UV-1133, SGA-UV-1134, SGB-UV-1135A, SGB-UV-1135B SGB-UV-1136A, SGB-UV-1136B
P&ID COORDINATES:	13-M-SGP-001 @ E14, C14, H11, F11, D11, B11
CATEGORY:	B
CLASS:	2
FUNCTION:	The above valves provide steam trap isolation for the main steam lines.
TEST REQUIREMENT:	Perform valve position verification per IWV-3300 once every two years. Perform stroke time testing every three months.
BASIS FOR RELIEF:	The valves cannot be tested for position verification without steam in the line, since there are no isolation valves between the solenoid valves and the 28" main steam line. Steam needs to be in the 28" line in order to obtain physical evidence that the valve is open/closed. Technical Specification Table 3.6.1 requires that these valves be operable prior to entry into Mode 4. Sufficient steam does not exist until Mode 3.
ALTERNATE TESTING:	Perform valve position verification in Mode 3 at the conclusion of refueling when there is sufficient steam available in the line for flow/position verification. Perform full stroke exercise and stroke time testing every three months as per Technical Specification 4.0.5.

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VALVE RELIEF REQUEST NO. 28

SYSTEM:	Safety Injection and Shutdown Cooling (SI)
COMPONENTS:	SIE-V113, SIE-V123, SIE-V133, SIE-V143, SIA-V404, SIB-V405
P&ID COORDINATES:	13-M-SIP-002 @ F14, F12, F7, F4 13-M-SIP-001 @ F6, B4
CATEGORY:	C
CLASS:	2
FUNCTION:	Valves open to provide high pressure safety injection flow to the reactor coolant system.
TEST REQUIREMENT:	Full stroke execise every three months or partial stroke exercise every three months and full stroke exercise at cold shutdown.
BASIS FOR RELIEF:	These valves can only be full stroke exercised by initiation of flow through the valves and into the Reactor Coolant system. Safety Injection pump head is insufficient to establish flow through the valves against Reactor Coolant Systm pressure. Additionally, when the Reactor Coolant System pressure is low, over pressurization of the RCS is possible if the Vessel head is installed. Challenging the Low Temperature Over-Pressure protection (LTOP) system is unwarranted. Partial stroke exercising of these valves would require the establishment of a flow path through valves addressed by Technical Specification Surveillance Requirement 4.4.5.2.2d and subsequent containment Radiological Controlled Area entry would be necessary by personnel, in order to meet this Tech. Spec. requirement. Containment entry by personnel to satisfy T.S. 3/4.4.5.2.2d on a quarterly basis during normal operations is an ALARA and radiation protection concern.
ALTERNATE TESTING:	The valves will be full stroked during refueling (Mode 6) when the vessel head is not installed.

VALVE RELIEF REQUEST NO. 29

SYSTEM:	Safety Injection and Shutdown Cooling (SI)
COMPONENTS:	SIE-V114, SIE-V124, SIE-V134, SIE-V144
P&ID COORDINATES:	13-M-SIP-002 @ F13, F11, F6, and F4
CATEGORY:	C
CLASS:	2
FUNCTION:	Valves open to provide flow paths from the low pressure safety injection headers to the Primary Coolant System.
TEST REQUIREMENT:	Full stroke execise every three months or partial stroke exercise every three months and full stroke exercise at cold shutdown.
BASIS FOR RELIEF:	Flow cannot be established to full stroke exercise these valves during operation due to the pressure in the Primary Coolant System. Partial stroke exercising of these valves would require entry into the containment Radiological Controlled Area which is contrary to ALARA precepts.
ALTERNATE TESTING:	Full stroke exercise during cold shutdown.

VALVE RELIEF REQUEST NO. 30

SYSTEM:	Safety Injection (SI)
COMPONENTS:	SIA-V157, SIB-V158, SIA-V201, SIB-V200
P&ID COORDINATES:	13-M-SIP-001 @ G-13, C-13, F-12, B-12
CATEGORY:	C
CLASS:	2
FUNCTION:	Valves SIA-V157 and SIB-V158 open to provide a flow path from the Refueling Water Tank (RWT) to the Containment Spray Pumps. Valves SIA-V201 and SIB-V200 open to provide a flow path from the RWT to the Low Pressure Safety Injection Pumps (LPSI).
TEST REQUIREMENT:	Full stroke execise every three months or partial stroke exercise every three months and full stroke exercise at cold shutdown.
BASIS FOR RELIEF:	These valves can be partial stroked during operation. The valves cannot be full stroked during operation or during cold shutdown. During operation, the only recirculation lines available for testing are the minimum recirculation line (2" with an orifice) and a maxi-recirculation line (6"). Neither line has the capacity to handle flows above 3000 gpm which would be required for full stroking. During cold shutdown, these valves are closed and are not part of the shutdown cooling line-up ie. the shutdown cooling lines taps into the LPSI and containment spray suction lines down stream from these valves. These valves can be full stroked at refueling as part of filling of the reactor refueling pool from the RWT.
ALTERNATE TESTING:	Testing to be performed as partial stroking during normal operations and full stroke testing during refueling.

VALVE RELIEF REQUEST NO. 31

SYSTEM:	Safety Injection and Shutdown Cooling (SI)
COMPONENTS:	SIA-V164 and SIB-V165
P&ID COORDINATES:	13-M-SIP-002 @ F8 and F6
CATEGORY:	AC
CLASS:	2
FUNCTION:	Valves open to provide flow from Containment Spray pump to the discharge spray nozzles.
TEST REQUIREMENT:	Full stroke execise every three months or part stroke exercise every three months and full stroke exercise at cold shutdown.
BASIS FOR RELIEF:	Flow cannot be established without discharging water into containment. Partial stroking during operation is prohibited by ALARA concerns as the valves and test connections are in containment.
ALTERNATE TESTING:	1. Perform partial stroke testing during refueling using test connections. 2. Perform air/smoke testing 5 years per T.S. 3/4.6.2e. 3. Dissassemble 1 valve every 5 years on a staggered basis (during refueling outages other than outage in which air/smoke test is performed).

VALVE RELIEF REQUEST NO. 32

SYSTEM:	Safety Injection and Shutdown Cooling (SI)
COMPONENTS:	SIA-V205 and SIB-V206
P&ID COORDINATES:	13-M-SIP-001 @ G14 and A14
CATEGORY:	C
CLASS:	2
FUNCTION:	These valves open to provide flow to the High Pressure Safety Injection pumps (HPSI), Low Pressure Safety Injection (LPSI) and Containment Spray (CS) pumps from the recirculation sump.
TEST REQUIREMENT:	Full stroke execise every three months or part stroke every three months and full stroke exercise at cold shutdown.
BASIS FOR RELIEF:	The recirculation sump is normally dry therefore full stroking during operation is impractical. Partial stroking during operation is also impractical. Stroking these valves requires closing valves CHB-HV-530 and CHA-HV-531 (Refueling Water Tank Isolation Valve). Closing the RWT Isolation renders a single train of HPSI, LPSI and CS inoperable. (See VRR-11).
ALTERNATE TESTING:	1. Perform partial stroke exercise test during cold shutdown. 2. Dissassemble/Verify valve full stroke capability every 10 years.

VALVE RELIEF REQUEST NO. 33

SYSTEM:	Safety Injection and Shutdown Cooling (SI)
COMPONENTS:	SIE-V215, SIE-V225, SIE-V235, SIE-V245
P&ID COORDINATES:	13-M-SIP-002 @ A15, A12, A7 and A5
CATEGORY:	AC
CLASS:	1
FUNCTION:	To prevent backflow of Primary Coolant into the Safety Injection Tanks while providing a flow path for Safety Injection Tank water into the RCS loops.
TEST REQUIREMENT:	Full stroke execise every three months or part stroke exercise every three months and full stroke test during cold shutdown.
BASIS FOR RELIEF:	Full stroke testing to stroke these valves is not practical during any plant mode other than when the reactor vessel head is removed, fuel is off-loaded, and the core barrel is removed. Part stroke testing is feasible during hot shutdown. Plant design conditions allows part stroke testing with a maximum of 35gpm through the valve.
ALTERNATE TESTING:	Part stroke exercise in Mode 3 after each refueling outage when the Safety Injection Tank pressure is above 600 psig. Additionally, disassemble valves and verify freedom of movement of disc motion on a 10 year basis such that one valve is inspected every 10 years.

VALVE RELIEF REQUEST NO. 34

SYSTEM:	Safety Injection and Shutdown Cooling (SI)
COMPONENTS:	SIE-V217, SIE-V227, SIE-V237, SIE-V247, SIE-V540 SIE-V541, SIE-V542, SIE-V543
P&ID COORDINATES:	13-M-SIP-002 @ A13, A10, A6, A4, C14, C11, C6, C4
CATEGORY:	AC
CLASS:	1
FUNCTION:	Valves open to provide a flow path from Safety Injection and Shutdown Cooling to the Primary Loop. Category "AC" valves close to prevent pressurization of SI piping from RCS loop.
TEST REQUIREMENT:	Full stroke open every three months or part stroke open every three months and full stroke open at cold shutdown.
BASIS FOR RELIEF:	These valves can only be stroked open by initiation of flow through the valves and into the RCS. Low Pressure Safety Injection pump head is not sufficient to exercise these valves due to pressure of the RCS.
ALTERNATE TESTING:	Full stroke exercise these valves during cold shutdown utilizing shutdown cooling.

VALVE RELIEF REQUEST NO. 35

SYSTEM:	Safety Injection and Shutdown Cooling (SI)
COMPONENTS:	SIA-V522, SIA-V523, SIB-V532, SIB-V533
P&ID COORDINATES:	13-M-SIP-002 @ C2, F2, F2, C10, F9
CATEGORY:	AC
CLASS:	1
FUNCTION:	Valves open to provide a long term recirculation flow path for the High Pressure Safety Injection (HPSI) system to the shutdown cooling lines.
TEST REQUIREMENT:	Full stroke exercise test every three months or part stroke exercise every three months and full stroke exercise at cold shutdown.
BASIS FOR RELIEF:	These valves can only be full stroked exercised by initiation of flow through the valves and into the RCS. Safety Injection pump head is not sufficient to full stroke exercise these valves due to RCS pressure. SI-V522 and SI-V532 cannot be part stroked during operation due to RCS pressure. SI-V523 and SI-V533 cannot be part stroked during operation due to ALARA concerns as these valves and their test connections are in the containment building.
ALTERNATE TESTING:	Full stroke exercise test these valves during the refueling mode (Mode 6) when the reactor vessel head is removed using the Safety Injection System.

VALVE RELIEF REQUEST NO. 36

SYSTEM:	Safety Injection and Shutdown Cooling
COMPONENTS:	SIA-HV604, SIB-HV609, SIC-HV321, SID-HV331
P&ID COORDINATES:	13-M-SIP-001 @ G3, C3
CATEGORY:	SIC-HV321 and SID-HV331 are Category A. SIA-HV604 and SIB-HV609 and Category B.
CLASS:	2
FUNCTION:	Isolation Valves in the long term recirculation lines to the reactor coolant system hot legs.
TEST REQUIREMENT:	Full stroke test every three months or partial stroke test every three months and full stroke test during cold shutdown.
BASIS FOR RELIEF:	The PVNGS Technical Specifications require these valves be closed with power to the valve operators removed during normal operations.
ALTERNATE TESTING:	Full stroke test these valves during cold shutdown.

VALVE RELIEF REQUEST NO. 37

SYSTEM:	Safety Injection (SI)
COMPONENTS:	SIA-HV-605, SIA-HV-606, SIA-HV-607, SIA-HV-608 SIB-HV-613, SIB-HV-623, SIB-HV-633, SIB-HV-643
P&ID COORDINATES:	13-M-SIP-002 @ E-15, E-12, E-7, E-4 @ E-15, E-12, E-7, E-4
CATEGORY:	B
CLASS:	2
FUNCTION:	Safety Injection Tank Nitrogen Vent. Tank is vented during recovery phase of small break LOCA (such as Steam Generator Tube Rupture) to preclude inadvertant discharge of Tank into Reactor Vessel.
TEST REQUIREMENT:	Full stroke exercise and time test every three months or partial stroke test and full stroke exercise and time test at cold shutdown.
BASIS FOR RELIEF:	Partial stroking is not possible as these valves are solenoid valves. Full stroking during operation is not practical since the valves are shut and power is removed during operation per Technical Specification 3.5.1e. Cycling the valve during operation would reduce the pressure in the Safety Injection Tank below Technical Specification Limits (600 psi). This would render the Tank inoperable. Rendering each tank (ie 4 of 4) inoperable once each quarter is unwarranted. There are no block valves for the vents. If a valve were to fail open, the effected tank would be in-operable and could not be remedied without a shutdown and containment entry.
ALTERNATE TESTING:	Full stroke exercise and time each refueling as per Technical Specification 3/4.5.1f.

VALVE RELIEF REQUEST NO. 38

SYSTEM:	Safety Injection and Shutdown Cooling System (SI)
COMPONENTS:	SIB-UV-614, SIB-UV-624, SIA-UV-634, SIA-UV-644
P&ID COORDINATES:	13-M-SIP-002 @ A14, A12, A7 and A4
CATEGORY:	B
CLASS:	1
FUNCTION:	Safety Injection Tank Isolation Valves provide flow paths from the Safety Injection Tanks to the Primary Coolant System during operation. The valves are closed to isolate the Safety Injection Tanks in cold shutdown and refueling.
TEST REQUIREMENT:	Full stroke exercise and timing every three months or partial stroke exercise every three months and full stroke exercise and timing test during cold shutdown.
BASIS FOR RELIEF:	Full or partial stroke testing of these valves during operation is contrary to the safety function of these valves. The PVNGS Technical Specifications require the isolation valves to be key-locked open and power to the valve removed to ensure an unobstructed flow path.
ALTERNATE TESTING:	Full stroke test during cold shutdown.

VALVE RELIEF REQUEST NO. 39

SYSTEM:	Safety Injection and Shutdown Cooling (SI)
COMPONENTS:	SIA-UV-651, SIB-UV-652, SIA-UV-653, SIB-UV-654 SIA-UV-655, SIB-UV-656
P&ID COORDINATES:	13-M-SIP-002 @ C3, C10, E3 E10, G3, G10
CATEGORY:	SIA-UV-655 and SIB-UV-656 are Category B All others are Category A
CLASS:	SIA-UV-655 and SIB-UV-656 are Class 2 SIA-UV-651, SIB-UV-652, SIA-UV-653, SIB-UV-654 are Class 1
FUNCTION:	Shutdown Cooling Isolation Valve
TEST REQUIREMENT:	Full stroke exercise and timing every three months or partial stroke every three months and full stroke exercise and timing test during cold shutdown.
BASIS FOR RELIEF:	These valves are provided with interlocks which prevent them from being opened if the pressurizer pressure is in excess of 400 psig. The Class 1 valves provide pressure isolation function between Reactor Coolant System and Shutdown Cooling System as noted in Tech. Spec. 4.4.5.2.1.
ALTERNATE TESTING:	Full stroke test during cold shutdown.

PROGRAM: PV - 2

UNIT: 2
Rev.: 0

VALVE RELIEF REQUEST NO. 40

SYSTEM:	Safety Related Valves
COMPONENTS:	Various
P&ID COORDINATES:	Various
CATEGORY:	A and B
CLASS:	1, 2 and 3
FUNCTION:	Power Operated valves shall be full stroke exercised within the time interval required by IWV-3413 and corrective action shall be taken if valve stroke exceed code limits per IWV-3417.
TEST REQUIREMENT:	Corrective action per IWV-3417 shall be taken for any valve whose stroke time increases by 50% or more for valves with stroke times less than or equal to 10 seconds.
BASIS FOR RELIEF:	Valve stroke times (actual) of less than 2 seconds need not comply with the 50% increase rule for valves with required stroke times of 5 to 10 seconds. Very short stroke times may vary slightly due simply to measurement technique and are not statistically significant, e.g. for valves with stroke times of 1.0 secs, an increase to 1.50 seconds is not significant when compared to an acceptance criteria of 5 to 10 secs.
ALTERNATE TESTING:	None; valves tested as scheduled. Valves with stroke times of less than 2 seconds shall be placed in the alert range and the frequency increased per IWV-3417 when the actual stroke time exceeds 2.5 seconds.

PROGRAM: PV - 2

UNIT: 2
Rev.: 0

VALVE RELIEF REQUEST NO. 41

SYSTEM:	Safety Related Valves
COMPONENTS:	Containment Isolation Valves (See Tech Specs 3/4.6.3, Table 3.6-1 Sections A, B, C, D, E, F, G)
P&ID COORDINATES:	Various (See FSAR 6.2.4 and Figure 6.2.4-1 sheets 1 to 10).
CATEGORY:	A or AC
CLASS:	2
FUNCTION:	Containment Isolation Valve
TEST REQUIREMENT:	Valves are required to be leak tested per IWV-3420/3422 on a two year frequency.
BASIS FOR RELIEF:	Valves requiring testing per 10CFR50, Appendix J are tested on a 24 month frequency. These valves need not be further tested per ASME XI. This basis is in agreement with NRC draft Reg Guide on Inservice Testing of Valves, issued November 1981.
ALTERNATE TESTING:	None; valves tested per 10CFR50, Appendix J and Tech Spec 3/4.6.1 & 3/4.6.3. Note that relief is not requested for any valve identified in Tech Spec 3/4.4.5.2.2 (Reactor Coolant system operational leakage). These latter valves will be tested per TS 3/4.4.5.2.2.

PROGRAM: PV - 2

UNIT: 2
Rev.: 0

VALVE RELIEF REQUEST NO. 42

SYSTEM: Safety Related Valves

COMPONENTS: Various

P&ID COORDINATES: Various

CATEGORY: A, B, C

CLASS: 1, 2, 3

FUNCTION: Safety Related

TEST REQUIREMENT: Perform testing required by ASME Section XI, Subsection IWV on a quarterly basis and every two years, as required.

BASIS FOR RELIEF:

1. Check Valves (Category C) whose normal function is to open and whose safety function is to close generally require considerable amounts of maintenance support to test each valve by depressurizing upstream of the check valve. This involves breaching the pressure boundary at a vent or drain, hooking up hoses, draining the system or pressurizing downstream of the valve and monitoring for a pressure decay. Subsequent to criticality, high radiation zones in excess of 1 R/hr will exist in many areas where testing is performed.

2. Power Operated valves require position verification at least every two years. These valves may require field support to verify valve position. Radiation fields may be in excess of 1 R/hr.

VALVE RELIEF REQUEST NO. 42 (Cont'd.)

ALTERNATE TESTING:

1. All Check Valves with flow through the valve will tested as scheduled.

2. All check valves which require reverse flow checking and which are in radiation fields in excess of 1 R/hr will be check during refueling outages.

3. Motor operated and Air operated valves with evidence of stem movement observable in the field will be tested as scheduled every two years.

4. Solenoid valves which can be tested from the Control Room and other objective evidence of valve position is obtainable (eg flow indication) will be tested as scheduled.

5. Solenoid valves for which indirect evidence is not obtained and where the radiation field is 1 R/hr or greater will be tested every other refueling outage.

6. Other Power operated valves for which indirect evidence is not obtainable and require field support in radiation fields of 1 R/hr or greater will be tested every other refueling outage.

PROGRAM: PV - 2

UNIT: 2
Rev.: 0

VALVE RELIEF REQUEST NO. 43

SYSTEM:	Safety Related Check Valves
COMPONENTS:	Various
P&ID COORDINATES:	Various
CATEGORY:	C
CLASS:	1, 2, 3
TESTING REQUIREMENT:	IWV-3521: Check valves shall be exercised at least once every three months, except as provided by IWV-3522.
BASIS FOR RELIEF:	The additional exercising of check valves which are stroke exercised during the course of plant operation in order to satisfy the exercising requirement results in unnecessary wear to components and equipment. The stroke exercising of check valves during the normal course of plant operation may satisfy the exercising requirement and should not require additional, redundant, testing. This request for relief corresponds in concept to IWV-3414 for power operated valves in regular use.
ALTERNATE TESTING:	No additional testing is required for check valves which are exercised in the course of plant operations at a frequency satisfying IWV-3521, provided the observations otherwise required by IWV-3520 are made and analyzed during such operation and are recorded in the plant record.

Program: PV - 2

Unit: 2
Rev: 0

Appendix C

INSERVICE TESTING PROGRAM - PUMPS

PALO VERDE NUCLEAR GENERATING STATION

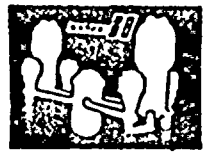
PALO VERDE NUCLEAR GENERATING STATION

ANPP

INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 PUMPS

Unit: 2 Rev.: 0 Page 1 of 2 Pages



PUMP NUMBER	PUMP NAME	ISI CLASS	P & ID COORDINATES	TEST PARAMETERS						NOTES
				Speed	Inlet Pressure	Diff. Pressure	Flow Rate	Vibration	Bearing Temp.	
AFA-P01	Auxiliary Feedwater Pump (Turbine Driven)	3	AFP-001 D6	0	C	C	PRR-1	M	PRR-7	Tested PRR-8 Monthly
AFB-P01	Auxiliary Feedwater Pump (Motor Driven)	3	AFP-001 C6	NA	C	C	PRR-1	M	PRR-7	Tested PRR-8 Monthly
AFN-P01	Auxiliary Feedwater Pump (Motor Driven)	*	AFP-001 H6	NA	C	C	PRR-1	M	PRR-7	Tested PRR-8 Monthly
CHA-P01	Charging Pump No. 1.	2	CHP-002 B3	NA	PRR-2	PRR-2	0	M	PRR-7	
CHB-P01	Charging Pump No. 2.	2	CHP-002 D3	NA	PRR-2	PRR-2	0	M	PRR-7	
CHE-P01	Charging Pump No. 3.	2	CHP-002 G3	NA	PRR-2	PRR-2	0	M	PRR-7	
CTA-P01	Condensate Transfer Pump	3	CTP-001 C5	NA	C	C	0	M	PRR-7	PRR-8
CTB-P01	Condensate Transfer Pump	3	CTP-001 A5	NA	C	C	0	M	PRR-7	PRR-8
DFA-P01	Diesel Generator Fuel Oil Transfer Pump	3	DFP-001 B6	NA	C	C	0	PRR-3	PRR-7	PRR-8
DFB-P01	Diesel Generator Fuel Oil Tranfer Pump	3	DFP-001 B2	NA	C	C	0	PRR-3	PRR-7	PRR-8
DGA-P02	Diesel Generator Jacket Water Cooling Pump	3	DGP-001 Sh4 F6	-	-	-	-	-	-	PRR-4
DGB-P02	Diesel Generator Jacket Water Cooling Pump	3	DGP-001 Sh4 F3	-	-	-	-	-	-	PRR-4
DGA-P03	Diesel Generator Lube Oil Pump	3	DGP-001 Sh3 C7	-	-	-	-	-	-	PRR-4
DGB-P03	Diesel Generator Lube Oil Pump	3	DGP-001 Sh3 C3	-	-	-	-	-	-	PRR-4
DGA-P05	Diesel Generator Fuel Oil Booster Pump	3	DGP-001 Sh7 D7	-	-	-	-	-	-	PRR-4
DGB-P05	Diesel Generator Fuel Oil Booster Pump	3	DGP-001 Sh7 D3	-	-	-	-	-	-	PRR-4

* This pump is not an ASME Code Class Pump, however augmented testing will be done in accordance with the PVNGS Tech Specs 3/4.7.1.2.

PALO VERDE NUCLEAR GENERATING STATION

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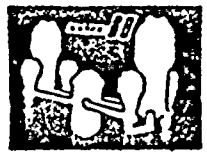
INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 PUMPS

Unit: 2 Rev.: 0 Page 2 of 2 Pages



PUMP NUMBER	PUMP NAME	ISI CLASS	P & ID COORDINATES	TEST PARAMETERS						NOTES
				Speed	Inlet Pressure	Diff. Pressure	Flow Rate	Vibration	Bearing Temp.	
ECA-P01	Essential Chilled Water Circulation Pump	3	ECP-001 B8	NA	M	C	0	M	PRR-7	PRR-8
ECB-P01	Essential Chilled Water Circulation Pump	3	ECP-001 B4	NA	M	C	0	M	PRR-7	PRR-8
EWA-P01	Essential Cooling Water Pump	3	EWP-001 E6	NA	M	C	0	M	PRR-7	PRR-8
EWB-P01	Essential Cooling Water Pump	3	EWP-001 E2	NA	M	C	0	M	PRR-7	PRR-8
SIA-P01	LPSI Pump #1	2	SIP-001 G11	NA	C	C	PRR-6	M	PRR-7	PRR-5 PRR-8
SIB-P01	LPSI Pump #2	2	SIP-001 B11	NA	C	C	PRR-6	M	PRR-7	PRR-5 PRR-8
SIA-P02	HPSI Pump #1	2	SIP-001 E11	NA	C	C	PRR-6	M	PRR-7	PRR-8
SIB-P02	HPSI Pump #2	2	SIP-001 A11	NA	C	C	PRR-6	M	PRR-7	PRR-8
SIA-P03	Containment Spray Pump #1	2	SIP-001 H11	NA	C	C	PRR-6	M	PRR-7	PRR-8
SIB-P03	Containment Spray Pump #2	2	SIP-001 C11	NA	C	C	PRR-6	M	PRR-7	PRR-8
SIA-P05	Spray Chemical Addition Pump #1	2	SIP-001 D14	NA*	PRR-2	PRR-2	0	M	PRR-7	
SIB-P05	Spray Chemical Addition Pump #2	2	SIP-001 C14	NA*	PRR-2	PRR-2	0	M	PRR-7	
SPA-P01	Essential Spray Pond Pump #1	3	SPP-001 C4	NA	C	C	0	M	PRR-7	PRR-8
SPB-P01	Essential Spray Pond Pump #2	3	SPP-001 C7	NA	C	C	0	M	PRR-7	PRR-8

* Speed is established, set & locked for the SCAP. It is not verified provided the lock is intact and the pump performance on the Quarterly Test is satisfactory.

Program: PV - 2

Unit: 2
Rev: 0

Appendix D

INSERVICE TESTING PROGRAM - VALVES

PALO VERDE NUCLEAR GENERATING STATION

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INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 2

System: Auxiliary Feedwater (AF) Rev.: 0 Page 1 of 66 Pages

VALVE NUMBER	P&ID COORDINATES 13-M-AFP-001					ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
AFA - V007	D-7	X				3	C	8"	CK	SA	C	O	PST FST	OP RF-3		VRR-1	42ST-2AF02 42ST-2AF02	
AFA-V015	D-5	X				3	C	6"	CK	SA	C	O	FST	RF-3		VRR-2	42ST-2AF02	
AFB-V022	C-7	X				3	C	8"	CK	SA	C	O	PST FST	OP RF-3		VRR-1	42ST-2AF03 42ST-2AF03	
AFB-V024	C-5	X				3	C	6"	CK	SA	C	O	FST	RF-3		VRR-2	42ST-2AF03	
AFA-V079	D2	X				3	C	6"	CK	SA	C	O	FST	RF-3		VRR-3	42ST-2AF02 42ST-2AF03	penet. 75
AFB-V080	C2	X				3	C	6"	CK	SA	C	O	FST	RF-3		VRR-3	42ST-2AF02 42ST-2AF03	penet. 76
AFA-V137	D-6	X				3	C	6"	CK	SA	C	O	PST FST	OP RF-3		VRR-1	42ST-2AF02 42ST-2AF02	
AFB-V138	C6	X				3	C	6"	CK	SA	C	O	PST FST	OP RF-3		VRR-1	42ST-2AF03 42ST-2AF03	
AFB-HV30	B4	X				3	B	6"	GL	MO	C	O	FST VPI	OP RF	O-12s C-12s		73ST-2ZZ09 73ST-2ZZ03	
5545C/0765C																		

PALO VERDE NUCLEAR GENERATING STATION

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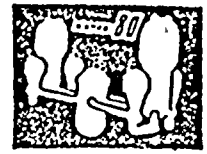
INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 2

System: Auxiliary Feedwater (AF) Rev.: 0 Page 2 of 66 Pages



VALVE NUMBER	P & ID COORDINATES 3-M-AFP-001					ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
AFB-HV31	C4	X				3	B	6"	GL	MO	C	O	FST VPI	OP RF	O-12s C-12s		73ST-2ZZ09 73ST-2ZZ03	
AFA-HV32	D4	X				3	B	6"	GL	MO	C	O	FST VPI	OP RF	O-12s C-12s		73ST-2ZZ09 73ST-2ZZ03	
AFC-HV33	C4	X				3	B	6"	GL	MO	C	O	FST VPI	OP RF	O-12s C-12s		73ST-2ZZ09 73ST-2ZZ03	
AFA-HV54	G4	X				3	B	4"	GL	MO	C	O	FST VPI	OP RF	12s		73ST-2ZZ09 73ST-2ZZ03	
AFB-UV34	B3	X				2	B	6"	GA	MO	C	O/C	FST VPI	OP RF	O-15s C-15s		73ST-2ZZ09 73ST-2ZZ03	penet. 75
AFB-UV35	C3	X				2	B	6"	GA	MO	C	O/C	FST VPI	OP RF	O-15s C-15s		73ST-2ZZ09 73ST-2ZZ03	penet. 76
AFC-UV36	D3	X				2	B	6"	GA	MO	C	C/O	FST VPI	OP RF	O-15s C-15s		73ST-2ZZ09 73ST-2ZZ03	penet. 75
AFA-UV37	C3	X				2	B	6"	GA	MO	C	O/C	FST VPI	OP RF	O-15s C-15s		73ST-9ZZ09 73ST-2ZZ03	penet. 76

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ISI CLASS 1, 2, & 3 VALVES

UNIT: 2

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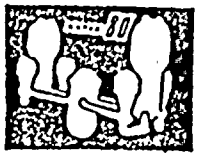

VALVE NUMBER	P & ID COORDINATES	13-M-CHP-001	13-M-CHP-002	13-M-CHP-003	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
CHN-V118	C-7		X		2	C	4"	CK	SA	O/C	O	FST	OP			42ST-2CH06	
CHA-V177	B-8		X		2	C	3"	CK	SA	C	O	FST	RF		VRR-4	42ST-2CH04	
CHA-V190	A-8		X		2	C	3"	CK	SA	C	O	FST	RF		VRR-4	42ST-2CH04	
CHB-V305	C15		X		2	C	20"	CK	SA	C	O	PST FST	OP RF		VRR-6	42ST-2SI11 73ST-2ZZ06	
CHA-V306	C13		X		2	C	20"	CK	SA	C	O	PST FST	OP RF		VRR-6	42ST-2SI11 73ST-2ZZ06	
CHA-V328	B2		X		2	C	2"	CK	SA	O/C	O	FST	OP			42ST-2CH06	
CHB-V331	E2		X		2	C	2"	CK	SA	O/C	O	FST	OP			42ST-2CH06	
CHE-V334	G2		X		2	C	2"	CK	SA	O/C	O	FST	OP			42ST-2CH06	
CHE-V429	D16	X			2	C	2"	CK	SA	O	O	FST	OP			42ST-2CH06	
CHE-V431	H9	X			1	C	2"	CK	SA	C	O	FST	CS		VRR-7	73ST-2ZZ06	

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ISI CLASS 1, 2, & 3 VALVES

UNIT: 2

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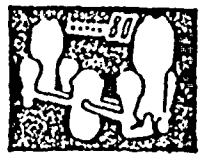

VALVE NUMBER	P & ID COORDINATES	13-M-CHP-001	13-M-CHP-002	13-M-CHP-003	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
CHE-V433	G9	X			1	C	2"	CK	SA	O	O	FST	OP			42ST-2CH06	
CHE-V435	F10	X			1	C	2"	CK	SA	C	O	FST	OP			42ST-2CH06	
CHE-V440	C2		X		2	C	2"	CK	SA	C	O	FST	RF		VRR-8	42ST-2CH04	
CHN-V494	E-15			X	2	AC	1 1/2"	CK	SA	C	C	AJLT	RF			73ST-9CL01	penet. 45
CHN-V835	G3	X			2	AC	1 1/2"	CK	SA	O	C	FST AJLT	CS RF		VRR-12	73ST-2ZZ06 73ST-9CL01	penet. 72
CHE-VM70	F15	X			2	AC	3"	CK	SA	O	O	FST AJLT	OP RF			42ST-2CH06 73ST-9CL01	penet. 41
PCN-V215	A11		X		3	-	3"	DIA	MAN	C	O	FST	RF			42ST-2CH04	
CHB-HV203	H10	X			1	B	2"	GL	SOL	C	O/C	FST VPI	CS RF	O-5s C-5s	VRR-7	72ST-2ZZ08 73ST-2ZZ06	
CHA-HV205	G11	X			1	B	2"	GL	SOL	C	O/C	FST VPI	CS RF	O-5s C-5s	VRR-7	73ST-2ZZ08 73ST-2ZZ06	

PALO VERDE NUCLEAR GENERATING STATION

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INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 2

System: Chemical & Volume Control (CH) Rev.: 0

VALVE NUMBER	P & ID COORDINATES	13-M-CHP-001	13-M-CHP-002	13-M-CHP-003	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
CHE-HV239	G11	X			2	B	2"	GL	AO	O	C	FST VPI	Cs RF	5s	VRR-5	73ST-2ZZ08 73ST-2ZZ03	
CHE-PDV240	G11	X			1	B	2"	GL	AO	O	C	FST VPI	CS RF	5s	VRR-5	73ST-2ZZ08 73ST-2ZZ03	
CHE-HV255	G4	X			2	A	1 1/2"	GL	MO	O	C	FST VPI AJLT	CS RF RF	10s	VRR-12	73ST-2ZZ08 73ST-2ZZ03 73ST-9CL01	penet. 72
CHB-HV530	B15		X		2	B	20"	GA	MO	O	C	FST VPI	CS RF	30s	VRR-11	73ST-2ZZ08 73ST-2ZZ03	
CHA-HV531	C14		X		2	B	20"	GA	MO	O	C	VPI FST	RF CS	30s	VRR-11	73ST-2ZZ03 73ST-2ZZ08	
CHE-HV536	A14		X		3	B	3"	GL	MO	C	O	FST VPI	CS RF	30s	VRR-4	73ST-2ZZ08 73ST-2ZZ03	
CHN-UV501	C-7		X		2	B	4"	GA	MO	O	C	FST VPI	CS RF	30s	VRR-5	73ST-2ZZ08 73ST-2ZZ03	
CHB-UV505	H13		X		2	A	1"	GL	AO	O	O/C	FST VPI AJLT	CS RF RF	O-5s C-5s	VRR-9	73ST-2ZZ08 73ST-2ZZ03 73ST-9CL01	penet. 43
CHA-UV506	H14		X		2	A	1"	GL	AO	O	O/C	FST VPI AJLT	CS RF RF	O-5s C-5s	VRR-9	73ST-2ZZ08 73ST-2ZZ03 73ST-9CL01	penet. 43
CHN-UV514	B10		X		3	B	3"	GL	MO	C	O	FST VPI	CS RF	30s	VRR-4	73ST-2ZZ08 73ST-2ZZ03	

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INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 2

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VALVE NUMBER	P&ID COORDINATES	13-M-CHP-001	13-M-CHP-002	13-M-CHP-003	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
CHB-UV515	H15	X			1	B	2"	GL	AO	O	C	FST VPI	CS RF	5s	VRR-10	73ST-2ZZ08 73ST-2ZZ03	
CHA-UV516	H15	X			1	A	2"	GL	AO	O	C	FST VPI AFLT	CS RF RF	5s	VRR-10	73ST-2ZZ08 73ST-2ZZ03 73ST-9CL01	penet. 40
CHB-UV523	F13	X			2	A	2"	GL	AO	O	C	FST VPI AJLT	CS RF RF	5s	VRR-10	73ST-2ZZ08 73ST-2ZZ03 73ST-9CL01	penet. 40
CHA-UV560	B15			X		2	A	3"	GA	AO	O/C	C	FST VPI AJLT	OP RF RF	5s		73ST-9ZZ09 73ST-2ZZ03 73ST-9CL01	penet. 44
CHB-UV561	A15			X		2	A	3"	GA	AO	O/C	C	FST VPI AJLT	OP RF RF	5s		73ST-2ZZ09 73ST-2ZZ03 73ST-9CL01	penet. 44
CHA-UV580	E14			X		2	A	1 1/2"	GA	AO	O/C	C	FST VPI AJLT	OP RF RF	5s		73ST-2ZZ09 73ST-2ZZ03 73ST-9CL01	penet. 45
CHA-UV715	E13			X		2	A	1/2"	GL	SOL	O/C	C	FST VPI AJLT	OP RF RF	5s		73ST-2ZZ09 73ST-2ZZ01 73ST-9CL01	penet. 45
CHB-UV924	E14	X			2	A	1/2"	GA	SOL	O/C	C	FST VPI AJLT	OP RF RF	5s		73ST-2ZZ09 73ST-2ZZ01 73ST-9CL01	penet. 40
CHN-PSV115	C6		X			2	C	3"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
CHN-PSV199	H15		X			2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	

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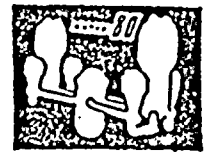
INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 2

System: Chemical & Volume Control(CH) Rev.: 0 Page 7 of 66 Pages



VALVE NUMBER	P & ID COORDINATES	13-M-CHP-001	13-M-CHP-002	13-M-CHP-003	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
CHA-PSV315	C5		X		2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
CHB-PSV318	F5		X		2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ19	
CHE-PSV321	H5		X		2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
CHE-PSV324	H2		X		2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
CHB-PSV325	F2		X		2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
CHA-PSV326	C2		X		2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
CHN-PSV345	E12	X			2	C	2"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
CHN-PSV354	E9	X			2	C	2"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
CHN-PSV865	H6	X			2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	

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INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 2

System: Containment Purge (CP) Rev.: 0 Page 8 of 66 Pages

VALVE NUMBER	P & ID COORDINATES 13-M-CPP-001				ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
CPA-UV2A	D6	X			2	A	42"	BTF	MO	C	C	FST VPI AJLT	CS RF RF	12s	VRR-13	73ST-2ZZ08 73ST-2ZZ03 73ST-9CL06	penet. 56
CPA-UV2B	E3	X			2	A	42"	BTF	MO	C	C	FST VPI AJLT	CS RF RF	12s	VRR-13	73ST-2ZZ08 73ST-2ZZ03 73ST-9CL06	penet. 57
CPB-UV3A	D5	X			2	A	42"	BTF	MO	C	C	FST VPI AJLT	CS RF RF	12s	VRR-13	73ST-2ZZ08 73ST-2ZZ03 73ST-9CL06	penet. 56
CPB-UV3B	E2	X			2	A	42"	BTF	MO	C	C	FST VPI AJLT	CS RF RF	12s	VRR-13	73ST-2ZZ08 73ST-2ZZ03 73ST-9CL06	penet. 57
CPA-UV4A	D6	X			2	A	8"	BTF	AO	O/C	C	FST VPI AJLT	OP RF RF	8s		73ST-2ZZ11 73ST-2ZZ03 73ST-9CL07	penet. 78
CPA-UV4B	D3	X			2	A	8"	BTF	AO	O/C	C	FST VPI AJLT	OP RF RF	8s		73ST-2ZZ11 73ST-2ZZ03 73ST-9CL07	penet. 79
CPB-UV5A	D5	X			2	A	8"	BTF	AO	O/C	C	FST VPI AJLT	OP RF RF	8s		73ST-2ZZ11 73ST-2ZZ03 73ST-9CL07	penet. 78
CPB-UV5B	D2	X			2	A	8"	BTF	AO	O/C	C	FST VPI AJLT	OP RF RF	8s		73ST-2ZZ11 73ST-2ZZ03 73ST-9CL07	penet. 79

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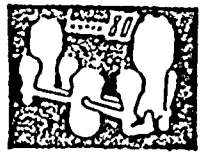
INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 2

System: Condensate Transfer (CT) Rev.: 0 Page 9 of 66 Pages



VALVE NUMBER	P & ID COORDINATES 13-M-CTP-001					ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
CTA-V016	C4	X				3	C	3"	CK	SA	C	O	PST FST	OP RF		VRR-4	73ST-2ZZ05 73ST-2ZZ06	
CTA-V018	C3	X				3	-	3"	GA	MAN	C	O	FST	RF			73ST-2ZZ06	
CTB-V019	B3	X				3	-	3"	GA	MAN	C	O	FST	RF			73ST-2ZZ06	
CTB-V020	A4	X				3	C	3"	CK	SA	C	O	PST FST	OP RF		VRR-4	73ST-2ZZ05 73ST-2ZZ06	
CTA-HV1	D2	X				3	B	10"	BTF	MO	C	O	FST VPI	OP RF	65s		73ST-2ZZ09 73ST-2ZZ03	
CTA-HV4	D3	X				3	B	10"	BTF	MO	C	O	FST VPI	OP RF	65s		73ST-2ZZ09 73ST-2ZZ03	
CTN-PSV8	G6	X				3	C	10"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
CTN-PSV23	G5	X				3	C	10"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	

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ISI CLASS 1, 2, & 3 VALVES

UNIT: 2

System: Diesel Fuel Transfer (DF) Rev.: 0 Page 10 of 66 Pages

VALVE NUMBER	P&ID COORDINATES 13-M-DFP-001					ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
DFA-V012	D6	X				3	C	2"	CK	SA	C	O	FST	OP			42ST-2DF01	
DFB-V019	D2	X				3	C	2"	CK	SA	C	O	FST	OP			42ST-2DF01	

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ISI CLASS 1, 2, & 3 VALVES

UNIT: 2

System: Diesel Generator (DG) Rev.: 0 Page 11 of 66 Pages

VALVE NUMBER	P & ID COORDINATES 13-M-DGP-001 SH1					ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
DGA-V002	F7	X				3	C	2"	CK	SA	O/C	C	FST	OP		VRR-15	73ST-2ZZ05	
DGA-V003	F7	X				3	C	2"	CK	SA	O/C	C	FST	OP		VRR-15	73ST-2ZZ05	
DGA-V006	E7	X				3	C	2"	CK	SA	C	O	FST	OP			73ST-2ZZ05	
DGB-V011	F4	X				3	C	2"	CK	SA	O/C	C	FST	OP		VRR-15	73ST-2ZZ05	
DGB-V012	F4	X				3	C	2"	CK	SA	O/C	C	FST	OP		VRR-15	73ST-2ZZ05	
DGB-V015	E3	X				3	C	2"	CK	SA	C	O	FST	OP			73ST-2ZZ05	
DGA-V066	B7	X				3	C	1"	CK	SA	O/C	C	FST	OP			73ST-2ZZ05	
DGA-V067	B7	X				3	C	1"	CK	SA	O/C	C	FST	OP			73ST-2ZZ05	
DGB-V068	B3	X				3	C	1"	CK	SA	O/C	C	FST	OP			73ST-2ZZ05	
DGB-V069	B3	X				3	C	1"	CK	SA	O/C	C	FST	OP			73ST-2ZZ05	

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INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 2

System: Diesel Generator (DG) Rev.: 0 Page 12 of 66 Pages

VALVE NUMBER	P&ID COORDINATES	13-M-DGP-001 SH1 S3	S4	S7	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
DGA-V317	F6		X		3	C	6"	CK	SA	C	O	FST	OP			42ST-2DG01 42ST-2DG05	
DGA-V318	D6		X		3	C	3"	CK	SA	O/C	O	FST	OP			42ST-2DG01 42ST-2DG05	
DGA-V332	E7			X	3	C	1"	CK	SA	C	O	FST	OP			42ST-2DG01 42ST-2DG05	
DGA-V364	C6	X			3	C	3"	CK	SA	O/C	O	FST	OP			42ST-2DG01 42ST-2DG05	

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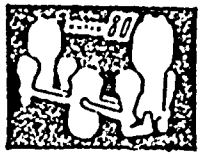
ISI CLASS 1, 2, & 3 VALVES

UNIT: 2

System: Diesel Generator (DG) Rev.: 0 Page 13 of 66 Pages



VALVE NUMBER	P&ID COORDINATES	13-M-DGP-001 SH3	S4	S6	S7	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
DGA-V396	G7			X		3	C	3"	CK	SA	C	O	FST	OP			12ST-2DG01 12ST-2DG05	
DGA-V397	C7			X		3	C	3"	CK	SA	C	O	FST	OP			12ST-2DG01 12ST-2DG05	
DGB-V417	F2		X			3	C	6"	CK	SA	C	O	FST	OP			12ST-2DG02 12ST-2DG06	
DGB-V418	D2		X			3	C	3"	CK	SA	O/C	O	FST	OP			12ST-2DG02 12ST-2DG06	
DGB-V432	E3				X	3	C	1"	CK	SA	C	O	FST	OP			12ST-2DG02 12ST-2DG06	
DGB-V464	C2	X				3	C	3"	CK	SA	O/C	O	FST	OP			12ST-2DG02 12ST-2DG06	

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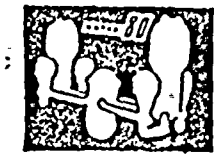
ISI CLASS 1, 2, & 3 VALVES

UNIT: 2

System: Diesel Generator (DG) Rev.: 0 Page 14 of 66 Pages



VALVE NUMBER	P & ID COORDINATES	12-M-DGP-001 SH3	S4	S6	S7	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
DGB-V496	G3			X		3	C	3"	CK	SA	C	O	FST	OP			42ST-2DG02 42ST-2DG06	
DGB-V497	C3			X		3	C	3"	CK	SA	C	O	FST	OP			42ST-2DG02 42ST-2DG06	

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ISI CLASS 1, 2, & 3 VALVES

UNIT: 2

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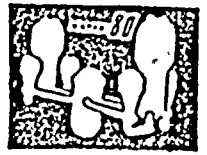

VALVE NUMBER	P & ID COORDINATES	13-M-DGP-001 SH3	S6	S7	S8	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
DGA-V510	E8	X				3	C	1 1/4"	CK	SA	O/C	O	FST	OP			42ST-2DG01 42ST-2DG05	
DGA-V520	G7			X		-	C	1"	CK	SA	C	O	FST	OP			42ST-2DG01 42ST-2DG05	
DGB-V610	E4	X				3	C	1 1/4"	CK	SA	O/C	O	FST	OP			42ST-2DG02 42ST-2DG06	
DGB-V620	G3			X		-	C	1"	CK	SA	C	O	FST	OP			42ST-2DG02 42ST-2DG06	
DGA-UV3	F7		X			-	B	3/8"	GA	SOL	C	O	FST	OP		VRR-16	42ST-2DG01 42ST-2DG05	
DGB-UV4	F3		X			-	B	3/8"	GA	SOL	C	O	FST	OP		VRR-16	42ST-2DG02 42ST-2DG06	
DGA-UV5	D7		X			-	B	3/8"	GA	SOL	C	O	FST	OP		VRR-16	42ST-2DG01 42ST-2DG05	
DGB-UV6	D3		X			-	B	3/8"	GA	SOL	C	O	FST	OP		VRR-16	42ST-2DG02 42ST-2DG06	

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ISI CLASS 1, 2, & 3 VALVES

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VALVE NUMBER	P & ID COORDINATES 13-M-DGP-001	SB	S6	S7	S8	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
DGA-UV7	F6		X			-	B	3/8"	GA	SOL	C	O	FST	OP		VRR-16	42ST-2DG01 42ST-2DG05	
DGB-UV8	F2		X			-	B	3/8"	GA	SOL	C	O	FST	OP		VRR-16	42ST-2DG02 42ST-2DG06	
DGA-UV9	F6		X			-	B	3/8"	GA	SOL	C	O	FST	OP		VRR-16	42ST-2DG01 42ST-2DG05	
DGB-UV10	F3			X		-	B	3/8"	CK	SOL	C	O	FST	OP		VRR-16	42ST-2DG02 42ST-2DG06	
DGA-UV11	F6			X		-	B	3/8"	GA	SOL	C	O	FST	OP		VRR-16	42ST-2DG01 42ST-2DG05	
DGB-UV12	F3			X		-	B	3/8"	GA	SOL	C	O	FST	OP		VRR-16	42ST-2DG02 42ST-2DG06	
DGA-UV15	D6		X			-	B	3/8"	GA	SOL	C	O	FST	OP		VRR-16	42ST-2DG01 42ST-2DG05	

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ISI CLASS 1, 2, & 3 VALVES

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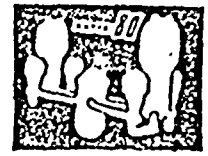

VALVE NUMBER	P & ID COORDINATES 12-M-DGP-001 SH S 6					ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
DGB-UV16	D2		X			-	B	3/8"	GA	SOL	C	O	FST	OP		VRR-16	42ST-2DG02 42ST-2DG06	
DGA-PSV5	C6	X				3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
DGB-PSV6	C3	X				3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	

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ISI CLASS 1, 2, & 3 VALVES

UNIT: 2

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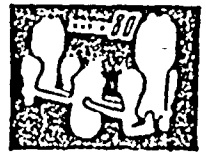

VALVE NUMBER	P & ID COORDINATES 13-M-DGP-001 SH	S 3	S 7	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
DGA-PSV7	B6	X			3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
DGB-PSV8	B3	X			3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
DGA-PSV65	E6		X		3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73S1-9ZZ20	
DGB-PSV66	E3		X		3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
DGA-PSV81	D5	X			3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
DGB-PSV82	D5	X			3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
DGA-PSV83	C6	X			3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
DGB-PSV84	C3	X			3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
DGA-PSV85	D7	X			3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
DGB-PSV86	D4	X			3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	

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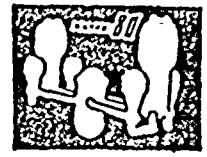
INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 2

System: Essential Chill Water (EC) Rev.: 0 Page 19 of 66 Pages



VALVE NUMBER	P & ID COORDINATES 13-M-ECP-001					ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
ECA-V041	C7	X				3	C	1 1/2"	CK	SA	C	O	FST	OP			73ST-2ZZ05	
ECB-V072	C3	X				3	C	1 1/2"	CK	SA	C	O	FST	OP			73ST-2ZZ05	
ECA-PSV75	D6	X				3	C	1 1/2"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
ECB-PSV76	D3	X				3	C	1 1/2"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
ECA-PSV95	E5	X				3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
ECB-PSV96	E1	X				3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
ECA-PSV97	E7	X				3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
ECB-PSV98	E4	X				3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
ECA-PSV99	G7	X				3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	

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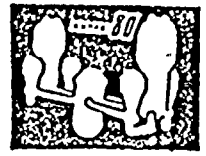
INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 2

System: Essential Chill Water (EC) Rev.: 0 Page 20 of 66 Pages



VALVE NUMBER	P & ID COORDINATES 13-M-ECP-001					ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
ECB-PSV100	G2	X				3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
ECA-PSV101	G6	X				3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
ECB-PSV102	G1	X				3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
ECA-PSV103	H7	X				3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
ECB-PSV104	H4	X				3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
ECA-PSV105	H6	X				3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
ECB-PSV106	H2	X				3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
ECA-PSV107	H5	X				3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
ECB-PSV108	H1	X				3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
ECA-PSV109	G4	X				3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	

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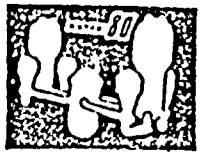
INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 2

System: Essential Chill Water (EC) Rev.: 0 Page 21 of 66 Pages



VALVE NUMBER	P & ID COORDINATES 13-M-ECP-001					ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
ECB-PSV117	G5	X				3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
ECB-PSV120	E3	X				3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
ECA-PSV121	E6	X				3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	

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INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 2

System: Essential Chill Water (EW) Rev.: 0 Page 22 of 66 Pages

VALVE NUMBER	P & ID COORDINATES 13-M-EWP-001				ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
EWA-V018	H7	X			3	C	2"	CK	SA	O/C	C	FST	OP			73ST-2ZZ05	
EWB-V029	H3	X			3	C	2"	CK	SA	O/C	C	FST	OP			73ST-2ZZ05	
EWB-V077	H3	X			3	C	2"	CK	SA	O/C	C	FST	OP			73ST-2ZZ05	
EWA-V079	G7	X			3	C	2"	CK	SA	O/C	O	FST	OP			73ST-2ZZ05	
EWB-V080	G3	X			3	C	2"	CK	SA	O/C	O	FST	OP			73ST-2ZZ05	
EWA-V103	H7	X			3	C	2"	CK	SA	O/C	C	FST	OP			73ST-2ZZ05	
EWA-UV65	C8	X			3	B	14"	BTF	MO	C	C	FST VPI	CS RF	60s	VRR-18	73ST-2ZZ08 73ST-2ZZ03	

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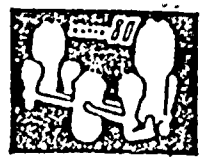
ISI CLASS 1, 2, & 3 VALVES

UNIT: 2

System: Essential Cooling Water (EW) Rev.: 0 Page 23 of 66 Pages



VALVE NUMBER	P&ID COORDINATES 13-M-EWP-001					ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
EWA-UV145	C4	X				3	B	14"	BTF	MO	C	C	FST VPI	CS RF	60s	VRR-18	73ST-2ZZ08 73ST-2ZZ03	
EWA-PSV147	B7	X				3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
EWB-PSV148	B3	X				3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
EWA-PSV61	D7	X				3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
EWB-PSV62	D3	X				3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
EWA-PSV79	F7	X				3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
EWB-PSV80	F3	X				3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
EWA-PSV103	H6	X				3	C	2"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
EWB-PSV104	H2	X				3	C	2"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
EWA-PSV105	H6	X				3	C	2"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	

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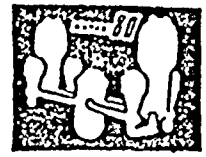
INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 2

System: Essential Cooling Water (EW) Rev.: 0 Page 24 of 66 Pages



VALVE NUMBER	P & ID COORDINATES 13-M-EWP-001					ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
EWB-PSV106	112	X				3	C	2"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	

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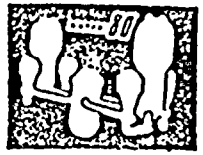
ISI CLASS 1, 2, & 3 VALVES

UNIT: 2

System: Fire Protection (FP) Rev.: 0 Page 25 of 66 Pages



VALVE NUMBER	P & ID COORDINATES 13-M-FPP-006					ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
FPE-V090	E9	X				2	AC	6"	CK	SA	C	C	AJLT	RF			73ST-9CL01	penet. 7

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ISI CLASS 1, 2, & 3 VALVES

UNIT: 2

System: Service Gas (GA) Rev.: 0 Page 26 of 66 Pages

VALVE NUMBER	P & ID COORDINATES	13-M-GAP-001			ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
GAE-V011	D6	X			2	AC	1"	CK	SA	O/C	C	FST AJLT	RF RF		VRR-19	73ST-9CL01 73ST-9CL01	penet. 30
GAE-V015	F2	X			2	AC	1"	CK	SA	O/C	C	FST AJLT	RF RF		VRR-19	73ST-9CL01 73ST-9CL01	penet. 29
GAA-UV1	D6	X			2	AC	1"	GA	SOL	C	C	IST VPI AJLT	OP RF RF	10s		73ST-2ZZ09 73ST-2ZZ01 73ST-9CL01	penet. 30
GAA-UV2	F3	X			2	AC	1"	GA	SOL	O	C	FST VPI AJLT	OP RF RF	10s		73ST-2ZZ09 73ST-2ZZ01 73ST-9CL01	penet. 30

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ISI CLASS 1, 2, & 3 VALVES

UNIT: 2

System: Gaseous Radwaste (GR) Rev.: 0 Page 27 of 66 Pages

VALVE NUMBER	P & ID COORDINATES 13-N-GRP-001					ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
GRA-UV1	H7	X				2	A	1"	GL	MO	O	C	FST VPI AJLT	OP RF RF	12s		73ST-2ZZ09 73ST-2ZZ03 73ST-9CL01	penet. 52
GRB-UV2	G7	X				2	A	1"	GL	SOL	O	C	FST VPI AJLT	OP RF RF	10s		73ST-2ZZ09 73ST-2ZZ01 73ST-9CL01	penet. 52

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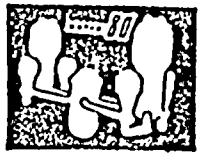
ISI CLASS 1, 2, & 3 VALVES

UNIT: 2

System: Containment HVAC (HC) Rev.: 0 Page 28 of 66 Pages



VALVE NUMBER	P & ID COORDINATES 13-M-HCP-001					ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
HCB-UV44	E3	X				2	A	1"	GA	SOL	O	C	FST VPI AJLT	OP RF RF	 1s		73ST-2ZZ09 73ST-2ZZ01 73ST-9CL01	penet. 25a
HCA-UV45	E2	X				2	A	1"	GA	SOL	O	C	FST VPI AJLT	OP RF RF	 1s		73ST-2ZZ09 73ST-2ZZ01 73ST-9CL01	penet. 25a
HCA-UV46	D2	X				2	A	1"	GA	SOL	O	C	FST VPI AJLT	OP RF RF	 1s		73ST-2ZZ09 73ST-2ZZ01 73ST-9CL01	penet. 25b
HCB-UV47	D3	X				2	A	1"	GA	SOL	O	C	FST VPI AJLT	OP RF RF	 1s		73ST-2ZZ09 73ST-2ZZ01 73ST-9CL01	penet. 25b

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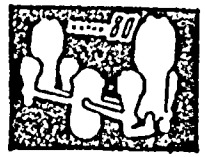
ISI CLASS 1, 2, & 3 VALVES

UNIT: 2

System: Containment HVAC (HC) Rev.: 0 Page 29 of 66 Pages



VALVE NUMBER	P&ID COORDINATES	13-M-HPP-001			ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
HPA-V002	F7	X			2	AC	2"	CK	SA	C	C	AJLT	RF			73ST-9CL01	penet. 38
HPB-V004	C7	X			2	AC	2"	CK	SA	C	C	AJLT	RF			73ST-9CL01	penet. 39
HPA-HV7A	F5	X			2	A	1"	GL	SOL	C	O/C	FST VPI AJLT	OP RF RF	O-1s C-1s		73ST-2ZZ09 73ST-2ZZ01 73ST-9CL01	penet. 35
HPA-HV7B	G6	X			2	A	1"	GL	SOL	C	O/C	FST VPI AJLT	OP RF RF	O-1s C-1s		73ST-2ZZ09 73ST-2ZZ01 73ST-9CL01	penet. 38
HPB-HV8A	C5	X			2	A	1"	GL	SOL	C	O/C	FST VPI AJLT	OP RF RF	O-1s C-1s		73ST-2ZZ09 73ST-2ZZ01 73ST-9CL01	penet. 36
HPB-HV8B	B6	X			2	A	1"	GL	SOL	C	O/C	FST VPI AJLT	OP RF RF	O-1s C-1s		73ST-2ZZ09 73ST-2ZZ01 73ST-9CL01	penet. 39
HPA-UV1	E7	X			2	A	2"	GL	MO	C	O/C	FST VPI AJLT	OP RF RF	O-12s C-12s		73ST-2ZZ09 73ST-2ZZ03 73ST-9CL01	penet. 35
HPB-UV2	D7	X			2	A	2"	GL	MO	C	O/C	FST VPI AJLT	OP RF RF	O-12s C-12s		73ST-2ZZ09 73ST-2ZZ03 73ST-9CL01	penet. 36

PALO VERDE NUCLEAR GENERATING STATION

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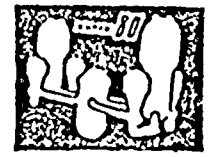
INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 2

System: Hydrogen Purge (HP) Rev.: 0 Page 30 of 66 Pages



VALVE NUMBER	P&ID COORDINATES 13-M-HPP-001					ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
HPA-UV3	E6	X				2	A	2"	GL	MO	C	O/C	FST VPI AJLT	OP RF RF	0-12s C-12s		73ST-2ZZ09 73ST-2ZZ03 73ST-9CL01	penet. 35
HPB-UV4	D6	X				2	A	2"	GL	MO	C	O/C	FST VPI AJLT	OP RF RF	0-12s C-12s		73ST-2ZZ09 73ST-2ZZ03 73ST-9CL01	penet. 36
HPA-UV5	F6	X				2	A	2"	GL	MO	C	O/C	FST VPI AJLT	OP RF RF	0-12s C-12s		73ST-2ZZ09 73ST-2ZZ03 73ST-9CL01	penet. 38
HPB-UV6	C6	X				2	A	2"	GL	MO	C	O/C	FST VPI AJLT	OP RF RF	0-12s C-12s		73ST-2ZZ09 73ST-2ZZ03 73ST-9CL01	penet. 39
HPA-UV23	G6	X				2	A	1/2"	GL	SOL	C	C	FST VPI AJLT	OP RF RF	5s		73ST-2ZZ09 73ST-2ZZ01 73ST-9CL01	penet. 38
HPA-UV24	F4	X				2	A	1/2"	GL	SOL	C	C	FST VPI AJLT	OP RF RF	5s		73ST-2ZZ09 73ST-2ZZ01 73ST-9CL01	penet. 35

PALO VERDE NUCLEAR GENERATING STATION

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INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 2

System: Instrument Air (IA) Rev.: 0 Page 31 of 66 Pages

VALVE NUMBER	P & ID COORDINATES	13-M-TAP-002	13-M-TAP-003			ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
IAE-V021	G5		X			2	AC	2"	CK	SA	O	C	FST AJLT	RF RF		VRR-19	73ST-9CL01 73ST-9CL01	penet. 31
IAE-V073	H7	X				2	AC	3"	CK	SA	C	C	AJLT	RF			73ST-9CL01	penet. 59
IAE-UV2	G6		X			2	A	2"	GA	SOL	O	C	FST VPI AJLT	CS RF RF	 10s	VRR-20	73ST-2ZZ08 73ST-2ZZ01 73ST-9CL01	penet. 31

PALO VERDE NUCLEAR GENERATING STATION

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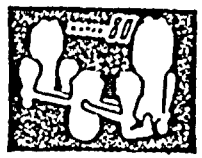
INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 2

System: Nuclear Cooling Water (NC) Rev.: 0 Page 32 of 66 Pages



VALVE NUMBER	P & ID COORDINATES	13-M-NCP-002	13-M-NCP-003		ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
NCE-V118	E6		X		2	AC	10"	CK	SA	O	C	FST AJLT	CS RF		VRR-21	73ST-2ZZ06 73ST-9CL01	penet. 33
NCB-UV401	E7		X		2	A	10"	BTF	MO	O	C	FST VPI AJLT	CS RF RF	 10s	VRR-21	73ST-2ZZ08 73ST-2ZZ03 73ST-9CL01	penet. 33
NCA-UV402	F7		X		2	A	10"	BTF	MO	O	C	FST VPI AJLT	CS RF RF	 10s	VRR-21	73ST-2ZZ08 73ST-2ZZ03 73ST-9CL01	penet. 34
NCB-UV403	F6		X		2	A	10"	BTF	MO	O	C	FST VPI AJLT	CS RF RF	 10s	VRR-21	73ST-2ZZ08 73ST-2ZZ03 73ST-9CL01	penet. 34
NCA-PSV250	E2	X			3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
NCB-PSV251	D2	X			3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	

PALO VERDE NUCLEAR GENERATING STATION

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INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 2

System: Fuel Pool Cooling (PC) Rev.: 0 Page 33 of 66 Pages

VALVE NUMBER	P&ID COORDINATES	13-M-PCP-001			ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
PCA-PSV35	E13	X			3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
PCB-PSV36	C13	X			3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	

PALO VERDE NUCLEAR GENERATING STATION

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INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 2

System: Reactor Coolant (RC) Rev.: 0 Page 34 of 66 Pages

VALVE NUMBER	P & ID COORDINATES 13-M-RCP-001					ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
RCA-HV101	G15	X				2	B	1"	GL	SOL	C	O/C	FST VPI	CS RF	O-3s C-5s	VRR-22	73ST-2ZZ08 42ST-2RC04	
RCB-HV102	G15	X				2	B	1"	GL	SOL	C	O/C	FST VPI	CS RF	O-3s C-5s	VRR-22	73ST-2ZZ08 42ST-2RC04	
RCA-HV103	G14	X				2	B	1"	GL	SOL	C	O/C	FST VPI	CS RF	O-3s C-5s	VRR-22	73ST-2ZZ08 42ST-2RC04	
RCB-HV105	G15	X				2	B	1"	GL	SOL	C	O/C	FST VPI	CS RF	O-3s C-5s	VRR-22	73ST-2ZZ08 42ST-2RC04	
RCA-HV106	F15	X				2	B	1"	GL	SOL	C	O/C	FST VPI	CS RF	O-3s C-5s	VRR-22	73ST-2ZZ08 42ST-2RC04	
RCB-HV108	G13	X				1	B	1"	GL	SOL	C	O/C	FST VPI	CS RF	O-3s C-5s	VRR-22	73ST-2ZZ08 42ST-2RC04	
RCB-HV109	G14	X				1	B	1"	GL	SOL	C	O/C	FST VPI	CS RF	O-3s C-5s	VRR-22	73ST-2ZZ08 42ST-2RC04	
RCE-PSV200	F12	X				1	C	6"	PSV	SA	C	O	PSVT				73ST-9ZZ18 73ST-9ZZ20	
RCE-PSV201	F12	X				1	C	6"	PSV	SA	C	O	PSVT				73ST-9ZZ18 73ST-9ZZ20	
RCE-PSV202	F12	X				1	C	6"	PSV	SA	C	O	PSVT				73ST-9ZZ18 73ST-9ZZ20	

PALO VERDE NUCLEAR GENERATING STATION

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INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 2

System: Reactor Coolant (RC) Rev.: 0 Page 35 of 66 Pages

VALVE NUMBER	P&ID COORDINATES	13-M-RCP-001				ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
RCE-PSV203	G12	X				1	C	6"	PSV	SA	C	O	PSVT				73ST-9ZZ18 73ST-9ZZ20	

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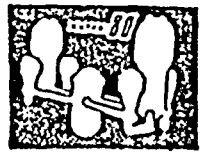
INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 2

System: Radioactive Drains (RD) Rev.: 0 Page 36 of 66 Pages



VALVE NUMBER	P&ID COORDINATES 13-M-RDP-001					ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
RDA-UV23	G5	X				2	A	3"	GA	MO	O	C	FST VPI AJLT	OP RF RF	20s		73ST-2ZZ09 73ST-2ZZ03 73ST-9CL01	penet. 9
RDB-UV24	G4	X				2	A	3"	GA	AO	O	C	FST VPI AJLT	OP RF RF	5s		73ST-2ZZ09 73ST-2ZZ03 73ST-9CL01	penet. 9
RDB-UV407	F4	X				2	A	1/2"	GL	SOL	C	C	FST VPI AJLT	OP RF RF	5s		73ST-2ZZ09 73ST-2ZZ01 73ST-9CL01	penet. 9

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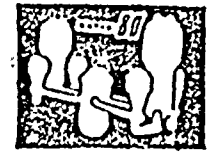
INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 2

System: Main Steam (SG) Rev.: 0 Page 37 of 66 Pages



VALVE NUMBER	P & ID COORDINATES	13-M-SGP-001	13-M-SGP-002	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
SGE-V003	E10		X		2	C	24"	CK	SA	O	C	FST	CS-3		VRR-23	73ST-2ZZ05	penet. 8
SGE-V005	A10		X		2	C	24"	CK	SA	O	C	FST	CS-3		VRR-23	73ST-2ZZ05	penet. 10
SGE-V006	A10		X		2	C	24"	CK	SA	O	C	FST	CS-3		VRR-23	73ST-2ZZ05	penet. 10
SGE-V007	E10		X		2	C	24"	CK	SA	O	C	FST	CS-3		VRR-23	73ST-2ZZ05	penet. 8
SGA-V043	E12	X			3	C	6"	CK	SA	C	O	FST	OP			42ST-2AF02	
SGA-V044	C12	X			3	C	6"	CK	SA	C	O	FST	OP			42ST-2AF02	
SGE-V642	G11		X		2	C	8"	CK	SA	O	C	FST	CS-3		VRR-23	73ST-2ZZ05	penet. 11
SGE-V652	G10		X		2	C	8"	CK	SA	O	C	FST	CS-3		VRR-23	73ST-2ZZ05	penet. 11
SGE-V653	C10		X		2	C	8"	CK	SA	O	C	FST	CS-3		VRR-23	73ST-2ZZ05	penet. 12
SGE-V693	C11		X		2	C	8"	CK	SA	O	C	FST	CS-3		VRR-23	73ST-2ZZ05	penet. 12

PALO VERDE NUCLEAR GENERATING STATION

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INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 2

System: Main Steam (SG) Rev.: 0 Page 38 of 66 Pages

VALVE NUMBER	P & ID COORDINATES	13-M-SGP-001	13-M-SGP-002			ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
SGE-V887	D12	X				3	C	2"	CK	SA	C	O	FST	OP			42ST-2AF02	
SGE-V888	D12	X				3	C	2"	CK	SA	C	O	FST	OP			42ST-2AF02	
SGB-HV178	E15	X				2	B	12"	GL	AO	C	O/C	FST FT VPI	CS CS RF	0-120s C-40s	VRR-26	73ST-2ZZ08 73ST-2ZZ08 73ST-2ZZ02	penet. 2
SGA-HV179	A14	X				2	B	12"	GL	AO	C	O/C	FST FT VPI	CS CS RF	0-120s C-40s	VRR-26	73ST-2ZZ08 73ST-2ZZ08 73ST-2ZZ02	penet. 2
SGA-HV184	F14	X				2	B	12"	GL	AO	C	O/C	FST FT VPI	CS CS RF	0-120s C-40s	VRR-26	73ST-2ZZ08 73ST-2ZZ08 73ST-2ZZ02	penet. 1
SGB-HV185	C15	X				2	B	12"	GL	AO	C	O/C	FST FT VPI	CS CS RF	0-120s C-40s	VRR-26	73ST-2ZZ08 73ST-2ZZ08 73ST-2ZZ02	penet. 3
SGB-HV200	F11		X			2	B	3/8"	GA	SOL	O/C	C	FST VPI	OP RF	 1s		73ST-2ZZ10 73ST-2ZZ01	penet. 11
SGB-HV201	C11		X			2	B	3/8"	GA	SOL	O/C	C	FST VPI	OP RF	 1s		73ST-2ZZ10 73ST-2ZZ01	penet. 12
SGB-UV130	G12		X			2	B	8"	GA	AO	O	C	FST VPI	CS RF	 9.6s	VRR-24	73ST-2ZZ08 73ST-2ZZ02	penet. 11

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INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 2

System: Main Steam (SG) Rev.: 0 Page 39 of 66 Pages

VALVE NUMBER	P & ID COORDINATES	13-M-SGP-001	13-M-SGP-002	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
SGB-UV132	E12		X	2	B	24"	GA	HY	O	C	FST PST VPI	CS OP RF	7.6s		73ST-2ZZ08 73ST-2ZZ10 73ST-2ZZ02	penet. 8
SGA-UV134	E13	X		2	B	6"	GA	MO	C	O/C	FST VPI	OP RF	0-5s C-5s		73ST-2ZZ10 42ST-2AF02	penet. 2
SGA-UV134A	E13	X		2	B	1"	GL	SOL	C	O/C	FST VPI	OP RF-3	0-3s C-5s	VRR-25	73ST-2ZZ10 42ST-2AF02	penet. 2
SGB-UV135	C12		X	2	B	8"	GA	AO	O	C	FST VPI	CS RF	9.6s	VRR-24	73ST-2ZZ08 73ST-2ZZ02	penet. 12
SGB-UV137	A12		X	2	B	24"	GA	HY	O	C	FST PST VPI	CS OP RF	7.6s		73ST-2ZZ08 73ST-2ZZ10 73ST-2ZZ02	penet. 10
SGA-UV138	C12	X		2	B	6"	GA	MO	C	O/C	FST VPI	OP RF	0-5s C-5s		73ST-2ZZ10 42ST-2AF02	penet. 3
SGA-UV138A	C12	X		2	B	1"	GL	SOL	C	O/C	FST VPI	OP RF-3	0-3s C-5s	VRR-25	73ST-2ZZ10 42ST-2AF02	penet. 3

PALO VERDE NUCLEAR GENERATING STATION

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INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 2

System: Main Steam (SG) Rev.: 0 Page 40 of 66 Pages

VALVE NUMBER	P&ID COORDINATES	13-M-SGP-001	13-M-SGP-002			ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
SGE-UV169	E11	X				2	B	4"	GA	AO	O/C	C	FST VPI	OP RF			73ST-2ZZ10 73ST-2ZZ02	penet. 2
SGE-UV170	G10	X				2	B	28"	GA	HY	O	C	FST PST FT VPI	CS-3 OP CS RF	 3.8s		42ST-2SG01 42ST-2SG01 42ST-2SG01 73ST-2ZZ02	penet. 1
SGE-UV171	D10	X				2	B	28"	GA	HY	O	C	FST PST FT VPI	CS-3 OP CS RF	 3.8s		42ST-2SG01 42ST-2SG01 42ST-2SG01 73ST-2ZZ02	penet. 3
SGA-UV172	G12		X			2	B	3"	GA	AO	O	C	FST VPI	CS RF	 9.6s	 VRR-24	73ST-2ZZ08 73ST-2ZZ02	penet. 11
SGA-UV174	E12		X			2	B	24"	GA	HY	O	C	FST PST VPI	CS OP RF	 7.6s		73ST-2ZZ08 73ST-2ZZ10 73ST-2ZZ02	penet. 8
SGA-UV175	C12		X			2	B	3"	GA	AO	O	C	FST VPI	CS RF	 9.6s	 VRR-24	73ST-2ZZ08 73ST-2ZZ02	penet. 12
SGA-UV177	A12		X			2	B	24"	GA	HY	O	C	FST PST VPI	CS OP RF	 7.6s		73ST-2ZZ08 73ST-2ZZ10 73ST-2ZZ02	penet. 9

PALO VERDE NUCLEAR GENERATING STATION

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INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 2

System: Main Steam (SG) Rev.: 0 Page 41 of 66 Pages

VALVE NUMBER	P & ID COORDINATES	13-M-SGP-001	13-M-SGP-002			ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
SGE-UV180	E10	X				2	B	28"	GA	HY	O	C	FST PST FT VPI	CS-3 OP CS RF	3.8s		42ST-2SG01 42ST-2SG01 42ST-2SG01 73ST-2ZZ02	penet. 2
SGE-UV181	B10	X				2	B	28"	GA	HY	O	C	FST PST FT VPI	CS-3 OP CS RF	3.8s		42ST-2SG01 42ST-2SG01 42ST-2SG01 73ST-2ZZ02	penet. 4
SGE-UV183	B11	X				2	B	4"	GA	AO	O/C	C	FST VPI	OP RF	4.6s		73ST-2ZZ10 73ST-2ZZ02	penet. 3
SGA-UV204	G3		X			2	B	1/2"	GL	SOL	O	C	FST VPI	OP RF	5s		73ST-2ZZ10 73ST-2ZZ01	penet. 37B
SGA-UV211	G3		X			2	B	1/2"	GL	SOL	O	C	FST VPI	OP RF	5s		73ST-2ZZ10 73ST-2ZZ01	penet. 37A
SGB-UV219	G3		X			2	B	1/2"	GL	SOL	O	C	FST VPI	OP RF	5s		73ST-2ZZ10 73ST-2ZZ01	penet. 37B
SGA-UV220	G6		X			2	B	1/2"	GL	SOL	O	C	FST VPI	OP RF	5s		73ST-2ZZ10 73ST-2ZZ01	penet. 49
SGB-UV221	G5		X			2	B	1/2"	GL	SOL	O	C	FST VPI	OP RF	5s		73ST-2ZZ10 73ST-2ZZ01	penet. 49

PALO VERDE NUCLEAR GENERATING STATION

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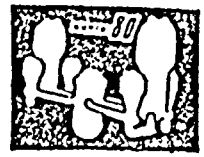
INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 2

System: Main Steam (SG) Rev.: 0 Page 42 of 66 Pages



VALVE NUMBER	P & ID COORDINATES	13-M-SGP-001	13-M-SGP-002	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
SGB-UV222	C3		X	2	B	1/2"	GL	SOL	O	C	FST VPI	OP RF	5s		73ST-2ZZ10 73ST-2ZZ01	penet. 63B
SGA-UV223	C3		X	2	B	1/2"	GL	SOL	O	C	FST VPI	OP RF	5s		73ST-2ZZ10 73ST-2ZZ01	penet. 63B
SGB-UV224	D3		X	2	B	1/2"	GL	SOL	O	C	FST VPI	OP RF	5s		73ST-2ZZ10 73ST-2ZZ01	penet. 63A
SGA-UV225	D2		X	2	B	1/2"	GL	SOL	O	C	FST VPI	OP RF	5s		73ST-2ZZ10 73ST-2ZZ01	penet. 63A
SGB-UV226	C2		X	2	B	1/2"	GL	SOL	O	C	FST VPI	OP RF	5s		73ST-2ZZ10 73ST-2ZZ01	penet. 48
SGA-UV227	C5		X	2	B	1/2"	GL	SOL	O	C	FST VPI	OP RF	5s		73ST-2ZZ10 73ST-2ZZ01	penet. 48
SGB-UV228	G2		X	2	B	1/2"	GL	SOL	O	C	FST VPI	OP RF	5s		73ST-2ZZ10 73ST-2ZZ01	penet. 37A
SGA-UV500P	E3		X	2	B	6"	GA	AO	O	C	FST VPI	OP RF	9.6s		73ST-2ZZ10 73ST-2ZZ02	penet. 46
SGB-UV500Q	E2		X	2	B	6"	GA	AO	O	C	FST VPI	OP RF	9.6s		73ST-2ZZ10 73ST-2ZZ02	penet. 46
SGB-UV500R	A3		X	2	B	6"	GA	AO	O	C	FST VPI	OP RF	9.6s		73ST-2ZZ10 73ST-2ZZ02	penet. 47

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ISI CLASS 1, 2, & 3 VALVES

UNIT: 2

System: Main Steam (SG) Rev.: 0

VALVE NUMBER	P&ID COORDINATES	13-M-SGP-001	13-M-SGP-002		ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
SGA-UV500S	A2		X		2	B	6"	GA	AO	O	C	FST VPI	OP RF	9.6s		73ST-2ZZ10 73ST-2ZZ02	penet. 47
SGA-UV1133	D14	X			2	B	1"	GL	SOL	O	C	FST VPI	OP RF-3	4.6s	VRR-27	73ST-2ZZ10 73ST-2ZZ07	penet. 2
SGA-UV1134	C14	X			2	B	1"	GL	SOL	O	C	FST VPI	OP RF-3	4.6s	VRR-27	73ST-2ZZ10 73ST-2ZZ07	penet. 3
SGB-UV1135A	H11	X			2	B	1"	GL	SOL	O	C	FST VPI	OP RF-3	4.6s	VRR-27	73ST-2ZZ10 73ST-2ZZ07	penet. 1
SGB-UV1135B	F11	X			2	B	1"	GL	SOL	O	C	FST VPI	OP RF-3	4.6s	VRR-27	73ST-2ZZ10 73ST-2ZZ07	penet. 2
SGB-UV1136A	D11	X			2	B	1"	GL	SOL	O	C	FST VPI	OP RF-3	4.6s	VRR-27	73ST-2ZZ10 73ST-2ZZ07	penet. 3
SGB-UV1136B	B11	X			2	B	1"	GL	SOL	O	C	FST VPI	OP RF-3	4.6s	VRR-27	73ST-2ZZ10 73ST-2ZZ07	penet. 4
SGE-PSV554	D12	X			2	C	6"	PSV	SA	C	O	PSVT				73ST-2ZZ18 73ST-2ZZ20	penet. 3
SGE-PSV555	D13	X			2	C	6"	PSV	SA	C	O	PSVT				73ST-2ZZ18 73ST-2ZZ20	penet. 3
SGE-PSV556	D14	X			2	C	6"	PSV	SA	C	O	PSVT				73ST-2ZZ18 73ST-2ZZ20	penet. 3

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ISI CLASS 1, 2, & 3 VALVES

UNIT: 2

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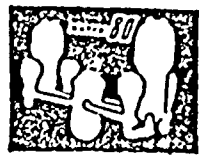

VALVE NUMBER	P & ID COORDINATES	13-M-SGP-001	13-M-SGP-002			ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
SGE-PSV557	D14	X				2	C	6"	PSV	SA	C	O	PSVT				73ST-2ZZ18 73ST-2ZZ20	penet. 3
SGE-PSV558	B14	X				2	C	6"	PSV	SA	C	O	PSVT				73ST-2ZZ18 73ST-2ZZ20	penet. 4
SGE-PSV559	B14	X				2	C	6"	PSV	SA	C	O	PSVT				73ST-2ZZ18 73ST-2ZZ20	penet. 4
SGE-PSV560	B13	X				2	C	6"	PSV	SA	C	O	PSVT				73ST-2ZZ18 73ST-2ZZ20	penet. 4
SGE-PSV561	B12	X				2	C	6"	PSV	SA	C	O	PSVT				73ST-2ZZ18 73ST-2ZZ20	penet. 4
SGE-PSV572	H12	X				2	C	6"	PSV	SA	C	O	PSVT				73ST-2ZZ18 73ST-2ZZ20	penet. 1
SGE-PSV573	H13	X				2	C	6"	PSV	SA	C	O	PSVT				73ST-2ZZ18 73ST-2ZZ20	penet. 1
SGE-PSV574	H14	X				2	C	6"	PSV	SA	C	O	PSVT				73ST-2ZZ18 73ST-2ZZ20	penet. 1
SGE-PSV575	H15	X				2	C	6"	PSV	SA	C	O	PSVT				73ST-2ZZ18 73ST-2ZZ20	penet. 1
SGE-PSV576	F14	X				2	C	6"	PSV	SA	C	O	PSVT				73ST-2ZZ18 73ST-2ZZ20	penet. 2

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ISI CLASS 1, 2, & 3 VALVES

UNIT: 2

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VALVE NUMBER	P & ID COORDINATES	13-M-SGP-001	13-M-SGP-002			ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
SGE-PSV577	F14	X				2	C	6"	PSV	SA	C	O	PSVT				73ST-2ZZ18 73ST-2ZZ20	penet. 2
SGE-PSV578	F13	X				2	C	6"	PSV	SA	C	O	PSVT				73ST-2ZZ18 73ST-2ZZ20	penet. 2
SGE-PSV579	F12	X				2	C	6"	PSV	SA	C	O	PSVT				73ST-2ZZ18 73ST-2ZZ20	penet. 2
SGE-PSV691	F15	X				2	C	6"	PSV	SA	C	O	PSVT				73ST-2ZZ18 73ST-2ZZ20	penet. 2
SGE-PSV692	H16	X				2	C	6"	PSV	SA	C	O	PSVT				73ST-2ZZ18 73ST-2ZZ20	penet. 1
SGE-PSV693	B15	X				2	C	6"	PSV	SA	C	O	PSVT				73ST-2ZZ18 73ST-2ZZ20	penet. 4
SGE-PSV694	D15	X				2	C	6"	PSV	SA	C	O	PSVT				73ST-2ZZ18 73ST-2ZZ20	penet. 3

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INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 2

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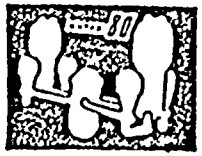

VALVE NUMBER	P & ID COORDINATES	13-M-STP-001	13-M-STP-002	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
SIE-V113	F14		X		2	C	3"	CK	SA	C	O	FST	RF		VRR-28	73ST-2ZZ06	penet 13
SIE-V114	F14		X		2	C	12"	CK	SA	C	O	FST	RF		VRR-29	73ST-2ZZ06	penet 17
(IR-V120) SIB-V120	C12	X			2	C	1/2"	CK	SA	C	O	FST	OP			73ST-2ZZ05	
SIE-V123	F12		X		2	C	3"	CK	SA	C	O	FST	RF		VRR-28	73ST-2ZZ06	penet 14
SIE-V124	F11		X		2	C	12"	CK	SA	C	O	FST	CS		VRR-29	73ST-2ZZ06	penet. 18
(IR-V130) SIA-V130	E12	X			2	C	1/2"	CK	SA	C	O	FST	OP			73ST-2ZZ05	
SIE-V133	F7		X		2	C	3"	CK	SA	C	O	FST	RF		VRR-28	73ST-2ZZ06	penet. 15
SIE-V134	F6		X		2	C	12"	CK	SA	C	O	FST	CS		VRR-29	73ST-2ZZ06	penet. 19
SIE-V143	F4		X		2	C	3"	CK	SA	C	O	FST	RF		VRR-28	73ST-2ZZ06	penet. 16
SIE-V144	F4		X		2	C	12"	CK	SA	C	O	FST	CS		VRR-29	73ST-2ZZ06	penet. 20

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VALVE NUMBER	P&ID COORDINATES	13-M-STP-001	13-M-STP-002	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
SIA-V157	G13	X		2	C	18"	CK	SA	C	O	PST FST	OP RF		VRR-30	42ST-2SI03 73ST-2ZZ06	
SIB-V158	C13	X		2	C	18"	CK	SA	C	O	PST FST	OP RF		VRR-30	42ST-2SI03 73ST-2ZZ06	
SIA-V164	F8		X	2	AC	10"	CK	SA	C	O	PST AJLT	RF RF		VRR-31	73ST-2ZZ06 73ST-9CL01	penet. 21
SIB-V165	F6		X	2	AC	10"	CK	SA	C	O	PST AJLT	RF RF		VRR-31	73ST-2ZZ06 73ST-9CL01	penet. 22
SIB-V200	B12	X		2	C	20"	CK	SA	C	O	PST FST	OP RF		VRR-30	42ST-2SI11 73ST-2ZZ06	
SIA-V201	F12	X		2	C	20"	CK	SA	C	O	PST FST	OP RF		VRR-30	42ST-2SI11 73ST-2ZZ06	
SIA-V205	G14	X		2	C	24"	CK	SA	C	O	PST	CS		VRR-32	73ST-2ZZ05	
SIB-V206	A14	X		2	C	24"	CK	SA	C	O	PST	CS		VRR-32	73ST-2ZZ05	
SIE-V215	A15		X	1	AC	14"	CK	SA	C	O/C	LT PST	RF RF-3		VRR-33	73ST-9SI03 73ST-2ZZ06	
SIE-V217	A13		X	1	AC	14"	CK	SA	C	O/C	LT FST	RF CS		VRR-34	73ST-9SI03 73ST-2ZZ06	

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VALVE NUMBER	P & ID COORDINATES	13-M-STP-001	13-M-STP-002			ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
SIE-V225	A12		X			1	AC	14"	CK	SA	C	O/C	LT PST	RF RF-3		VRR-33	73SI-9SI03 73SI-2ZZ06	
SIE-V227	A10		X			1	AC	14"	CK	SA	C	O/C	LT FST	RF CS		VRR-34	73SI-9SI03 73SI-2ZZ06	
SIE-V235	A7		X			1	AC	14"	CK	SA	C	O/C	LT PST	RF RF-3		VRR-33	73ST-9SI03 73SI-2ZZ06	
SIE-V237	A6		X			1	AC	14"	CK	SA	C	O/C	LT FST	RF CS		VRR-34	73ST-9SI03 73ST-2ZZ06	
SIE-V245	A5		X			1	AC	14"	CK	SA	C	O/C	LT PST	RF RF-3		VRR-33	73SI-9SI03 73ST-2ZZ06	
SIE-V247	A4		X			1	AC	14"	CK	SA	C	O/C	LT FST	RF CS		VRR-34	73SI-9SI03 73ST-2ZZ06	
SIE-V404	F6	X				2	C	4"	CK	SA	C	O	FST	RF		VRR-28	73ST-2ZZ06	
SIB-V405	B4	X				2	C	4"	CK	SA	C	O	FST	RF		VRR-28	73ST-2ZZ06	
SIA-V424	F10	X				2	C	2"	CK	SA	C	O	FST	OP			42ST-2SI10	
SIB-V426	A10	X				2	C	2"	CK	SA	C	O	FST	OP			42ST-2SI10	

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UNIT: 2

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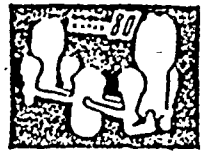

VALVE NUMBER	P & ID COORDINATES	13-M-STP-001	13-M-STP-002			ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
SIA-V434	F9	X				2	C	10"	CK	SA	C	O	FST	OP			73ST-2ZZ05	
SIB-V446	B9	X				2	C	10"	CK	SA	C	O	FST	OP			73ST-2ZZ05	
SIB-V448	B10	X				2	C	2"	CK	SA	C	O	FST	OP			42ST-2SI11	
SIA-V451	G10	X				2	C	2"	CK	SA	C	O	FST	OP			42ST-2SI11	
SIB-V484	C9	X				2	C	10"	CK	SA	C	O	FST	OP			73ST-2ZZ05	
SIA-V485	H9	X				2	C	10"	CK	SA	C	O	FST	OP			73ST-2ZZ05	
SIA-V486	G10	X				2	C	2"	CK	SA	C	O	FST	OP			42ST-2SI03	
SIB-V487	C10	X				2	C	2"	CK	SA	C	O	FST	OP			42ST-2SI03	
SIA-V522	C2		X			1	AC	3"	CK	SA	C	O/C	LT FST	RF RF		 VRR-35	73ST-9SI03 73ST-2ZZ06	
SIA-V523	F2		X			1	AC	3"	CK	SA	C	O/C	LT FST AJLT	RF RF RF		 VRR-35	73ST-9SI03 73ST-2ZZ06 73ST-9CL01	penet. 77

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VALVE NUMBER	P&ID COORDINATES	13-M-STP-001	13-M-STP-002			ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
SIB-V532	C10		X			1	AC	3"	CK	SA	C	O/C	LT FST	RF RF		VRR-35	73ST-9SI03 73ST-2ZZ06	
SIB-V533	F9		X			1	AC	3"	CK	SA	C	O/C	LT FSI AJLT	RF RF RF		VRR-35	73ST-9SI03 73SI-2ZZ06 73SI-9CL01	penet. 67
SIE-V540	C13		X			1	AC	12"	CK	SA	C	O/C	LT FST	RF RF		VRR-34	73ST-9SI03 73ST-2ZZ06	
SIE-V541	C11		X			1	AC	12"	CK	SA	C	O/C	LT FST	RF RF		VRR-34	73ST-9SI03 73ST-2ZZ06	
SIE-V542	C6		X			1	AC	12"	CK	SA	C	O/C	LT FST	RF RF		VRR-34	73ST-9SI03 73ST-2ZZ06	
SIE-V543	C4		X			1	AC	12"	CK	SA	C	O/C	LT FST	RF RF		VRR-34	73ST-9SI03 73ST-2ZZ06	
SIA-HV306	G5	X				2	B	10"	GL	MO	O	O	FST TP/VPI	OP RF	30s		73ST-2ZZ11 73ST-2SI01	
SIB-HV307	B4	X				2	B	10"	GL	MO	O	O	FST TP/VPI	OP RF	30s		73ST-2ZZ11 73ST-2SI01	
SIC-HV321	G2		X			1	A	3"	GL	MO	C	O	FST TP/VPI AJLT	CS RF RF	10s	VRR-36	73ST-2ZZ08 73SI-2SI01 73SI-9CL01	penet. 77
SID-HV331	G9		X			1	A	3"	GL	MO	C	O	FST TP/VPI AJLT	CS RF RF	10s	VRR-36	73ST-2ZZ08 73ST-2SI01 73ST-9CL01	penet. 67

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VALVE NUMBER	P & ID COORDINATES	13-M-STP-001	13-M-STP-002			ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
SIA-HV604	G3	X				2	B	3"	GA	MO	C	O	FST TP/VPI	CS RF	30s	VRR-36	73ST-2ZZ08 73ST-2SI01	
SIA-HV605	E15		X			2	B	1"	GL	SOL	C	O	FST VPI	RF RF	5s	VRR-37	42ST-2SI01 42ST-2SI01	
SIA-HV606	E12		X			2	B	1"	GL	SOL	C	O	FST VPI	RF RF	5s	VRR-37	42ST-2SI01 42ST-2SI01	
SIA-HV607	E7		X			2	B	1"	GL	SOL	C	O	FST VPI	RF RF	5s	VRR-37	42ST-2SI01 42ST-2SI01	
SIA-HV608	E4		X			2	B	1"	GL	SOL	C	O	FST VPI	RF RF	5s	VRR-37	42ST-2SI01 42ST-2SI01	
SIB-HV609	C3	X				2	B	3"	GA	MO	C	O	FST TP/VPI	CS RF	30s	VRR-36	73ST-2ZZ08 42ST-2SI01	
SIB-HV613	E15		X			2	B	1"	GL	SOL	C	O	FST VPI	RF RF	5s	VRR-37	42ST-2SI01 42ST-2SI01	
SIB-HV623	E12		X			2	B	1"	GL	SOL	C	O	FST VPI	RF RF	5s	VRR-37	42ST-2SI01 42ST-2SI01	
SIB-HV633	E7		X			2	B	1"	GL	SOL	C	O	FST VPI	RF RF	5s	VRR-37	42ST-2SI01 42ST-2SI01	
SIB-HV643	E4		X			2	B	1"	GL	SOL	C	O	FST VPI	RF RF	5s	VRR-37	42ST-2SI01 42ST-2SI01	

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VALVE NUMBER	P&ID COORDINATES	13-M-STP-001	13-M-STP-002			ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
SIA-HV657	H4	X				2	B	16"	BTF	MO	C	O/C	FST VPI	OP RF	O-30s C-30s		73ST-2ZZ11 73ST-2ZZ02	
SIB-HV658	C4	X				2	B	16"	BTF	MO	C	O/C	FST VPI	OP RF	O-30s C-30s		73ST-2ZZ11 73ST-2ZZ02	
SIA-HV685	G8	X				2	B	10"	GA	MO	C	O/C	FST VPI	OP RF	O-50s C-50s		73ST-2ZZ11 73ST-2ZZ02	
SIA-HV686	H6	X				2	B	20"	GA	MO	C	O/C	FST VPI	OP RF	O-100s C-100s		73ST-2ZZ11 73ST-2ZZ02	
SIB-HV690	H13		X			2	A	10"	GL	MO	C	O	FST VPI AJLT	OP RF RF	 30s		73ST-2ZZ10 73ST-2ZZ02 73ST-9CL01	penet. 26
SIA-HV691	H4		X			2	A	10"	GL	MO	C	O	FST VPI AJLT	OP RF RF	 30s		73ST-2ZZ10 73ST-2ZZ02 73ST-9CL01	penet. 27
SIB-HV694	B8	X				2	B	10"	GA	MO	C	O/C	FST VPI	OP RF	O-50s C-50s		73ST-2ZZ11 73ST-2ZZ02	
SIB-HV696	C6	X				2	B	20"	GA	MO	C	O/C	FST VPI	OP RF	O-100s C-100s		73ST-2ZZ11 73ST-2ZZ02	
SIB-UV322	D2		X			2	B	1"	GL	AO	O/C	C	FST VPI	OP RF	 5s		73ST-2ZZ10 73ST-2ZZ02	
SIB-UV332	D10		X			2	B	1"	GL	AO	O/C	C	FST VPI	OP RF	 5s		73ST-2ZZ10 73ST-2ZZ02	

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VALVE NUMBER	P&ID COORDINATES 13-M-SIP-001 13-M-SIP-002					ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
(IR-682) SIB-UV602	D15	X				2	B	1/2"	GL	SOL	C	O	FST VPI	OP RF	8s		73ST-2ZZ10 73ST-2ZZ01	
(IR-683) SIA-UV603	D15	X				2	B	1/2"	GL	SOL	C	O	FST VPI	OP RF	8s		73ST-2ZZ10 73ST-2ZZ01	
SIB-UV611	B16		X			2	B	2"	GL	AO	O/C	C	FST VPI	OP RF	10s		73ST-2ZZ10 73ST-2ZZ02	
SIB-UV614	A14		X			1	B	14"	GA	MO	O	O	FST VPI	CS RF	30s	VRR-38	73ST-9ZZ08 73ST-2ZZ02	
SIB-UV615	G13		X			2	B	12"	GL	MO	C	O	FST TP/VPI	OP RF	10s		73ST-2ZZ11 73ST-2SI01	penet. 17
SIB-UV616	G14		X			2	B	2"	GL	MO	C	O	FST VPI	OP RF	10s		73ST-2ZZ11 73ST-2SI02	penet. 13
SIA-UV617	G15		X			2	B	2"	GL	MO	C	O	FST VPI	OP RF	10s		73ST-2ZZ11 73ST-2SI02	penet. 13
SIB-UV618	B16		X			1	B	1"	GL	AO	O/C	C	FST VPI	OP RF	5s		73ST-2ZZ10 73ST-2ZZ02	
SIB-UV621	C13		X			2	B	2"	GL	AO	O/C	C	FST VPI	OP RF	10s		73ST-2ZZ10 73ST-2ZZ02	
SIB-UV624	A12		X			1	B	14"	GA	MO	O	O	FST VPI	CS RF	30s	VRR-38	73ST-2ZZ08 73ST-2ZZ02	

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ISI CLASS 1, 2, & 3 VALVES

UNIT: 2

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VALVE NUMBER	P&ID COORDINATES 13-M-STP-001 13-M-STP-002					ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
SIB-UV625	G11		X			2	B	12"	GL	MO	C	O	FST TP/VPI	OP RF	10s		73ST-2ZZ11 73ST-2SI01	penet. 18
SIB-UV626	G12		X			2	B	2"	GL	MO	C	O	FST VPI	OP RF	10s		73ST-2ZZ11 73ST-2ZZ02	penet. 14
SIA-UV627	G12		X			2	B	2"	GL	MO	C	O	FST VPI	OP RF	10s		73ST-2ZZ11 73ST-2ZZ02	penet. 14
SIB-UV628	B13		X			1	B	1"	GL	AO	O/C	C	FST VPI	OP RF	5s		73ST-2ZZ10 73ST-2ZZ02	
SIB-UV631	C8		X			2	B	2"	GL	AO	O/C	C	FST VPI	OP RF	10s		73ST-2ZZ10 73ST-2ZZ02	
SIA-UV634	A7		X			1	B	14"	GA	MO	O	O	FST VPI	CS RF	30s	VRR-38	73ST-2ZZ08 73ST-2ZZ02	
SIA-UV635	G6		X			2	B	12"	GL	MO	C	O	FST TP/VPI	OP RF	10s		73ST-2ZZ11 73ST-2ZZ01	penet. 19
SIB-UV636	G7		X			2	B	2"	GL	MO	C	O	FST VPI	OP RF	10s		73ST-2ZZ11 73ST-2ZZ02	penet. 15
SIA-UV637	G8		X			2	B	2"	GL	MO	C	O	FST VPI	OP RF	10s		73ST-2ZZ11 73ST-2ZZ02	penet. 15
SIB-UV638	B8		X			1	B	1"	GL	AO	O/C	C	FST VPI	OP RF	5s		73ST-2ZZ10 73ST-2ZZ02	

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ISI CLASS 1, 2, & 3 VALVES

UNIT: 2

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VALVE NUMBER	P & ID COORDINATES	13-M-STP-001	13-M-STP-002	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
SIB-UV641	C5	X		2	B	2"	GL	AO	O/C	C	FST VPI	OP RF	10s		73ST-2ZZ10 73ST-2ZZ02	
SIA-UV644	A4	X		1	B	14"	GA	MO	O	O	FST VPI	CS RF	30s	VRR-38	73ST-2ZZ08 73ST-2ZZ02	
SIA-UV645	G4	X		2	B	12"	GL	MO	C	O	FST TP/VPI	OP RF	10s		73ST-2ZZ11 73ST-2SI01	penet. 20
SIB-UV646	G4	X		2	B	2"	GL	MO	C	O	FST VPI	OP RF	10s		73ST-2ZZ11 73ST-2ZZ02	penet. 16
SIA-UV647	G5	X		2	B	2"	GL	MO	C	O	FST VPI	OP RF	10s		73ST-2ZZ11 73ST-2ZZ02	penet. 16
SIB-UV648	B7	X		1	B	1"	GL	AO	O/C	C	FST VPI	OP RF	5s		73ST-2ZZ10 73ST-2ZZ02	
SIA-UV651	C3	X		1	A	16"	GA	MO	C	O/C	LT FST VPI	RF CS RF	0-80s C-80s	VRR-39	73ST-9SI03 73ST-2ZZ08 73ST-2ZZ02	
SIB-UV652	C10	X		1	A	16"	GA	MO	C	O/C	LT FST VPI	RF CS RF	0-80s C-80s	VRR-39	73ST-9SI03 73ST-2ZZ08 73ST-2ZZ02	
SIC-UV653	E3	X		1	A	16"	GA	MO	C	O/C	LT FST VPI AJLT	RF CS RF RF	0-80s C-80s	VRR-39	73ST-9SI03 73ST-2ZZ08 73ST-2ZZ02 73ST-9CL01	penet. 27

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ISI CLASS 1, 2, & 3 VALVES

UNIT: 2

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VALVE NUMBER	P & ID COORDINATES 13-M-STP-001 13-M-STP-002					ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
SIB-UV654	E10		X			1	A	16"	GA	MO	C	O/C	LT FST VPI AJLT	RF CS RF RF	0-80s C-80s	VRR-39	73ST-9SI03 73ST-2ZZ08 73ST-2ZZ02 73ST-9CL01	penet. 26
SIA-UV655	G3		X			2	A	16"	GA	MO	C	O/C	FST VPI AJLT	CS RF RF	0-80s C-80s	VRR-39	73ST-2ZZ08 73ST-2ZZ02 73ST-9CL01	penet. 27
SIB-UV656	G10		X			2	A	16"	GA	MO	C	O/C	FST VPI AJLT	CS RF RF	0-80s C-80s	VRR-39	73ST-2ZZ08 73ST-2ZZ02 73ST-9CL01	penet. 26
SIB-UV659	A6	X				2	B	4"	GL	SOL	O	C	FST VPI	OP RF	12s		73ST-2ZZ11 73ST-2ZZ01	
SIA-UV660	F6	X				2	B	4"	GL	SOL	O	C	FST VPI	OP RF	10s		73ST-2ZZ11 73ST-2ZZ01	
SIA-UV664	G10	X				2	B	2"	GL	MO	O	C	FST VPI	OP RF	10s		73ST-2ZZ10 73ST-2ZZ02	
SIB-UV665	B10	X				2	B	2"	GL	MO	O	C	FST VPI	OP RF	10s		73ST-2ZZ10 73ST-2ZZ02	
SIA-UV666	F10	X				2	B	2"	GL	MO	O	C	FST VPI	OP RF	10s		73ST-2ZZ11 73ST-2ZZ02	
SIB-UV667	A10	X				2	B	2"	GL	MO	O	C	FST VPI	OP RF	10s		73ST-2ZZ11 73ST-2ZZ02	

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ISI CLASS 1, 2, & 3 VALVES

UNIT: 2

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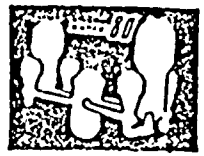

VALVE NUMBER	P&ID COORDINATES	13-M-STP-001	13-M-STP-002			ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
SIB-UV668	B10	X				2	B	2"	GL	MO	O	C	FST VPI	OP RF	10s		73ST-2ZZ10 73ST-2ZZ02	
SIA-UV669	G10	X				2	B	2"	GL	MO	O	C	FST VPI	OP RF	10s		73ST-2ZZ10 73ST-2ZZ02	
SIB-UV671	C6	X				2	A	8"	GA	MO	C	O	FST VPI AJLT	OP RF RF	10s		73ST-2ZZ10 73ST-2ZZ02 73ST-9CL01	penet. 22
SIA-UV672	G6	X				2	A	8"	GA	MO	C	O	FST VPI AJLT	OP RF RF	10s		73ST-2ZZ10 73ST-2ZZ02 73ST-9CL01	penet. 21
SIA-UV673	G16	X				2	A	24"	BTF	MO	C	O	FST VPI AJLT	OP RF RF	25s		73ST-2ZZ10 73ST-2ZZ02 73ST-9CL01	penet. 23
SIA-UV674	G14	X				2	A	24"	BTF	MO	C	O	FST VPI AJLT	OP RF RF	25s		73ST-2ZZ10 73ST-2ZZ02 73ST-9CL01	penet. 23
SIB-UV675	A16	X				2	A	24"	BTF	MO	C	O	FST VPI AJLT	OP RF RF	25s		73ST-2ZZ10 73ST-2ZZ02 73ST-9CL01	penet. 24
SIB-UV676	A14	X				2	A	24"	BTF	MO	C	O	FST VPI AJLT	OP RF RF	25s		73ST-2ZZ10 73ST-2ZZ02 73ST-9CL01	penet. 24
(IR-680) SIB-UV680	C13	X				2	B	1/2"	GL	SOL	C	O	FST VPI	OP RF	8s		73ST-2ZZ10 73ST-2ZZ05	
(IR-681) SIA-UV681	E13	X				2	B	1/2"	GL	SOL	C	O	FST VPI	OP RF	8s		73ST-2ZZ10 73ST-2ZZ05	

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VALVE NUMBER	P&ID COORDINATES	13-M-SIP-001	13-M-SIP-002			ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
SIA-UV682	D10	X				2	A	2"	GL	AO	C	C	FST VPI AJLT	OP RF RF	 5s		73SI-2ZZ10 73SI-2ZZ02 73SI-9CL01	penet. 28
SIA-UV688	G9	X				2	B	10"	GA	MO	C	O/C	FST VPI	OP RF	O-50s C-50s		73SI-2ZZ10 73SI-2ZZ02	
SIB-UV693	C9	X				2	B	10"	GA	MO	C	O/C	FST VPI	OP RF	O-50s C-50s		73SI-2ZZ10 73ST-2ZZ02	
SIA-UV708	G15	X				2	A	1/2"	GL	SOL	C	O/C	FST VPI AJLT	OP RF RF	O-5s C-5s		73SI-2ZZ10 73ST-2ZZ01 73SI-9CL01	penet. 23
SIA-UV709	E8	X				2	B	1/2"	GL	SOL	C	O/C	FST VPI	OP RF	O-3s C-5s		73SI-2ZZ10 73ST-2ZZ01	
SIB-UV710	A7	X				2	B	1/2"	GL	SOL	C	O/C	FST VPI	OP RF	O-3s C-5s		73ST-2ZZ10 73ST-2ZZ01	
(IR-100) SIE-PSV100	F15	X				2	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
(IR-118) SIE-PSV118	F15	X				2	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SIB-PSV140	B15	X				2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	penet. 24
SIB-PSV141	B14	X				2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	

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VALVE NUMBER	P&ID COORDINATES	13-M-STP-001	13-M-STP-002	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
SIA-PSV151	H15	X			2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	penet. 23
SIA-PSV159	G15	X			2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SIA-PSV160	D15	X			2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SIA-PSV161	H6	X			2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SIA-PSV162	G5	X			2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SIB-PSV166	G9		X		2	C	1 1/2"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SIB-PSV169	D10		X		1	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SIA-PSV178	D14	X			2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SIA-PSV179	F3		X		2	C	6"	PSV	SA	C	O	PSVT	RF			73ST-9ZZ19 73ST-9ZZ20	penet. 27
SIB-PSV187	C14	X			2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	

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ISI CLASS 1, 2, & 3 VALVES

UNIT: 2

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VALVE NUMBER	P & ID COORDINATES	13-M-STP-001	13-M-STP-002	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
SIB-PSV189	F10		X		2	C	6"	PSV	SA	C	O	PSVT	RF			73ST-9ZZ19 73ST-9ZZ20	penet. 26
SIB-PSV191	D6	X			2	C	1 1/2"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SIB-PSV192	C4	X			2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SIB-PSV193	D6	X			2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SIA-PSV194	H6	X			2	C	1 1/2"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SIE-PSV211	E15		X		2	C	2"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SIE-PSV221	E12		X		2	C	2"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SIE-PSV231	E7		X		2	C	2"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SIE-PSV241	E5		X		2	C	2"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SIE-PSV250	F14	X			2	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	

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ISI CLASS 1, 2, & 3 VALVES

UNIT: 2

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VALVE NUMBER	P&ID COORDINATES 13-M-STP-001 13-M-STP-002				ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
SIA-PSV285	F9	X			2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SIB-PSV286	B9	X			2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SIB-PSV287	C9	X			2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SIE-PSV288	E5	X			2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SIA-PSV289	G9	X			2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SIE-PSV407	E8	X			2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SIB-PSV409	B2	X			2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SIA-PSV417	F3	X			2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SIA-PSV439	H3	X			2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SIB-PSV449	D3	X			2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	

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ISI CLASS 1, 2, & 3 VALVES

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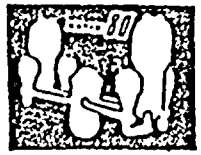

VALVE NUMBER	P&ID COORDINATES	13-M-STP-001	13-M-STP-002	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
SIA-PSV468	G2		X	2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SIA-PSV469	D3		X	1	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SIE-PSV473	E10	X		2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SIE-PSV474	E9	X		2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	penet. 28

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ISI CLASS 1, 2, & 3 VALVES

UNIT: 2

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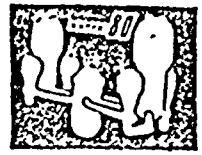

VALVE NUMBER	P & ID COORDINATES	13-M-SPP-001	13-M-SPP-002			ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
SPB-V012	C6	X				3	C	24"	CK	SA	C	O	FST	OP			42ST-2SP02	
SPA-V041	C4	X				3	C	24"	CK	SA	C	O	FST	OP			42ST-2SP02	
SPA-PSV29	D3		X			3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SPB-PSV30	D7		X			3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SPA-PSV137	G2		X			3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SPB-PSV138	G5		X			3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SPA-PSV139	F2		X			3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SPB-PSV140	F5		X			3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SPA-PSV141	F2		X			3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SPB-PSV142	F5		X			3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	

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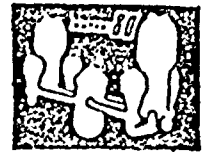


VALVE NUMBER	P&ID COORDINATES	13-M-SPP-001	13-M-SPP-002		ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
SPA-PSV143	F2		X		3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SPB-PSV144	E5		X		3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	

PALO VERDE NUCLEAR GENERATING STATION

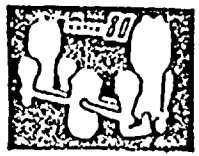
ANPP

INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 2

System: Nuclear Sampling (SS) Rev.: 0 Page 65 of 66 Pages



VALVE NUMBER	P&ID COORDINATES 13-N-SSP-001				ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
SSB-UV200	G6	X			2	A	1/2"	GL	SOL	C	C	FST VPI AJLT	OP RF RF	 5s		73ST-2ZZ09 73ST-2ZZ01 73ST-9CL01	penet. 42C
SSB-UV201	F6	X			2	A	1/2"	GL	SOL	C	C	FST VPI AJLT	OP RF RF	 5s		73ST-2ZZ09 73ST-2ZZ01 73ST-9CL01	penet. 42A
SSB-UV202	E6	X			2	A	1/2"	GL	SOL	C	C	FST VPI AJLT	OP RF RF	 5s		73ST-2ZZ09 73ST-2ZZ01 73ST-9CL01	penet. 42B
SSA-UV203	G7	X			2	A	1/2"	GL	SOL	C	C	FST VPI AJLT	OP RF RF	 5s		73ST-2ZZ09 73ST-2ZZ01 73ST-9CL01	penet. 42C
SSA-UV204	F7	X			2	A	1/2"	GL	SOL	C	C	FST VPI AJLT	OP RF RF	 5s		73ST-2ZZ09 73ST-2ZZ01 73ST-9CL01	penet. 42A
SSA-UV205	E7	X			2	A	1/2"	GL	SOL	C	C	FST VPI AJLT	OP RF RF	 5s		73ST-2ZZ09 73ST-2ZZ01 73ST-9CL01	penet. 42B

PALO VERDE NUCLEAR GENERATING STATION

ANPP

INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 2

System: Normal Chiller Water (WC) Rev.: 0 Page 66 of 66 Pages

VALVE NUMBER	P&ID COORDINATES 13-M-WCP-001					ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
WCE-V039	G7	X				2	AC	10"	CK	SA	O	C	FST AJLT	RF RF		VRR-19	73ST-9CL01 73ST-9CL01	
WCB-UV61	F7	X				2	A	10"	GA	MO	O	C	FST VPI AJLT	OP RF RF	 10s		73ST-2ZZ10 73ST-2ZZ03 73ST-9CL01	
WCA-UV62	F6	X				2	A	10"	GA	MO	O	C	FST VPI AJLT	OP RF RF	 10s		73ST-2ZZ10 73ST-2ZZ03 73ST-9CL01	
WCB-UV63	F6	X				2	A	10"	GA	MO	O	C	FST VPI AJLT	OP RF RF	 10s		73ST-2ZZ10 73ST-2ZZ03 73ST-9CL01	

PALO VERDE NUCLEAR GENERATING STATION

PUMP AND VALVE
INSERVICE TESTING PROGRAM PV-3
UNIT 3
REVISION 0

PREPARED BY: Ron Kriggs — PROJECT ENGINEER — DATE: 3/31/86

REVIEWED BY: Nelson C Dallas — TECHNICAL REVIEWER — DATE: 3-31-86

APPROVED BY: [signature] — OPERATIONS ENGINEERING MANAGER — DATE: 3/31/86

APPROVED BY: [signature] — PLANT REVIEW BOARD (PRB) CHAIRMAN — DATE: 4/17/86

CONCURRED BY: James C Kaman — ANII — DATE: 6-25-86

8608210205

PROGRAM: PV-3

UNIT: 3
REV: 0

INSERVICE TESTING

OF

SAFETY RELATED PUMPS AND VALVES

DN-5213C/0718C

PROGRAM: PV-3 UNIT: 3
REV: 0

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APPENDICES

Appendix A - Relief Request for Pumps
Appendix B - Relief Request for Valves
Appendix C - ISI Pump Program
Appendix D - ISI Valve Program

INTRODUCTION

The Inservice Inspection Program for Palo Verde Nuclear Generating Station is developed in compliance with the rules and regulations of 10CFR50.55a and Section XI of the ASME Boiler and Pressure Vessel Code, 1980 Edition, Winter 1981 Addenda. Where these rules were determined to be impractical, specific relief was written.

Section 1.0 discusses the Inservice Testing Program for applicable Class 1, 2 and 3 pumps. Section 2.0 discusses the Inservice Testing Program for applicable Class 1, 2 and 3 valves.

1.0 INSERVICE TESTING OF PUMPS

1.1 General Information

The Inservice Testing Program for ASME Class 1, 2 and 3 pumps was developed in accordance with, and meets the requirements of ASME Boiler and Pressure Vessel Code, Section XI, Subsection IWP, 1980 Edition, Winter 1981 Addenda.

The Inservice Testing Program for pumps will remain in effect through the next 10 year inservice inspection interval commencing at commercial operation.

Appendix C lists all Class 1, 2 and 3 pumps which are to be tested, along with the applicable parameters to be measured.

1.2 Program Information

The following information is included in the Inservice Testing Program for pumps:

A. Pump Number lists the pump identification number as shown on the P&ID's.

B. Pump Name describes the pump's functional identification as it is related to system operation.

C. ISI CLASS is the Owner's classification of the pump per ISI requirements and per FSAR Table 3.2-1.

D. P&ID and Coordinates indicates the drawing and grid location where the pump appears.

E. Test Parameters indicates the required test quantities required per Table IWP-3100-1.*

F Notes are general statements which can be referred to in the ISI Testing Program.

1.3 Reference Values

Reference values shall be established when the pump is known to be operating acceptably. All subsequent test results shall be compared to the reference values.

After a pump has been replaced, a new set of reference values shall be determined from the results of the first inservice test run after the pump is put into service. When a reference value has been affected by a repair or routine servicing of the pump, a new reference value or set of values shall be determined or the previous value confirmed by an inservice test run prior to return of the pump to service.

IWP-3230 (c) and (d) permits analysis and recalibration of instruments as methods of corrective action for pumps which exceed the values in Table IWP-3100-2 (Required Action Range). Pumps which fall into the Required Action Range at high values (ie. increased/improved performance) will be analyzed and/or the test rerun subsequent to instrument recalibration prior to declaring the pump inoperable per IWP-3230 (b). This applies to pumps wherein pump flow and differential pressure is measured/observed.

*These quantities will be either measured, observed, or calculated (denoted by "M", "O", or "C" in the ISI Testing Program). "PRR-(1)" will denote a specific request for relief concerning that parameter.

1.4 Test Frequency

An inservice test shall be run on each pump nominally every three months during plant operation. The auxiliary feedwater pumps will be tested monthly as required per Tech Spec 3/4.7.1.2. Where a pump is not tested on a three month frequency during plant shutdown, it will be tested prior to declaring the system operable, per Technical Specifications.

1.5 Request for Relief

Where ASME Section XI requirements are determined to be impractical, a request for relief is written per the provisions of 10CFR50.55a (g) (6) (i), and incorporated into the Palo Verde Inservice Testing Program.

Relief requests are shown in Appendix A.

1.6 Pump Listing

The listing of Pumps is located in Appendix C.

2.0 INSERVICE TESTING OF VALVES

2.1 General Information

The Inservice Testing Program for ASME Class 1, 2 and 3 valves was developed in accordance with, and meets the requirements of ASME Boiler and Pressure Vessel Code, Section XI, Subsection IWV, 1980 Edition, Winter 1981 Addenda.

The Inservice Testing Program for valves will remain in effect throughout the next 10 year service inspection interval, commencing at commercial operation.

2.2 Preservice Test

Each valve, after installation and prior to service, shall be tested. These tests shall be conducted under conditions similar to those to be experienced during subsequent inservice tests. Safety and relief valves which will be removed and bench tested during subsequent inservice test need not be installed prior to the preservice test.

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.

2.3 Program Information

The following information is included in the Inservice Testing Program for valves:

A. Valve Number lists the valve identification number as shown on the P&ID's.

B. Coordinates reference the grid on the P&ID where the valve appears.

C. ISI Class is the Owner's classification of the valve per ISI requirements & FSAR Table 3.2-1.

D. Valve Category indicates the category assigned to the valve based on the definition of IWV-2200.

E. Valve Size lists the nominal size of the valve in inches.

F. Valve Type lists the valve design.

G. Actuator Type lists the type of valve actuator.

H. Valve Position indicates the normal position of valve during plant operation; either normally open (O), normally closed (C), or both (O/C).

I. Stroke Direction indicates the direction which an active valve must stroke to perform its safety function. Also, the direction in which the valve will be stroked to satisfy the exercising requirements of IWV-3410 and IWV-3520. This may be specified as open (O), closed (C), or both (O/C).

J. Test lists the test or tests that will be performed for each valve to fulfill the requirements of Subsection IWV.

Appendix J Leak Test (AJLT)

Valve will be leak tested in accordance with 10CFR50, Appendix J requirements.

Leak Test (LT)

Leak test performed for category A valve.

Full Stroke Test (FST)

Valve will be full stroke exercised for operability in the direction necessary to fulfill its safety function.

Partial Stroke Test (PST)

Valve will be partial stroke exercise when full stroke exercising is impractical.

Fail-Safe Test (FT)

All valves with fail-safe actuators will be tested to verify proper fail-safe operation upon loss of actuator power. If operation of the normal control switch causes the valve to fail to its fail-safe position through loss of control power or loss of air, no further testing will be required. However, if fail-safe operation cannot be verified by repositioning of the control switch alone, a specific fail-safe test will be performed.

Verify Position Indicator (VPI)

Automatically actuated valves with remote indication will be verified in accordance with IWV-3300.

Pressure Safety Valve Testing (PSVT)

Relief and safety valve set points will be verified in accordance with IWV-3510.

Throttled Position (TP)

Measurement of position of valve stem will be made to ensure valve moves to correct throttled position per Tech Specs 4.5.2.g.

K. Test Mode indicates the frequency at which the preceeding mentioned tests will be performed. The following abbreviations are used:

Cold Shutdown (CS)

Valve testing at cold shutdown is valve testing which commences not later than seventy-two (72) hours after cold shutdown (and Control Room activities permit testing evolutions) and continues until required testing is completed or plant startup, whichever occurs first. Completion of all required valve testing is not a requisite to plant startup. Valve testing which is not completed during cold shutdown will be performed during subsequent cold shutdowns to meet the Code specified testing requirements. No valve is required to be tested more often than once every 92 days.

Note: Completion of all valve testing during cold shutdown is not required if plant operating conditions will not permit the testing of specific valves.

Normal Operation (OP)

Valve tests with this designation will be performed once every three months.

Note: An additional caveat such as -3 may be added to CS or RF test modes to indicate specific Tech Spec Mode (e.g., 1 to 6) in which testing will occur due to plant conditions, e.g., RF-3. This indicates that test will be performed in Mode 3 going into or coming out of refueling outage.

Reactor Refueling (RF)

Valve tests with this designation will be conducted at reactor refueling outages only.

L. Max Stroke Time lists the maximum allowed full stroke time measured in seconds from signal initiation until stroke completion is indicated. Testing is to be completed for all stroke times listed whenever the valve is full stroke tested (ref. IWV-3413).

M. Relief Request references the relief request contained in Appendix B that applies to the particular valve.

N. Remarks lists clarification remarks.

The Inservice Test Program lists all ASME Class 1, 2 and 3 valves that have been assigned valve categories. Active valves were selected from all ASME III Class 1, 2 and 3 valves in the plant if they met the two criteria of IWV-1100, i.e.;

- Required to perform a specific function in shutting the reactor down to cold shutdown condition.
- Required to mitigate the consequences of an accident.

Valves were selected based on a review of the following documents:

- P&ID's
- Technical Specifications
- CESSAR
- FSAR

Valves which are passive (e.g., normally closed and remain closed, or normally open and remain open) are not included in the plan except Containment Isolation Check Valves. These valves are included for information only, and are tested by Local Leak Rate Testing per 10CFR50, Appendix J and Technical Specification 3/4.6.1.

Valves exempt by the Code per IWV-1200 are not listed.

All ASME Section III Pressure Safety and Relief Valves are included in the program. However, only the Pressurizer safety valves, main steam safety valves, and the Low Temperature Over Pressure (LTOP) safety valves perform specific active functions to mitigate an accident or assist in the shutdown of the plant. All remaining safety and relief valves are included in the program to ensure that they are periodically tested per PTC 25.3 on a schedule of approximately 5 year intervals.

The listing of valves is located in Appendix D.

The tables are organized by system.

2.4 Request for Relief

Where ASME Section XI requirements were determined to be impractical, a request for relief was written. Relief Request are shown in Appendix B.

2.5 Explanation of Abbreviations and Notes

See the following pages.

PALO VERDE NUCLEAR GENERATING STATION

ANPP

INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: _____

System: _____ Rev.: _____ Page _____ of _____ Pages

VALVE NUMBER	P & ID COORDINATES					ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
									ANG								ANGLE	
									BTF								BUTTERFLY	
									CK								CHECK	
									DIA								DIAPHRAGM	
									GA								GATE	
									GL								GLOBE	
									PSV								PRESSURE SAFETY VALVE	
									AO								AIR OPERATOR	

PALO VERDE NUCLEAR GENERATING STATION

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INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: _____

System: _____ Rev.: _____ Page _____ of _____ Pages

VALVE NUMBER	P & ID COORDINATES				ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
									HY							HYDRAULIC	
									MAN							MANUAL	
									MO							MOTOR OPERATOR	
									SA							SELF ACTUATED	
									SOL							SOLENOID	
										O						OPEN	
										C						CLOSED	
										O/C						OPEN/CLOSED	

PALO VERDE NUCLEAR GENERATING STATION

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INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: _____

System: _____ Rev.: _____ Page _____ of _____ Pages

VALVE NUMBER	P & ID COORDINATES					ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
													AJLT				APPENDIX J LEAK TEST	
													FST				FULL STROKE TEST	
													PST				PARTIAL STROKE TEST	
													LT				LEAK TEST	
													FT				FAIL TEST	
													VPI				VERIFY POSITION INDICATOR	
													PSVT				PRESSURE SAFETY VALVE TEST	
													TP				THROTTLED POSITION	

PALO VERDE NUCLEAR GENERATING STATION

ANPP

INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: _____

System: _____ Rev.: _____ Page _____ of _____ Pages

VALVE NUMBER	P & ID COORDINATES				ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
												OP				NORMAL OPERATION	
												CS				COLD SHUTDOWN	
												RF				REACTOR REFUELING	
												RF-3				REFUELING - MODE 3 PERFORMANCE	
															VRR	VALVE RELIEF REQUEST	

Appendix A

PUMP RELIEF REQUESTS

PUMP RELIEF REQUEST NO. 1

SYSTEM:	Auxiliary Feedwater System (AF)
COMPONENT:	AFN-P01, AFA-P01, AFB-P01
P&ID COORDINATE:	13-M-AFP-001 @ H8, D8, B8
CLASS:	3
FUNCTION	AFN-P01, AFA-P01, and AFB-P01 are the non-essential Auxiliary Feedwater Pump, the steam driven Aux Feedwater Pump and motor driven Aux Feedwater Pump, respectively, and supply make-up water to the Steam Generator during start-up/shutdown conditions and subsequent to receipt of an AFAS (aux feed actuation signal). Note AFN-P01 does not receive an AFAS.
TEST REQUIREMENT:	IWP-3100 requires that either the pump differential pressure or flow rate be set and the other pump criteria (differential pressure or flow rate) be measured.
BASIS FOR RELIEF:	The hydraulic circuits for the ASME Section XI test for these pumps is via minimum flow recirculation loop. Minimum flow orifices installed in the line control constant flow. High velocity fluid through the orifice ensures that they do not become plugged and orifice erosion would be detected as pump degradation and investigated accordingly.
ALTERNATE TESTING:	None; flow is constant but not measured.

PROGRAM: PV - 3

UNIT: 3
Rev.: 0

PUMP RELIEF REQUEST NO 2

SYSTEMS:	Chemical and Volume Control, Safety Injection
COMPONENTS:	CHA-P01, CHB-P01, CHE-P01, SIA-P05, and SIB-P05
P&ID COORDINATES:	13-M-CHP-002 @ B3, D3, and G3 13-M-SIP-001 @ C14 and D14
CLASS:	2
FUNCTION:	CHA-P01, CHB-P01, and CHE-P01 are the three charging pumps. SIA-P05 and SIB-P05 are the containment spray chemical addition pumps (SCAP). The charging pumps provide makeup to the reactor coolant system for chemistry and volume control. In addition they provide auxiliary spray to the pressurizer during the final stages of shutdown. The SCAP inject a controlled amount of hydrazine into the containment spray flow to remove radioactive elemental iodine from the containment atmosphere.
TEST REQUIREMENTS:	The inlet pressure and differential pressure shall be measured or observed and recorded.
BASIS FOR RELIEF:	These pumps are of positive displacement design and as such are designed to deliver constant capacity irrespective of inlet pressure or differential pressure across the pump. The parameters important to monitoring pump degradation are discharge pressure and flow rate. Measuring Inlet pressure and differential pressure provides no meaningful information.
ALTERNATE TESTING:	No alternate testing for these parameters is meaningful. However, discharge pressure will be set and recorded and flow rate will be measured & recorded as per Section XI. Flow Rate will be trended.

PROGRAM: PV - 3

UNIT: 3
Rev.: 0

PUMP RELIEF REQUEST NO. 3

SYSTEM:	Diesel Generator Fuel Oil Transfer System
COMPONENTS:	DFA-P01 and DFB-P01
P&ID & COORDINATES:	13-M-DFP-001 @ B-6 and B-2
CLASS:	3
FUNCTION:	To provide fuel oil to the standby diesel generators.
TEST REQUIREMENTS	Measure displacement vibration amplitude of pump.
BASIS FOR RELIEF:	These pumps are immersible centrifugal sump pumps located in the emergency fuel oil storage tanks, therefore, are inaccessible for this type of testing.
ALTERNATE TESTING	No alternate testing for this parameter is practical, however, all other parameters will be tested per Section XI requirements to show pump integrity.

PROGRAM: PV - 3

UNIT: 3
Rev.: 0

PUMP RELIEF REQUEST NO. 4

SYSTEM: Diesel Generator System

COMPONENTS: DGA-P02, DGB-P02, DGA-P03, DGB-P03, DGB-P05, DGB-P05

P&ID AND COORDINATES: 13-M-DGP-001: sht 4 @ F7, F3; sht 3 @ C7, C3; sh 7 @ D7, D3.

FUNCTION:

DG-P02 This pump is the diesel generator driven jacket water pump. This pump functions after the D/G starts up.

DG-P03 This pump is the diesel generator driven lube oil pump. This pump functions after the D/G starts up.

DG-P05 This is the diesel generator driven fuel booster pump.

TEST REQUIREMENTS:

Test Requirements: An inservice test shall be conducted with the pump operating at nominal motor nameplate speed. The resistance of the system shall be varied until either the measured flow rate or differential pressure equals the reference value. The test parameters shall then be measured and observed and compared to the corresponding reference values.

BASIS FOR RELIEF:

These pumps are supplied as an integral part of the Diesel Generator skid package. The operational readiness of these pumps will be ascertained by assuring the capacity of the pumps to fulfill their function during the monthly diesel generator Technical Specification surveillance test. The Diesel Generator is required to obtain rated speed, frequency & voltage within 10 secs.

Individual pump performance equipment (e.g. suction & discharge pressure indicator, and flowrate Indicators) was not supplied on skid package. Pump Degradation will be exhibited by failure of Diesel Generator to obtain performance requirements set in Technical Specification.

PROGRAM: PV - 3

UNIT: 3
Rev.: 0

PUMP RELIEF REQUEST NO. 4

ALTERNATE TESTING

Operate the pumps monthly when the Diesel Generator is functionally tested in accordance with Technical Specifications 3/4.8.1.

PUMP RELIEF REQUEST NO. 5

SYSTEM:	Safety Injection System (SI)
COMPONENT:	SIA-P01, SIB-P01
P&ID COORDINATES:	13-M-SIP-001 @ B-11, G-11
CLASS:	2
FUNCTION:	SIA-P01 and SIB-P01 are Low Pressure Safety Injection Pumps (LPSI). They function to inject borated water into the core post accident (Emergency Core Cooling) and also serve function as shutdown cooling pumps.
TEST REQUIREMENT:	ASME Section XI, IWP-4120 requires that each instrument used shall be three times the reference value or less.
BASIS FOR RELIEF:	The discharge pressure of the LPSI pump ranges from 220 to 240 psig under minimum recirculation flow. Under conditions of shutdown cooling, the discharge pressure under full flow conditions ranges from 300 psig to 480 psig. The discharge Pressure Indicator for the LPSI pump (SIA-PI-306 and SIB-PI-307) range from 0 - 750 psig. Loop accuracy is nominally 1.14%, compared to Code requirement of 2.0% per IWP-4110-1. It is necessary for the pressure indicator to provide information for both ASME XI and normal plant operation. Indicator range is 3.4 times discharge pressure vice 3.0 times value as per Code. Installation of temporary discharge pressure gauge is impractical due to ALARA considerations ie LPSI discharge piping is 2R/hr. Based on increased accuracy, ALARA considerations and Code intent to use installed instrumentation, PI-306 and 307 should be used. Additionally, IWA-5263 utilizes pressure gauges with a range of 4.0 times the pressure value.
ALTERNATE TESTING:	None, testing to be performed as scheduled.

PROGRAM: PV - 3

UNIT: 3
Rev.: 0

PUMP RELIEF REQUEST NO. 6

SYSTEM:	Safety Injection System (SI)
COMPONENTS:	SIA-P01, SIB-P01 SIA-P02, SIB-P02 SIA-P03, SIB-P03
P&ID COORDINATES:	13-M-SIP-001 @ B-11, G-11, A-11, E-11, C-11, H-11
CLASS:	2
FUNCTION:	SIA-P01 and SIB-P01 are Low Pressure Safety Injection Pumps. SIA-P02 and SIB-P02 are High Pressure Safety Injection Pumps and also serve as shutdown cooling pumps. SIA-P03 and SIB-P03 are Containment Spray Pumps. These pumps provide Emergency Core Cooling functions (P01 and P02), residual heat removal function (P02) and containment heat removal function (P03).
TEST REQUIREMENT:	IWP-3100 requires that either the pump differential pressure or flow rate be set and the other pump criteria (differential pressure or flow rate) be measured.
BASIS FOR RELIEF:	The hydraulic circuits for the ASME Section XI test for these pumps is via minimum recirculation loop. Minimum flow orifices installed in the line control constant flow. High velocity fluid through the orifice ensures that they do not become plugged and orifice erosion would be detected as pump degradation and investigated accordingly. A flow indicator is installed but its range (0 - 3333 gpm) far exceeds the normal miniflow output of individual pumps (eg 85 - 200 gpm). The flow indicator is on the combined minimum recirculation line. This indicator cannot be used per IWP-4120. Testing is required to be performed using miniflow lines per Technical Specifications 3/4.5.2 and 3/4.6.2.1
ALTERNATE TESTING:	None, flow is constant but not measured.

PUMP RELIEF REQUEST NO. 7

SYSTEM:	Safety Related
COMPONENT:	All pumps listed in the program.
CLASS:	2 & 3
FUNCTION:	To provide pumped liquid to safety related systems.
TEST REQUIREMENTS:	To measure bearing temperature.
BASIS FOR RELIEF:	Industry data has shown that bearing temperature changes due to degrading bearings only occurs after major degradation has occurred at the pump. Prior to this, the vibration measurement would provide the necessary information to warn the operator of an impending malfunction. Therefore, this parameter will not be measured, since its information is after the fact.
ALTERNATE TESTING:	None.

PUMP RELIEF REQUEST NO. 8

SYSTEM:	Various
COMPONENT:	Centrifugal Pumps
P&ID COORIDNATES:	Various
CLASS:	2 & 3
FUNCTION:	Various
TEST REQUIREMENT:	Table IWP-3100-2 requires that Pump Alert Range for High Values be established at 2% above reference values and Pump Required Action Range High Values be established at 3% above reference values.
BASIS FOR RELIEF:	Small increases in differential pressure (ΔP) which activate Alert and Action range for centrifugal pump, are meaningless. Small positive increases in observed differential pressure caused by instrument uncertainty, water density, difficulty in obtaining accurate discharge pressures (due to pressure oscillations as noted in IWP-4150), and instrument error result in spurious actuation of alert required action. Increasing the alert and required action ranges to parallel the low level alert/required action range will prevent needless pump testing and equipment unavailability.
ALTERNATE TESTING:	None. Testing performed as scheduled. Acceptance Range to be 0.93 to 1.05 ΔP_r High Alert Range to be 1.05 to 1.07 ΔP_r High Required Action Range to be > 1.07 ΔP_r

APPENDIX B

VALVE RELIEF REQUESTS

PROGRAM: PV - 3

UNIT: 3
Rev.: 0

VALVE RELIEF REQUEST NO. 1

SYSTEM:	Auxiliary Feedwater (AF)
COMPONENTS:	AFA-V007, AFB-V022, AFA-V137, AFB-V138
P&ID COORDINATES:	13-M-AFP-001 @ D7, C7, D6, C6
CATEGORY:	C
CLASS:	3
FUNCTION:	Suction and Discharge check valves on essential steam driven auxiliary feedwater pump and on essential motor driven auxiliary feedwater pump.
TESTING REQUIREMENT:	Full stroke exercise every three months or partial stroke exercise every three months and full stroke at cold shutdown.
BASIS FOR RELIEF:	Stroking these valves during power operation would result in injection of cold auxiliary feedwater into a hot steam generator. In addition to causing an unwarranted plant transient, this could thermally shock main feedwater piping and/or steam generator.
ALTERNATE TESTING:	Partial stroke test, on minimum recirculation flow, every 31 days on a STAGGERED BASIS, per Technical Specification 4.7.1.2a. Full stroke after refueling outages on a STAGGERED BASIS per Technical Specification 4.7.1.2c. Full Flow Test conducted in Mode 3.

VALVE RELIEF REQUEST NO. 2

SYSTEM:	Auxiliary Feedwater (AF)
COMPONENTS:	AFA-V015, AFB-V024
P&ID COORDINATES:	13-M-AFP-001 @ D5, C5
CATEGORY:	C
CLASS:	3
FUNCTION:	Provide flow path to each steam generator from essential auxiliary feedwater pumps
TEST REQUIREMENTS:	Full stroke exercise every three months or partial stroke exercise every three months and full stroke exercise every cold shutdown.
BASIS FOR RELIEF:	Stroking these valves during power operation (full or partial stroking) is not possible without injecting cold water into the steam generator. This causes unwarranted thermal transients in the steam generator and may cause thermal shocking of feedwater pipe or steam generator.
ALTERNATE TESTING:	Full flow stroke test valves during refueling on a staggered basis in accordance with and concurrent with full flow testing required by Technical Specification 4.7.1.2c. Note: Testing of AF-V015 may be delayed to Mode 3 in that steam is required to operate the turbine driven auxiliary feedwater pump.

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VALVE RELIEF REQUEST NO. 3

SYSTEM:	Auxiliary Feedwater (AF)
COMPONENTS:	AFA-V079, AFB-V080
P&ID COORDINATES:	13-M-AFP-001 @ D2, B2
CATEGORY:	C
CLASS:	2
FUNCTION:	Provide flow path auxiliary feedwater (essential) to each steam generator
TEST REQUIREMENT:	Full stroke exercise every three months or partial stroke exercise every three months and full stroke exercise every cold shutdown.
BASIS FOR RELIEF:	Stroking these valves during power operation would result in the injecting of cold aux. feedwater into a hot steam generator. In addition to possibly causing an unwarranted transient, this could thermally shock the feedwater pipe and/or steam generator.
ALTERNATE TESTING:	The valves will be full stroke tested during the flow test required by PVNGS Technical Specification 4.7.1.2c. Full stroke test performed in Mode 3.

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VALVE RELIEF REQUEST NO. 4

SYSTEM:	Chemical and Volume Control (CH)
COMPONENTS:	CHA-V177, CHA-V190, CHE-HV536, CHN-UV514
P&ID COORDINATES:	13-M-CHP-002 @ B8, A8, A14, B10
CATEGORY:	C, C, B, B
CLASS:	2, 2, 2, 3
FUNCTION:	Valve opens during emergency boration to provide flow from Refueling Water Tank (RWT) to the suction of the charging pumps via gravity feed or Boric Acid Make-up Pumps.
TEST REQUIREMENT:	Check Valves - Full stroke exercise every three months or partial exercise every three months and full stroke exercise at cold shutdown. Isolation Valves - Full stroke exercise and full stroke time every three months or partial stroke exercise every three months and full stroke exercise and stroke time at cold shutdown.
BASIS FOR RELIEF:	The emergency boration flow path is isolated (eg valves normally closed) during operation. Stroking of these valves during operation would cause unwarranted transients (boration) or needless increases in boron level beyond shutdown margin requirements.
ALTERNATE TESTING:	Full stroke test check valves during refueling per Technical Specification 3/4.1.2.2b. Full stroke test power operated valves isolation valves during cold shutdown when charging pumps are secured.

VALVE RELIEF REQUEST NO. 5

SYSTEM:	Chemical and Volume Control (CH)
COMPONENTS:	CHE-HV239, CHE-PDV-240, CHN-UV-501
P&ID COORDINATES:	13-M-CHP-001 @ G11, G11 13-M-CHP-002 @ C-7
CATEGORY:	B, B, B
CLASS:	2, 1, 2
FUNCTION:	CHN-UV-501 is Volume Control Tank (VCT) Discharge Isolation Valve. UV-501 closes on low VCT level to protect charging pumps from loss of NPSH. CHE PDV-240 is charging back-pressure control valve. PDV-240 provides sufficient back-pressure to ensure positive pressure for seal injection and auxiliary spray. CHE-HV-239 is isolation valve for PDV-240.
TEST REQUIREMENT:	Full stroke exercise and time test once every three months or part stroke every three months and full stroke exercise and time test during cold shutdown. Quarterly fail test for HV-239 and PDV-240.
BASIS FOR RELIEF:	Disrupting normal charging system flow path which would be required in order to stroke these valves would cause unwarranted transients in the RCS volume. Thermal transients are possible due to interruption of charging flow (eg Regenerative Heat exchanger, and charging nozzle). Closing UV-501 will result in loss of NPSH to charging pumps and is an unwarranted challenge to pump integrity. Closing either HV-239 or PDV-240 essentially dead heads the charging pumps (eg with two pumps in service, 88 gpm is discharged into header, of which 12-16 gpm is used for seal injection. Seal injection cannot handle 88 gpm).
ALTERNATE TESTING:	Valves to be tested during cold shutdown with charging secured.

VALVE RELIEF REQUEST NO. 6

SYSTEM:	Chemical and Volume Control (CH)
COMPONENTS:	CHB-V305, CHA-V306
P&ID COORDINATES:	13-M-CHP-002 @ C-15
CATEGORY:	C
CLASS:	2
FUNCTION:	Valves are discharge check valves from the Refueling Water Tank (RWT) to the suction of Low Pressure Safety Injection (LPSI) pump, High Pressure Safety Injection (HPSI) pump, and Containment Spray Pump. Valves open to pass borated water (4400 ppm) to ECCS pumps.
TEST REQUIREMENT:	Full stroke exercise once every three months or part stroke every three months and full stroke exercise at cold shutdown.
BASIS FOR RELIEF:	Valves can be part stroke during operation in support of quarterly testing of LPSI, HPSI and Containment Spray surveillance testing. However, valves require in excess of 6000 gpm in order to full stroke valves open. Flow rates of this magnitude are not practical during operations, shutdown or refueling. Injecting into reactor vessel during refueling creates a significant ALARA concern due to airborne activity from crud burst.
ALTERNATE TESTING:	Part stroke valves every quarter and during refueling (cavity fill). Dissassemble one valve every ten years.

VALVE RELIEF REQUEST NO. 7

SYSTEM:	Chemical and Volume Control (CH)
COMPONENTS:	CHE-V431, CHB-HV-203, CHA-HV-205
P&ID COORDINATES:	13-M-CHP-001 @ H9, H10, G11
CATEGORY:	C, B, B
CLASS:	1
FUNCTION:	Valves open to provide a flow path for Auxiliary Spray to the pressurizer.
TEST REQUIREMENT:	Full stroke exercise and full stroke time every three months or partial stroke every three months and full stroke exercise and time during cold shutdown.
BASIS FOR RELIEF:	Their function is to protect the charging system from Reactor Coolant System pressure during normal operations and to provide auxiliary spray to cool/depressurize the pressurizer when the Reactor Coolant pumps are not operating. Partial stroking is not possible since CHB-HV-203 and CHA-HV-205 are solenoid valves and control flow to CHE-V431. Stroking these valves during operation introduces unwarranted transients in RCS pressure and unwarranted thermal cycling of the pressurizer spray nozzle (reference Tech. Specs. 5.7.1). Exercising these valves is not practical during power operation.
ALTERNATE TESTING:	Full stroke test during cold shutdown.

VALVE RELIEF REQUEST NO. 8

SYSTEM:	Chemical and Volume Control (CH)
COMPONENTS:	CHE-V440
P&ID COORDINATES:	13-M-CHP-002 @ C-1
CATEGORY:	C
CLASS:	2
FUNCTION:	Valve V440 opens to pass charging flow through High Pressure Safety Injection (HPSI) as a boration flow path (discharge portion of boration flow path). Boration paths required per Technical Specifications 3.1.2.1 and 3.1.2.2
TEST REQUIREMENT:	Full stroke exercise and every three months or part stroke every three months and full stroke exercise at cold shutdown.
BASIS FOR RELIEF:	Valve is normally isolated by closed manual isolation valves and is not required. Valve will be tested per Code whenever valve is required as a flow path. Testing during operation is impractical since it would require injection through the HPSI header. This would cause thermal transients in the Regenerative Heat Exchanger and Charging nozzle. Additionally it would require performance of leak testing per Technical Specification 4.4.5.2.2. This leak testing (per 4.4.5.2.2) is not possible during operation due to ALARA in that a Containment entry would be required.
ALTERNATE TESTING:	None; Valve will be tested per Code when the associated boration flow path is required to be operable or at least once refueling.

VALVE RELIEF REQUEST NO. 9

SYSTEM:	Chemical and Volume Control (CH)
COMPONENTS:	CHB-UV-505 and CHA-UV-506
P&ID COORDINATES:	13-M-CHP-002 @ G13 and G14
CATEGORY:	A, A
CLASS:	2
FUNCTION:	Valves provide containment isolation on Reactor Coolant seal water bleed off line.
TEST REQUIREMENT:	Full stroke exercise and time every three months or partial stroke exercise every three months and full stroke exercise and time at cold shutdown Quarterly Fail Testing.
BASIS FOR RELIEF:	These valves are open during normal operation to provide seal water bleed-off from the reactor coolant pumps. Stroking these valves would require discontinuing seal injection to the pumps and compromise Reactor Coolant pump seal integrity. Partial stroking is not possible since the valves are not jog capable.
ALTERNATE TESTING:	Full stroke test during cold shutdown.

VALVE RELIEF REQUEST NO. 10

SYSTEM:	Chemical and Volume Control (CH)
COMPONENTS:	CHB-UV-515, CHA-UV-516, CHB-UV-523
P&ID COORDINATES:	13-M-CHP-001 @ H15, H15, F13
CATEGORY:	B, A, A,
CLASS:	CHB-UV-515 and CHA-UV-516 are Class 1, all others are Class 2
FUNCTION:	Valves are contain in the normal letdown/volume control make-up loop
TEST REQUIREMENT:	1. Full stroke exercise once every three months or part stroke exercise every three months and full stroke during cold shutdown. 2. Full stroke timing once every three months. 3. Fail Test every three months.
BASIS FOR RELIEF:	Disrupting normal flow paths in order to full stroke these valves could cause unwarranted transients in the RCS volume/boron concentration. Valves do not have part stroke capabilities.
ALTERNATE TESTING:	Full stroke test these valves during cold shutdown.

VALVE RELIEF REQUEST NO. 11

SYSTEM:	Chemical and Volume Control System
COMPONENTS:	CHB-HV530, and CHA-HV531
P&ID COORDINATES:	13-M-CHP-002 @ C15, and C14
CATEGORY:	B
CLASS:	2
FUNCTION:	Safety Injection Pump to Refueling Water Tank Suction Isolation Valves.
TEST REQUIREMENT:	Full stroke exercise and stroke time test every three months or partial stroke test every three months and full stroke exercise and timing test during cold shutdown.
BASIS FOR RELIEF:	Stroking these valves during operation would violate PVNGS Technical Specifications, Limiting Conditions for Operation, requiring two independent flow paths capable of taking suction from the Refueling Water Tank on a safety injection actuation signal. Valve is normally open. If valve failed in closed position, this would render one complete safety injection train (eg HPSI, LPSI and Containment Spray Pump) in-operable. This is considered to be unsafe.
ALTERNATE TESTING:	Full stroke test at cold shutdown.

VALVE RELIEF REQUEST NO. 12

SYSTEM:	Chemical and Volume Control (CH)
COMPONENTS:	CHN-V835, CHE-HV-255
P&ID COORDINATES:	13-M-CHP-001 @ G3, G4
CATEGORY:	CHE-HV-255 is Category A CHN-V835 is Category AC
CLASS:	2
FUNCTION:	Valves are open to provide a flow path for seal injection to the reactor coolant pumps.
TEST REQUIREMENT:	Full stroke exercise and time power operated valve every three months or partial stroke every three months and full stroke test at cold shutdown.
BASIS FOR RELIEF:	These valves are open during normal operation to provide seal injection to the reactor coolant pumps. Stroking these valves closed would require discontinuing seal injection to the pumps and compromising reactor coolant pump seal integrity. CHE-HV-255 is not jog capable so CHE-HV-255 and the check valve down stream cannot be part stroked.
ALTERNATE TESTING:	Full stroke test during cold shutdown.

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VALVE RELIEF REQUEST NO. 13

SYSTEM:	Containment Purge (CP)
COMPONENTS:	CPA-UV-2A, CPA-UV-2B, CPB-UV-3A, CPB-UV-3B
P&ID COORDINATES:	13-M-CPP-001 @ D6, D3, D5, D2
CATEGORY:	A
CLASS:	2
FUNCTION:	These valves are 42" containment purge supply and exhaust isolation valves.
TEST REQUIREMENT:	Full stroke exercise and timing test every three months or partial stroke test every three months and full stroke exercise and timing test during cold shutdown.
BASIS FOR RELIEF:	PVNGS Technical Specifications (3.6.1.7a) requires each 42" containment purge supply and exhaust isolation valve to be sealed closed during operation.
ALTERNATE TESTING:	Full stroke test these valves during cold shutdown.

VALVE RELIEF REQUEST NO. 14

SYSTEM:	Condensate Transfer (CT)
COMPONENTS:	CTA-V016, CTB-V020
P&ID COORDINATES:	13-M-CTP-001 @ C4, A-4
CATEGORY:	C
CLASS:	3
FUNCTION:	Valve strokes open to provide make-up water from Condensate Storage tank (CST) to Diesel Generator Cooling Water Surge Tank, Essential Chill Water Expansion Tank, Essential Cooling Water Surge Tank and Spent Fuel Pool.
TEST REQUIREMENT:	Full stroke exercise every three months or part stroke exercise every three months and full stroke exercise at cold shutdown.
BASIS FOR RELIEF:	Valves can be part stroked during operation. To full stroke exercise during operation or during cold shutdown is impractical. The only flow path which is practical for full stroke exercising is from Condensate Transfer Pump to spent fuel pool. Condensate Transfer Pump flow rate is approximately 130 gpm. The injection of non-borated water into Spent Fuel Pool on a routine basis is unwarranted. The Normal make-up to the Spent Fuel Pool is via Boric Acid Make-up Pump.
ALTERNATE TESTING:	Part stroke valves every three months. Full stroke exercise valves each refueling.

VALVE RELIEF REQUEST NO. 15

SYSTEM:	Diesel Generator (DG)
COMPONENTS:	DGA-V002, DGA-V003 DGB-V011, DGB-V012
P&ID COORDINATES:	13-M-CHP-001, Sht 1 @ F7, F7 F3, F3
CATEGORY:	C
CLASS:	3
FUNCTION:	To provide isolation between Demineralizer Water system and Diesel Generator Jacket Water Cooler Tank.
TEST REQUIREMENT:	Full stroke exercise every three months or partial stroke exercise every three months and full stroke exercise at cold shutdown.
BASIS FOR RELIEF:	Plant design does not provide the means for testing each valve individually. Valves are in series.
ALTERNATE TESTING:	Test the series of two valves as a unit for backflow prevention. Note: The request for relief is needed until the end of the first fuel cycle. Test connections will be added during the first refueling outage.

VALVE RELIEF REQUEST NO. 16

SYSTEM:	Diesel Generator (DG)
COMPONENTS:	DGA-UV-3, DGB-UV-4, DGA-UV-5, DGB-UV-6, DGA-UV-7 DGB-UV-8, DGA-UV-9, DGB-UV-10, DGA-UV-11, DGB-UV-12 DGA-UV-15, DGB-UV-16
P&ID COORDINATES:	13-M-CHP-001, sh 5 @ F-7, F-3, d-7, D-3, F-6, F2 13-M-DGP-001, sh 8 @ F-6, F-3, F-6, F-3 13-M-DGP-001, sh 6 @ D-6, D-2
CATEGORY:	B
CLASS:	Non-Classed
FUNCTION:	Valves UV-3, UV-4, UV-5, UV-6, UV-7, UV-8, UV-15, and UV-16 are part of the Diesel Generator Air Starter system. Valves DG-UV-9, Uv-10, UV-11, and UV-12 are part of the Diesel Generator control air system to the Fuel Control Linkage.
TEST REQUIREMENT:	Full stroke exercise and time test every three months or part stroke test every three months and full stroke test at cold shutdown.
BASIS FOR RELIEF:	The valves are totally enclosed solenoid valves and it is not possible to observe any stem movement. Additionally there are no remote indicator lights. There is no practical way to stroke time the valve since there is no obtainable evidence of valve movement. Valves were purchased as part of Diesel Generator skid. Valves UV-3, UV-5, UV-7, & UV-15 are controlled from a single handswitch. Valves UV-4, UV-6, UV-8 and UV-16 are controlled from a single handswitch. Valves UV-9 and UV-11 are controlled from a single handswitch. Valves UV-10 & UV-12 are controlled from a single handswitch. Independent operation of individual valves is not possible without rendering other valves inoperable. Technical Specifications 3/4.8.1.1.2a(4) requires monthly starting of Diesel Generator. The Diesel must start and attain speed, frequency and voltage within 10 seconds. Valve malfunction or degradation of opeation will reduce D/G starting capacity and D/G will be inoperable.
ALTERNATE TESTING:	Test valves concurrent with monthly Diesel Generator start test.

VALVE RELIEF REQUEST NO. 17

SYSTEM:	Essential Cooling Water (EW)
COMPONENTS:	EWB-V029, EWB-V077 EWA-V018, EWA-V103
P&ID COORDINATES:	13-M-EWP-001 @ H-3, H-3 H-7, H-7
CATEGORY:	C
CLASS:	3
FUNCTION:	To provide isolation between Essential Cooling Water Surge tank and Demineralized water system.
TEST REQUIREMENT:	Full stroke exercise every three months or partial stroke exercise every three months and full stroke exercise at cold shutdown.
BASIS FOR RELIEF:	Plant Design does not allow a method for back pressure testing each valve individually
ALTERNATE TESTING:	Disassemble the valves, check valve seat and disk for visible score marks, manually stroke the disc and observe the valve disk stroke back to the shut position. Note: Relief is requested only for the first fuel cycle. Test connections will be added during the first refueling outage to permit individual testing.

VALVE RELIEF REQUEST NO. 18

SYSTEM:	Essential Cooling Water (EW)
COMPONENTS:	EWA-UV-65 and EWA-UV-145
P&ID COORDINATES:	13-M-EWP-001 @ C8 and C4
CATEGORY:	B
CLASS:	3
FUNCTION:	Valves open to provide Nuclear Cooling (NC) water system with Essential Cooling Water (EW) in the event that the Nuclear Cooling water system is inoperable.
TEST REQUIREMENT:	Full stroke exercise test and full stroke time test every three months or part stroke test every three months and full stroke test during cold shutdown.
BASIS FOR RELIEF:	Full stroking these valves during operation will produce high pressure in the Nuclear Cooling Water system. this could lead to the system becoming inoperable and necessitate shutdown of the reactor coolant pumps. Valves do not have part stroke capability.
ALTERNATE TESTING:	Perform full stroke testing during cold shutdown.

VALVE RELIEF REQUEST NO. 19

SYSTEM:	Service Gas, Instrument Air, Chill Water System.
COMPONENTS:	GAE-V011, GAE-V015, IAE-V021 and WCE-V039
P&ID COORDINATES:	13-M-GAP-001 @ D6, F2, 13-M-IAP-003 @ G5 and 13-M-WCP-001 @ G7
CATEGORY:	AC
CLASS:	2
FUNCTION:	In board containment isolation valves.
TEST REQUIREMENT:	Check valves shall be exercised at least once every three months.
BASIS FOR RELIEF:	Valves must be tested in a manner that proves that the disk is on its seat. Plant conditions and ALARA concerns make test impractical during plant operation.
ALTERNATE TESTING:	Check valves will be exercised during refueling.

VALVE RELIEF REQUEST NO. 20

SYSTEM:	Instrument Air (IA)
COMPONENTS:	IAA-UV-2
P&ID COORDINATES:	13-M-IAP-003 @ G7
CATEGORY:	A
CLASS:	2
FUNCTION:	Instrument Air Containment Isolation Valve
TEST REQUIREMENT:	Full stroke exercise and timing test during normal operation every three months or partial stroke every three months and full stroke exercise and timing during cold shutdown. Quarterly Fail testing.
BASIS FOR RELIEF:	Stroking this valve during normal operation would isolate Letdown from Reactor Coolant system which causes unwarranted transients in the RCS volume and the charging piping temperature. Valve is on solenoid valve and cannot be partial stroked.
ALTERNATE TESTING:	Full stroke test during cold shutdown.

VALVE RELIEF REQUEST NO. 21

SYSTEM:	Nuclear Cooling Water (NC)
COMPONENTS:	NCE-V118, NCB-UV-401, NCA-UV-402, NCB-UV-403
P&ID COORDINATES:	13-M-IAP-003 @ E6, E7, F7, F6
CATEGORY:	AC, A, A, A
CLASS:	2
FUNCTION:	Valves open to provide a flow path for nuclear cooling water supply/return to the reactor coolant pump lube oil coolers, reactor coolant pump seal coolers, and CEDM air coolers.
TEST REQUIREMENT:	Full stroke exercise test and stroke time power operated valves every three months or partial stroke test every three months and full stroke test at cold shutdown.
BASIS FOR RELIEF:	These valves are open during normal operation to allow a supply of nuclear cooling water to the reactor coolant pump coolers. Stroking these valves could cause overheating of the reactor coolant pump motor air coolers, lube oil coolers and compromise the integrity of the reactor coolant pump seals. Stroking these valves could also cause overheating of the CEDM's and cause CEAs to drop into the core. Partial stroking is not possible since the valves are not jog capable.
ALTERNATE TESTING:	Full stroke test these valves during cold shutdown.

VALVE RELIEF REQUEST NO. 22

SYSTEM:	Reactor Coolant System (RC)
COMPONENTS:	RCA-HV-101, RCB-HV-102, RCA-HV-103, RCB-HV-105 RCA-HV-106, RCB-HV-108, RCB-HV-109
P&ID COORDINATES:	13-M-IAP-001, G-15, F-15, G-14, G-13
CATEGORY:	B
CLASS:	1 and 2
FUNCTION:	High point vent for reactor vessel and pressurizer for venting noncondensibles from Reactor Coolant System.
TEST REQUIREMENT:	Full stroke exercise and timing test every three months or partial stroke test every three months and full stroke exercise and timing test during cold shutdown. Quarterly Fail Test.
BASIS FOR RELIEF:	Valves are part of reactor coolant pressure boundary and form part of the double isolation valve required by 10CFR50.2v. Valves are solenoid valves and cannot be part stroked. Full stroke testing of these valves violates reactor coolant pressure boundary. Valve malfunction eg struck open valve during Mode 1 increases the probability of a LOCA. Additionally, stroking of RC-HV-106 (vent to containment) would release reactor coolant this constitutes an ALARA and radiation protection concern.
ALTERNATE TESTING:	Full stroke test valves during cold shutdown.

VALVE RELIEF REQUEST NO. 23

SYSTEM:	Main Steam (SG)
COMPONENTS:	SGE-V003, SGE-V005, SGE-V006, SGE-V007 SGE-V642, SGE-V652, SGE-V653, SGE-V693
P&ID COORDINATES:	13-M-SGP-002, @ E-10, A-10, A-10, E-10 G-11, G-10, C-10, C-11
CATEGORY:	C
CLASS:	2
FUNCTION:	The normal function of the valves is to open and provide a flow path for feedwater flow to the steam generators. The safety function is to close.
TEST REQUIREMENT:	Full stroke exercise every three months or partial stroke exercise every three months and full stroke exercise at cold shutdown.
BASIS FOR RELIEF:	These valves are in the feedwater inlet lines to each steam generator and are open during power operations. Full stroke or partial stroke testing of these valves during operation would require securing feedwater flow to the steam generator and cause a reactor trip. Per Technical Specifications, Main Steam System is required to be operable prior to entering Mode 4. These valves require Steam Generator pressure to back pressure test the valves for closing. Adequate pressure in Steam Generator does not exist until in Mode 3.
ALTERNATE TESTING:	Test valves in Mode 3 when sufficient pressure is available for stroking valves to the closed position at cold shutdown.

VALVE RELIEF REQUEST NO. 24

SYSTEM:	Main Steam (SG)
COMPONENTS:	SGB-UV-130, SGB-UV-135, SGA-UV-172, SGA-UV-175
P&ID COORDINATES:	13-M-SGP-002 @ G12, C12, G12, and C12.
CATEGORY:	B
CLASS:	2
FUNCTION:	Downcomer feedwater isolation valves
TEST REQUIREMENT:	1. Full stroke exercise test every three months or partial stroke tests every three months and full stroke exercise and time test at cold shutdown. 2. Fail Test every Quarter.
BASIS FOR RELIEF:	These valves are normally open during operation. Full stroke testing of these valves during power operation would isolate up to 15% of the normal feedwater flow to the steam generators and could cause an unwarranted plant transient and plant trip. Partial stroking is not possible as the valves are not jog capable.
ALTERNATE TESTING:	Full stroke testing at cold shutdown.

VALVE RELIEF REQUEST NO. 25

SYSTEM:	Main Steam (SG)
COMPONENTS:	SGA-UV-134A, SGA-UV-138A
P&ID COORDINATES:	13-M-SGP-001 @ E14, C14
CATEGORY:	B
CLASS:	2
FUNCTION:	The above valves are used for isolation of the Auxiliary Feedwater turbine warm-up line.
TEST REQUIREMENT:	Perform Valve position indication verification per IWV-3300 once every two years perform stroke time test once every three months per IWV-3412.
BASIS FOR RELIEF:	Technical Specifications 4.7.1.2d does not require the Turbine driven Auxiliary Feedwater pump to be tested (operable) until Mode 3. Also, steam is required to obtain physical evidence that valve is open/closed.
ALTERNATE TESTING:	Test position verification of the above valves in conjunction with the operability testing of the turbine driven Auxiliary Feedwater pump in Mode 3. Stroke time testing will be performed prior to entry to Mode 4, as per ASME Section XI.

VALVE RELIEF REQUEST NO. 26

SYSTEM:	Main Steam (SG)
COMPONENTS:	SGB-HV-178, SGA-HV-179, SGA-HV-184, SGB-HV-185
P&ID COORDINATES:	13-M-SGP-001 @ E14, A14, F14, C14
CATEGORY:	B
CLASS:	2
FUNCTION:	Main Steam atmospheric dump valves for plant cooldown during off-normal or emergency conditions.
TEST REQUIREMENT:	Full stroke exercise and time every three months or partial stroke exercise every three months and full stroke exercise and timing at cold shutdown. Quarterly Fail testing.
BASIS FOR RELIEF:	Stroking the atmospheric dump valves during normal operations could initiate an unwarranted transient and/or uncontrolled Primary side/Secondary side cooldown.
ALTERNATE TESTING:	Full stroke test during cold shutdown.

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VALVE RELIEF REQUEST NO. 27

SYSTEM:	Main Steam (SG)
COMPONENTS:	SGA-UV-1133, SGA-UV-1134, SGB-UV-1135A, SGB-UV-1135B SGB-UV-1136A, SGB-UV-1136B
P&ID COORDINATES:	13-M-SGP-001 @ E14, C14, H11, F11, D11, B11
CATEGORY:	B
CLASS:	2
FUNCTION:	The above valves provide steam trap isolation for the main steam lines.
TEST REQUIREMENT:	Perform valve position verification per IWV-3300 once every two years. Perform stroke time testing every three months.
BASIS FOR RELIEF:	The valves cannot be tested for position verification without steam in the line, since there are no isolation valves between the solenoid valves and the 28" main steam line. Steam needs to be in the 28" line in order to obtain physical evidence that the valve is open/closed. Technical Specification Table 3.6.1 requires that these valves be operable prior to entry into Mode 4. Sufficient steam does not exist until Mode 3.
ALTERNATE TESTING:	Perform valve position verification in Mode 3 at the conclusion of refueling when there is sufficient steam available in the line for flow/position verification. Perform full stroke exercise and stroke time testing every three months as per Technical Specification 4.0.5

VALVE RELIEF REQUEST NO. 28

SYSTEM:	Safety Injection and Shutdown Cooling (SI)
COMPONENTS:	SIE-V113, SIE-V123, SIE-V133, SIE-V143, SIA-V404, SIB-V405
P&ID COORDINATES:	13-M-SIP-002 @ F14, F12, F7, F4 13-M-SIP-001 @ F6, B4
CATEGORY:	C
CLASS:	2
FUNCTION:	Valves open to provide high pressure safety injection flow to the reactor coolant system.
TEST REQUIREMENT:	Full stroke execise every three months or partial stroke exercise every three months and full stroke exercise at cold shutdown.
BASIS FOR RELIEF:	These valves can only be full stroke exercised by initiation of flow through the valves and into the Reactor Coolant system. Safety Injection pump head is insufficient to establish flow through the valves against Reactor Coolant Systm pressure. Additionally, when the Reactor Coolant System pressure is low, over pressurization of the RCS is possible if the Vessel head is installed. Challenging the Low Temperature Over-Pressure protection (LTOP) system is unwarranted. Partial stroke exercising of these valves would require the establishment of a flow path through valves addressed by Technical Specification Surveillance Requirement 4.4.5.2.2d and subsequent containment Radiological Controlled Area entry would be necessary by personnel, in order to meet this Tech. Spec. requirement. Containment entry by personnel to satisfy T.S. 3/4.4.5.2.2d on a quarterly basis during normal operations is an ALARA and radiation protection concern.
ALTERNATE TESTING:	The valves will be full stroked during refueling (Mode 6) when the vessel head is not installed.

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VALVE RELIEF REQUEST NO. 29

SYSTEM:	Safety Injection and Shutdown Cooling (SI)
COMPONENTS:	SIE-V114, SIE-V124, SIE-V134, SIE-V144
P&ID COORDINATES:	13-M-SIP-002 @ F13, F11, F6, and F4
CATEGORY:	C
CLASS:	2
FUNCTION:	Valves open to provide flow paths from the low pressure safety injection headers to the Primary Coolant System.
TEST REQUIREMENT:	Full stroke execise every three months or partial stroke exercise every three months and full stroke exercise at cold shutdown.
BASIS FOR RELIEF:	Flow cannot be established to full stroke exercise these valves during operation due to the pressure in the Primary Coolant System. Partial stroke exercising of these valves would require entry into the containment Radiological Controlled Area which is contrary to ALARA precepts.
ALTERNATE TESTING:	Full stroke exercise during cold shutdown.

VALVE RELIEF REQUEST NO. 30

SYSTEM:	Safety Injection (SI)
COMPONENTS:	SIA-V157, SIB-V158, SIA-V201, SIB-V200
P&ID COORDINATES:	13-M-SIP-001 @ G-13, C-13, F-12, B-12
CATEGORY:	C
CLASS:	2
FUNCTION:	Valves SIA-V157 and SIB-V158 open to provide a flow path from the Refueling Water Tank (RWT) to the Containment Spray Pumps. Valves SIA-V201 and SIB-V200 open to provide a flow path from the RWT to the Low Pressure Safety Injection Pumps (LPSI).
TEST REQUIREMENT:	Full stroke execise every three months or partial stroke exercise every three months and full stroke exercise at cold shutdown.
BASIS FOR RELIEF:	These valves can be partial stroked during operation. The valves cannot be full stroked during operation or during cold shutdown. During operation, the only recirculation lines available for testing are the minimum recirculation line (2" with an orifice) and a maxi-recirculation line (6"). Neither line has the capacity to handle flows above 3000 gpm which would be required for full stroking. During cold shutdown, these valves are closed and are not part of the shutdown cooling line-up ie. the shutdown cooling lines taps into the LPSI and containment spray suction lines down stream from these valves. These valves can be full stroked at refueling as part of filling of the reactor refueling pool from the RWT.
ALTERNATE TESTING:	Testing to be performed as partial stroking during normal operations and full stroke testing during refueling.

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VALVE RELIEF REQUEST NO. 31

SYSTEM:	Safety Injection and Shutdown Cooling (SI)
COMPONENTS:	SIA-V164 and SIB-V165
P&ID COORDINATES:	13-M-SIP-002 @ F8 and F6
CATEGORY:	AC
CLASS:	2
FUNCTION:	Valves open to provide flow from Containment Spray pump to the discharge spray nozzles.
TEST REQUIREMENT:	Full stroke execise every three months or part stroke exercise every three months and full stroke exercise at cold shutdown.
BASIS FOR RELIEF:	Flow cannot be established without discharging water into containment. Partial stroking during operation is prohibited by ALARA concerns as the valves and test connections are in containment.
ALTERNATE TESTING:	1. Perform partial stroke testing during refueling using test connections. 2. Perform air/smoke testing 5 years per T.S. 3/4.6.2e. 3. Dissassemble 1 valve every 5 years on a staggered basis (during refueling outages other than outage in which air/smoke test is performed).

VALVE RELIEF REQUEST NO. 32

SYSTEM:	Safety Injection and Shutdown Cooling (SI)
COMPONENTS:	SIA-V205 and SIB-V206
P&ID COORDINATES:	13-M-SIP-001 @ G14 and A14
CATEGORY:	C
CLASS:	2
FUNCTION:	These valves open to provide flow to the High Pressure Safety Injection pumps (HPSI), Low Pressure Safety Injection (LPSI) and Containment Spray (CS) pumps from the recirculation sump.
TEST REQUIREMENT:	Full stroke execise every three months or part stroke every three months and full stroke exercise at cold shutdown.
BASIS FOR RELIEF:	The recirculation sump is normally dry therefore full stroking during operation is impractical. Partial stroking during operation is also impractical. Stroking these valves requires closing valves CHB-HV-530 and CHA-HV-531 (Refueling Water Tank Isolation Valve). Closing the RWT Isolation renders a single train of HPSI, LPSI and CS inoperable. (See VRR-11).
ALTERNATE TESTING:	1. Perform partial stroke exercise test during cold shutdown. 2. Dissassemble/Verify valve full stroke capability every 10 years.

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VALVE RELIEF REQUEST NO. 33

SYSTEM: Safety Injection and Shutdown Cooling (SI)

COMPONENTS: SIE-V215, SIE-V225, SIE-V235, SIE-V245

P&ID COORDINATES: 13-M-SIP-002 @ A15, A12, A7 and A5

CATEGORY: AC

CLASS: 1

FUNCTION: To prevent backflow of Primary Coolant into the Safety Injection Tanks while providing a flow path for Safety Injection Tank water into the RCS loops.

TEST REQUIREMENT: Full stroke execise every three months or part stroke exercise every three months and full stroke test during cold shutdown.

BASIS FOR RELIEF: Full stroke testing to stroke these valves is not practical during any plant mode other than when the reactor vessel head is removed, fuel is off-loaded, and the core barrel is removed. Part stroke testing is feasible during hot shutdown. Plant design conditions allows part stroke testing with a maximum of 35gpm through the valve.

ALTERNATE TESTING: Part stroke exercise in Mode 3 after each refueling outage when the Safety Injection Tank pressure is above 600 psig. Additionally, disassemble valves and verify freedom of movement of disc motion on a 10 year basis such that one valve is inspected every 10 years.

VALVE RELIEF REQUEST NO. 34

SYSTEM:	Safety Injection and Shutdown Cooling (SI)
COMPONENTS:	SIE-V217, SIE-V227, SIE-V237, SIE-V247, SIE-V540 SIE-V541, SIE-V542, SIE-V543
P&ID COORDINATES:	13-M-SIP-002 @ A13, A10, A6, A4, C14, C11, C6, C4
CATEGORY:	AC
CLASS:	1
FUNCTION:	Valves open to provide a flow path from Safety Injection and Shutdown Cooling to the Primary Loop. Category "AC" valves close to prevent pressurization of SI piping from RCS loop.
TEST REQUIREMENT:	Full stroke open every three months or part stroke open every three months and full stroke open at cold shutdown.
BASIS FOR RELIEF:	These valves can only be stroked open by initiation of flow through the valves and into the RCS. Low Pressure Safety Injection pump head is not sufficient to exercise these valves due to pressure of the RCS.
ALTERNATE TESTING:	Full stroke exercise these valves during cold shutdown utilizing shutdown cooling.

VALVE RELIEF REQUEST NO. 35

SYSTEM:	Safety Injection and Shutdown Cooling (SI)
COMPONENTS:	SIA-V522, SIA-V523, SIB-V532, SIB-V533
P&ID COORDINATES:	13-M-SIP-002 @ C2, F2, F2, C10, F9
CATEGORY:	AC
CLASS:	1
FUNCTION:	Valves open to provide a long term recirculation flow path for the High Pressure Safety Injection (HPSI) system to the shutdown cooling lines.
TEST REQUIREMENT:	Full stroke exercise test every three months or part stroke exercise every three months and full stroke exercise at cold shutdown.
BASIS FOR RELIEF:	These valves can only be full stroked exercised by initiation of flow through the valves and into the RCS. Safety Injection pump head is not sufficient to full stroke exercise these valves due to RCS pressure. SI-V522 and SI-V532 cannot be part stroked during operation due to RCS pressure. SI-V523 and SI-V533 cannot be part stroked during operation due to ALARA concerns as these valves and their test connections are in the containment building.
ALTERNATE TESTING:	Full stroke exercise test these valves during the refueling mode (Mode 6) when the reactor vessel head is removed using the Safety Injection System.

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VALVE RELIEF REQUEST NO. 36

SYSTEM:	Safety Injection and Shutdown Cooling
COMPONENTS:	SIA-HV604, SIB-HV609, SIC-HV321, SID-HV331
P&ID COORDINATES:	13-M-SIP-001 @ G3, C3
CATEGORY:	SIC-HV321 and SID-HV331 are Category A. SIA-HV604 and SIB-HV609 and Category B.
CLASS:	2
FUNCTION:	Isolation Valves in the long term recirculation lines to the reactor coolant system hot legs.
TEST REQUIREMENT:	Full stroke test every three months or partial stroke test every three months and full stroke test during cold shutdown.
BASIS FOR RELIEF:	The PVNGS Technical Specifications require these valves be closed with power to the valve operators removed during normal operations.
ALTERNATE TESTING:	Full stroke test these valves during cold shutdown.

VALVE RELIEF REQUEST NO. 37

SYSTEM: Safety Injection (SI)

COMPONENTS: SIA-HV-605, SIA-HV-606, SIA-HV-607, SIA-HV-608
SIB-HV-613, SIB-HV-623, SIB-HV-633, SIB-HV-643

P&ID COORDINATES: 13-M-SIP-002 @ E-15, E-12, E-7, E-4
@ E-15, E-12, E-7, E-4

CATEGORY: B

CLASS: 2

FUNCTION: Safety Injection Tank Nitrogen Vent. Tank is vented during recovery phase of small break LOCA (such as Steam Generator Tube Rupture) to preclude inadvertant discharge of Tank into Reactor Vessel.

TEST REQUIREMENT: Full stroke exercise and time test every three months or partial stroke test and full stroke exercise and time test at cold shutdown.

BASIS FOR RELIEF: Partial stroking is not possible as these valves are solenoid valves. Full stroking during operation is not practical since the valves are shut and power is removed during operation per Technical Specification 3.5.1e. Cycling the valve during operation would reduce the pressure in the Safety Injection Tank below Technical Specification Limits (600 psi). This would render the Tank inoperable. Rendering each tank (ie 4 of 4) inoperable once each quarter is unwarranted. There are no block valves for the vents. If a valve were to fail open, the effected tank would be in-operable and could not be remedied without a shutdown and containment entry.

ALTERNATE TESTING: Full stroke exercise and time each refueling as per Technical Specification 3/4.5.1f.

VALVE RELIEF REQUEST NO. 38

SYSTEM:	Safety Injection and Shutdown Cooling System (SI)
COMPONENTS:	SIB-UV-614, SIB-UV-624, SIA-UV-634, SIA-UV-644
P&ID COORDINATES:	13-M-SIP-002 @ A14, A12, A7 and A4
CATEGORY:	B
CLASS:	1
FUNCTION:	Safety Injection Tank Isolation Valves provide flow paths from the Safety Injection Tanks to the Primary Coolant System during operation. The valves are closed to isolate the Safety Injection Tanks in cold shutdown and refueling.
TEST REQUIREMENT:	Full stroke exercise and timing every three months or partial stroke exercise every three months and full stroke exercise and timing test during cold shutdown.
BASIS FOR RELIEF:	Full or partial stroke testing of these valves during operation is contrary to the safety function of these valves. The PVNGS Technical Specifications require the isolation valves to be key-locked open and power to the valve removed to ensure an unobstructed flow path.
ALTERNATE TESTING:	Full stroke test during cold shutdown.

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VALVE RELIEF REQUEST NO. 39

SYSTEM:	Safety Injection and Shutdown Cooling (SI)
COMPONENTS:	SIA-UV-651, SIB-UV-652, SIA-UV-653, SIB-UV-654 SIA-UV-655, SIB-UV-656
P&ID COORDINATES:	13-M-SIP-002 @ C3, C10, E3 E10, G3, G10
CATEGORY:	SIA-UV-655 and SIB-UV-656 are Category B All others are Category A
CLASS:	SIA-UV-655 and SIB-UV-656 are Class 2 SIA-UV-651, SIB-UV-652, SIA-UV-653, SIB-UV-654 are Class 1
FUNCTION:	Shutdown Cooling Isolation Valve
TEST REQUIREMENT:	Full stroke exercise and timing every three months or partial stroke every three months and full stroke exercise and timing test during cold shutdown.
BASIS FOR RELIEF:	These valves are provided with interlocks which prevent them from being opened if the pressurizer pressure is in excess of 400 psig. The Class 1 valves provide pressure isolation function between Reactor Coolant System and Shutdown Cooling System as noted in Tech. Spec. 4.4.5.2.1.
ALTERNATE TESTING:	Full stroke test during cold shutdown.

VALVE RELIEF REQUEST NO. 40

SYSTEM:	Safety Related Valves
COMPONENTS:	Various
P&ID COORDINATES:	Various
CATEGORY:	A and B
CLASS:	1, 2 and 3
FUNCTION:	Power Operated valves shall be full stroke exercised within the time interval required by IWV-3413 and corrective action shall be taken if valve stroke exceed code limits per IWV-3417.
TEST REQUIREMENT:	Corrective action per IWV-3417 shall be taken for any valve whose stroke time increases by 50% or more for valves with stroke times less than or equal to 10 seconds.
BASIS FOR RELIEF:	Valve stroke times (actual) of less than 2 seconds need not comply with the 50% increase rule for valves with required stroke times of 5 to 10 seconds. Very short stroke times may vary slightly due simply to measurement technique and are not statistically significant, e.g. for valves with stroke times of 1.0 secs, an increase to 1.50 seconds is not significant when compared to an acceptance criteria of 5 to 10 secs.
ALTERNATE TESTING:	None; valves tested as scheduled. Valves with stroke times of less than 2 seconds shall be placed in the alert range and the frequency increased per IWV-3417 when the actual stroke time exceeds 2.5 seconds.

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VALVE RELIEF REQUEST NO. 41

SYSTEM:	Safety Related Valves
COMPONENTS:	Containment Isolation Valves (See Tech Specs 3/4.6.3, Table 3.6-1 Sections A, B, C, D, E, F, G)
P&ID COORDINATES:	Various (See FSAR 6.2.4 and Figure 6.2.4-1 sheets 1 to 10).
CATEGORY:	A or AC
CLASS:	2
FUNCTION:	Containment Isolation Valve
TEST REQUIREMENT:	Valves are required to be leak tested per IWV-3420/3422 on a two-year frequency.
BASIS FOR RELIEF:	Valves requiring testing per 10CFR50, Appendix J are tested on a 24 month frequency. These valves need not be further tested per ASME XI. This basis is in agreement with NRC draft Reg Guide on Inservice Testing of Valves, issued November 1981.
ALTERNATE TESTING:	None; valves tested per 10CFR50, Appendix J and Tech Spec 3/4.6.1 & 3/4.6.3. Note that relief is not requested for any valve identified in Tech Spec 3/4.4.5.2.2 (Reactor Coolant system operational leakage). These latter valves will be tested per TS 3/4.4.5.2.2.

VALVE RELIEF REQUEST NO. 42

SYSTEM: Safety Related Valves

COMPONENTS: Various

P&ID COORDINATES: Various

CATEGORY: A, B, C

CLASS: 1, 2, 3

FUNCTION: Safety Related

TEST REQUIREMENT: Perform testing required by ASME Section XI, Subsection IWV on a quarterly basis and every two years, as required.

BASIS FOR RELIEF:

1. Check Valves (Category C) whose normal function is to open and whose safety function is to close generally require considerable amounts of maintenance support to test each valve by depressurizing upstream of the check valve. This involves breaching the pressure boundary at a vent or drain, hooking up hoses, draining the system or pressurizing downstream of the valve and monitoring for a pressure decay. Subsequent to criticality, high radiation zones in excess of 1 R/hr will exist in many areas where testing is performed.

2. Power Operated valves require position verification at least every two years. These valves may require field support to verify valve position. Radiation fields may be in excess of 1 R/hr.

VALVE RELIEF REQUEST NO. 42 (Cont'd.)

ALTERNATE TESTING:

1. All Check Valves with flow through the valve will tested as scheduled.

2. All check valves which require reverse flow checking and which are in radiation fields in excess of 1 R/hr will be check during refueling outages.

3. Motor operated and Air operated valves with evidence of stem movement observable in the field will be tested as scheduled every two years.

4. Solenoid valves which can be tested from the Control Room and other objective evidence of valve position is obtainable (eg flow indication) will be tested as scheduled.

5. Solenoid valves for which indirect evidence is not obtained and where the radiation field is 1 R/hr or greater will be tested every other refueling outage.

6. Other Power operated valves for which indirect evidence is not obtainable and require field support in radiation fields of 1 R/hr or greater will be tested every other refueling outage.

VALVE RELIEF REQUEST NO. 43

SYSTEM:	Safety Related Check Valves
COMPONENTS:	Various
P&ID COORDINATES:	Various
CATEGORY:	C
CLASS:	1, 2, 3
TESTING REQUIREMENT:	IWV-3521: Check valves shall be exercised at least once every three months, except as provided by IWV-3522.
BASIS FOR RELIEF:	The additional exercising of check valves which are stroke exercised during the course of plant operation in order to satisfy the exercising requirement results in unnecessary wear to components and equipment. The stroke exercising of check valves during the normal course of plant operation may satisfy the exercising requirement and should not require additional, redundant, testing. This request for relief corresponds in concept to IWV-3414 for power operated valves in regular use.
ALTERNATE TESTING:	No additional testing is required for check valves which are exercised in the course of plant operations at a frequency satisfying IWV-3521, provided the observations otherwise required by IWV-3520 are made and analyzed during such operation and are recorded in the plant record.

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Appendix C

INSERVICE TESTING PROGRAM - PUMPS

PALO VERDE NUCLEAR GENERATING STATION

PALO VERDE NUCLEAR GENERATING STATION

A.N.P.P.

INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 PUMPS

Unit: 3 Rev.: 0 Page 1 of 2 Pages

PUMP NUMBER	PUMP NAME	ISI CLASS	P & ID COORDINATES	TEST PARAMETERS						NOTES
				Speed	Inlet Pressure	Diff. Pressure	Flow Rate	Vibration	Bearing Temp.	
AFA-P01	Auxiliary Feedwater Pump (Turbine Driven)	3	AFP-001 D6	0	C	C	PRR-1	M	PRR-7	Tested PRR-8 Monthly
AFB-P01	Auxiliary Feedwater Pump (Motor Driven)	3	AFP-001 C6	NA	C	C	PRR-1	M	PRR-7	Tested PRR-8 Monthly
AFN-P01	Auxiliary Feedwater Pump (Motor Driven)	*	AFP-001 H6	NA	C	C	PRR-1	M	PRR-7	Tested PRR-8 Monthly
CHA-P01	Charging Pump No. 1.	2	CHP-002 B3	NA	PRR-2	PRR-2	0	M	PRR-7	
CHB-P01	Charging Pump No. 2.	2	CHP-002 D3	NA	PRR-2	PRR-2	0	M	PRR-7	
CHE-P01	Charging Pump No. 3.	2	CHP-002 G3	NA	PRR-2	PRR-2	0	M	PRR-7	
CTA-P01	Condensate Transfer Pump	3	CTP-001 C5	NA	C	C	0	M	PRR-7	PRR-8
CTB-P01	Condensate Transfer Pump	3	CTP-001 A5	NA	C	C	0	M	PRR-7	PRR-8
DFA-P01	Diesel Generator Fuel Oil Transfer Pump	3	DFP-001 B6	NA	C	C	0	PRR-3	PRR-7	PRR-8
DFB-P01	Diesel Generator Fuel Oil Tranfer Pump	3	DFP-001 B2	NA	C	C	0	PRR-3	PRR-7	PRR-8
DGA-P02	Diesel Generator Jacket Water Cooling Pump	3	DGP-001 Sh4 F6	-	-	-	-	-	-	PRR-4
DGB-P02	Diesel Generator Jacket Water Cooling Pump	3	DGP-001 Sh4 F3	-	-	-	-	-	-	PRR-4
DGA-P03	Diesel Generator Lube Oil Pump	3	DGP-001 Sh3 C7	-	-	-	-	-	-	PRR-4
DGB-P03	Diesel Generator Lube Oil Pump	3	DGP-001 Sh3 C3	-	-	-	-	-	-	PRR-4
DGA-P05	Diesel Generator Fuel Oil Booster Pump	3	DGP-001 Sh7 D7	-	-	-	-	-	-	PRR-4
DGB-P05	Diesel Generator Fuel Oil Booster Pump	3	DGP-001 Sh7 D3	-	-	-	-	-	-	PRR-4

* This pump is not an ASME Code Class Pump, however augmented testing will be done in accordance with the PVNGS Tech Specs 3/4.7.1.2.

PALO VERDE NUCLEAR GENERATING STATION

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INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 PUMPS

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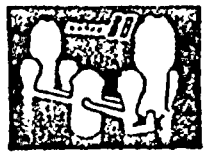

PUMP NUMBER	PUMP NAME	ISI CLASS	P & ID COORDINATES	TEST PARAMETERS						NOTES
				Speed	Inlet Pressure	Diff. Pressure	Flow Rate	Vibration	Bearing Temp.	
ECA-P01	Essential Chilled Water Circulation Pump	3	ECP-001 B8	NA	M	C	0	M	PRR-7	PRR-8
ECB-P01	Essential Chilled Water Circulation Pump	3	ECP-001 B4	NA	M	C	0	M	PRR-7	PRR-8
EWA-P01	Essential Cooling Water Pump	3	EWP-001 E6	NA	M	C	0	M	PRR-7	PRR-8
EWB-P01	Essential Cooling Water Pump	3	EWP-001 E2	NA	M	C	0	M	PRR-7	PRR-8
SIA-P01	LPSI Pump #1	2	SIP-001 G11	NA	C	C	PRR-6	M	PRR-7	PRR-5 PRR-8
SIB-P01	LPSI Pump #2	2	SIP-001 B11	NA	C	C	PRR-6	M	PRR-7	PRR-5 PRR-8
SIA-P02	HPSI Pump #1	2	SIP-001 E11	NA	C	C	PRR-6	M	PRR-7	PRR-8
SIB-P02	HPSI Pump #2	2	SIP-001 A11	NA	C	C	PRR-6	M	PRR-7	PRR-8
SIA-P03	Containment Spray Pump #1	2	SIP-001 H11	NA	C	C	PRR-6	M	PRR-7	PRR-8
SIB-P03	Containment Spray Pump #2	2	SIP-001 C11	NA	C	C	PRR-6	M	PRR-7	PRR-8
SIA-P05	Spray Chemical Addition Pump #1	2	SIP-001 D14	NA*	PRR-2	PRR-2	0	M	PRR-7	
SIB-P05	Spray Chemical Addition Pump #2	2	SIP-001 C14	NA*	PRR-2	PRR-2	0	M	PRR-7	
SPA-P01	Essential Spray Pond Pump #1	3	SPP-001 C4	NA	C	C	0	M	PRR-7	PRR-8
SPB-P01	Essential Spray Pond Pump #2	3	SPP-001 C7	NA	C	C	0	M	PRR-7	PRR-8

* Speed is established, set & locked for the SCAP. It is not verified provided the lock is intact and the pump performance on the Quarterly Test is satisfactory.

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Appendix D

INSERVICE TESTING PROGRAM - VALVES

PALO VERDE NUCLEAR GENERATING STATION

PALO VERDE NUCLEAR GENERATING STATION

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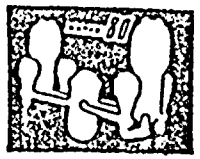
INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 3

System: Auxiliary Feedwater (AF) Rev.: 0 Page 1 of 64 Pages



VALVE NUMBER	P & ID COORDINATES 13-M-AFP-001					ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
AFA - V007	D-7	X				3	C	8"	CK	SA	C	O	PST FST	OP RF-3		VRR-1	43ST-3AF02 43ST-3AF02	
AFA-V015	D-5	X				3	C	6"	CK	SA	C	O	FST	RF-3		VRR-2	43ST-3AF02	
AFB-V022	C-7	X				3	C	8"	CK	SA	C	O	PST FST	OP RF-3		VRR-1	43ST-3AF03 43ST-3AF03	
AFB-V024	C-5	X				3	C	6"	CK	SA	C	O	FST	RF-3		VRR-2	43ST-3AF03	
AFA-V079	D2	X				3	C	6"	CK	SA	C	O	FST	RF-3		VRR-3	43ST-3AF02 43ST-3AF03	penet. 75
AFB-V080	C2	X				3	C	6"	CK	SA	C	O	FST	RF-3		VRR-3	43ST-3AF02 43ST-3AF03	penet. 76
AFA-V137	D-6	X				3	C	6"	CK	SA	C	O	PST FST	OP RF-3		VRR-1	43ST-3AF02 43ST-3AF02	
AFB-V138	C6	X				3	C	6"	CK	SA	C	O	PST FST	OP RF-3		VRR-1	43ST-3AF03 43ST-3AF03	
AFB-HV30	B4	X				3	B	6"	GL	MO	C	O	FST VPI	OP RF	0-12s C-12s		73ST-3ZZ09 73ST-3ZZ03	
5546C/0765C																		

PALO VERDE NUCLEAR GENERATING STATION

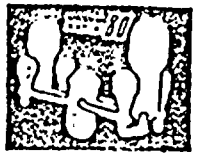
ANPP

INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 3

System: Auxiliary Feedwater (AF) Rev.: 0 Page 2 of 64 Pages



VALVE NUMBER	P&ID COORDINATES 13-M-AFP-001				ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
AFB-HV31	C4	X			3	B	6"	GL	MO	C	O	FST VPI	OP RF	0-12s C-12s		73ST-3ZZ09 73ST-3ZZ03	
AFA-HV32	D4	X			3	B	6"	GL	MO	C	O	FST VPI	OP RF	0-12s C-12s		73ST-3ZZ09 73ST-3ZZ03	
AFC-HV33	C4	X			3	B	6"	GL	MO	C	O	FST VPI	OP RF	0-12s C-12s		73ST-3ZZ09 73ST-3ZZ03	
AFA-HV54	G4	X			3	B	4"	GL	MO	C	O	FST VPI	OP RF	12s		73ST-3ZZ09 73ST-3ZZ03	
AFB-UV34	B3	X			2	B	6"	GA	MO	C	O/C	FST VPI	OP RF	0-15s C-15s		73ST-3ZZ09 73ST-3ZZ03	penet. 75
AFB-UV35	C3	X			2	B	6"	GA	MO	C	O/C	FST VPI	OP RF	0-15s C-15s		73ST-3ZZ09 73ST-3ZZ03	penet. 76
AFC-UV36	D3	X			2	B	6"	GA	MO	C	C/O	FST VPI	OP RF	0-15s C-15s		73ST-3ZZ09 73ST-3ZZ03	penet. 75
AFA-UV37	C3	X			2	B	6"	GA	MO	C	O/C	FST VPI	OP RF	0-15s C-15s		73ST-9ZZ09 73ST-3ZZ03	penet. 76

PALO VERDE NUCLEAR GENERATING STATION

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INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 3

System: Chemical & Volume Control(CH) Rev.: 0 Page 3 of 64 Pages

VALVE NUMBER	P & ID COORDINATES	13-M-CHP-001	13-M-CHP-002	13-M-CHP-003	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
CHN-V118	C-7		X		2	C	4"	CK	SA	O/C	O	FST	OP			43ST-3CH06	
CHA-V177	B-8		X		2	C	3"	CK	SA	C	O	FST	RF		VRR-4	43ST-3CH04	
CHA-V190	A-8		X		2	C	3"	CK	SA	C	O	FST	RF		VRR-4	43ST-3CH04	
CHB-V305	C15		X		2	C	20"	CK	SA	C	O	PST FST	OP RF		VRR-6	43ST-3SI11 73ST-3ZZ06	
CHA-V306	C13		X		2	C	20"	CK	SA	C	O	PST FST	OP RF		VRR-6	43ST-3SI11 73ST-3ZZ06	
CHA-V328	B2		X		2	C	2"	CK	SA	O/C	O	FST	OP			43ST-3CH06	
CHB-V331	E2		X		2	C	2"	CK	SA	O/C	O	FST	OP			43ST-3CH06	
CHE-V334	G2		X		2	C	2"	CK	SA	O/C	O	FST	OP			43ST-3CH06	
CHE-V429	D16	X			2	C	2"	CK	SA	O	O	FST	OP			43ST-3CH06	
CHE-V431	H9	X			1	C	2"	CK	SA	C	O	FST	CS		VRR-7	73ST-3ZZ06	

PALO VERDE NUCLEAR GENERATING STATION

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INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 3

System: Chemical & Volume Control (CH) Rev.: 0

VALVE NUMBER	P & ID COORDINATES	13-M-CHP-001	13-M-CHP-002	13-M-CHP-003	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
CHE-V433	G9	X			1	C	2"	CK	SA	O	O	FST	OP			43ST-3CH06	
CHE-V435	F10	X			1	C	2"	CK	SA	C	O	FST	OP			43ST-3CH06	
CHE-V440	C2		X		2	C	2"	CK	SA	C	O	FST	RF		VRR-8	43ST-3CH04	
CHN-V494	E-15			X	2	AC	1 1/2"	CK	SA	C	C	AJLT	RF			73ST-9CL01	penet. 45
CHN-V835	G3	X			2	AC	1 1/2"	CK	SA	O	C	FST AJLT	CS RF		VRR-12	73ST-3ZZ06 73ST-9CL01	penet. 72
CHE-VM70	F15	X			2	AC	3"	CK	SA	O	O	FST AJLT	OP RF			43ST-3CH06 73ST-9CL01	penet. 41
PCN-V215	A11		X		3	-	3"	DIA	MAN	C	O	FST	RF			43ST-3CH04	
CHB-HV203	H10	X			1	B	2"	GL	SOL	C	O/C	FST VPI	CS RF	O-5s C-5s	VRR-7	72ST-3ZZ08 73ST-3ZZ06	
CHA-HV205	G11	X			1	B	2"	GL	SOL	C	O/C	FST VPI	CS RF	O-5s C-5s	VRR-7	73ST-3ZZ08 73ST-3ZZ06	

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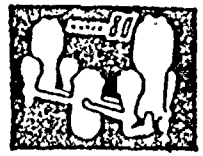
INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 3

System: Chemical & Volume Control (CH) Rev.: 0 Page 5 of 64 Pages



VALVE NUMBER	P & ID COORDINATES	13-M-CHP-001	13-M-CHP-002	13-M-CHP-003	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
CHE-HV239	G11	X			2	B	2"	GL	AO	O	C	FST VPI	Cs RF	5s	VRR-5	73ST-3ZZ08 73ST-3ZZ03	
CHE-PDV240	G11	X			1	B	2"	GL	AO	O	C	FST VPI	CS RF	5s	VRR-5	73ST-3ZZ08 73ST-3ZZ03	
CHE-HV255	G4	X			2	A	1 1/2"	GL	MO	O	C	FST VPI AJLT	CS RF RF	10s	VRR-12	73ST-3ZZ08 73ST-3ZZ03 73ST-9CL01	penet. 72
CHB-HV530	B15		X		2	B	20"	GA	MO	O	C	FST VPI	CS RF	30s	VRR-11	73ST-3ZZ08 73ST-3ZZ03	
CHA-HV531	C14		X		2	B	20"	GA	MO	O	C	VPI FST	RF CS	30s	VRR-11	73ST-3ZZ03 73ST-3ZZ08	
CHE-HV536	A14		X		3	B	3"	GL	MO	C	O	FST VPI	CS RF	30s	VRR-4	73ST-3ZZ08 73ST-3ZZ03	
CHN-UV501	C-7		X		2	B	4"	GA	MO	O	C	FST VPI	CS RF	30s	VRR-5	73ST-3ZZ08 73ST-3ZZ03	
CHB-UV505	H13		X		2	A	1"	GL	AO	O	O/C	FST VPI AJLT	CS RF RF	O-5s C-5s	VRR-9	73ST-3ZZ08 73ST-3ZZ03 73ST-9CL01	penet. 43
CHA-UV506	H14		X		2	A	1"	GL	AO	O	O/C	FST VPI AJLT	CS RF RF	O-5s C-5s	VRR-9	73ST-3ZZ08 73ST-3ZZ03 73ST-9CL01	penet. 43
CHN-UV514	B10		X		3	B	3"	GL	MO	C	O	FST VPI	CS RF	30s	VRR-4	73ST-3ZZ08 73ST-3ZZ03	

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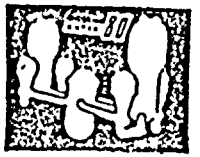
INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 3

System: Chemical & Volume Control(CH) Rev.: 0 Page 6 of 64 Pages



VALVE NUMBER	P & ID COORDINATES	13-M-CHP-001	13-M-CHP-002	13-M-CHP-003	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
CHB-UV515	H15	X			1	B	2"	GL	AO	O	C	FST VPI	CS RF	5s	VRR-10	73ST-3ZZ08 73ST-3ZZ03	
CHA-UV516	H15	X			1	A	2"	GL	AO	O	C	FST VPI AFLT	CS RF RF	5s	VRR-10	73ST-3ZZ08 73ST-3ZZ03 73ST-9CL01	penet. 40
CHB-UV523	F13	X			2	A	2"	GL	AO	O	C	FST VPI AJLT	CS RF RF	5s	VRR-10	73ST-3ZZ08 73ST-3ZZ03 73ST-9CL01	penet. 40
CHA-UV560	B15			X	2	A	3"	GA	AO	O/C	C	FST VPI AJLT	OP RF RF	5s		73ST-9ZZ09 73ST-3ZZ03 73ST-9CL01	penet. 44
CHB-UV561	A15			X	2	A	3"	GA	AO	O/C	C	FST VPI AJLT	OP RF RF	5s		73ST-3ZZ09 73ST-3ZZ03 73ST-9CL01	penet. 44
CHA-UV580	E14			X	2	A	1 1/2"	GA	AO	O/C	C	FST VPI AJLT	OP RF RF	5s		73ST-3ZZ09 73ST-3ZZ03 73ST-9CL01	penet. 45
CHA-UV715	E13			X	2	A	1/2"	GL	SOL	O/C	C	FST VPI AJLT	OP RF RF	5s		73ST-3ZZ09 73ST-3ZZ01 73ST-9CL01	penet. 45
CHB-UV924	E14	X			2	A	1/2"	GA	SOL	O/C	C	FST VPI AJLT	OP RF RF	5s		73ST-3ZZ09 73ST-3ZZ01 73ST-9CL01	penet. 40
CHN-PSV115	C6		X		2	C	3"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
CHN-PSV199	H15		X		2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	

PALO VERDE NUCLEAR GENERATING STATION

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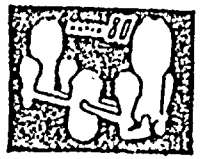
INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 3

System: Chemical & Volume Control(CH) Rev.: 0 Page 7 of 64 Pages



VALVE NUMBER	P & ID COORDINATES	13-M-CHP-001	13-M-CHP-002	13-M-CHP-003	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
CHA-PSV315	C5		X		2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
CHB-PSV318	F5		X		2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ19	
CHE-PSV321	H5		X		2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
CHE-PSV324	H2		X		2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
CHB-PSV325	F2		X		2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
CHA-PSV326	C2		X		2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
CHN-PSV345	E12	X			2	C	2"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
CHN-PSV354	E9	X			2	C	2"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
CHN-PSV865	H6	X			2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	

PALO VERDE NUCLEAR GENERATING STATION

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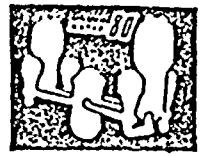
INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 3

System: Containment Purge (CP) Rev.: 0 Page 8 of 64 Pages



VALVE NUMBER	P & ID COORDINATES 13-M-CPP-001					ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
CPA-UV2A	D6	X				2	A	42"	BTF	MO	C	C	FST VPI AJLT	CS RF RF	12s	VRR-13	73ST-3ZZ08 73ST-3ZZ03 73ST-9CL06	penet. 56
CPA-UV2B	E3	X				2	A	42"	BTF	MO	C	C	FST VPI AJLT	CS RF RF	12s	VRR-13	73ST-3ZZ08 73ST-3ZZ03 73ST-9CL06	penet. 57
CPB-UV3A	D5	X				2	A	42"	BTF	MO	C	C	FST VPI AJLT	CS RF RF	12s	VRR-13	73ST-3ZZ08 73ST-3ZZ03 73ST-9CL06	penet. 56
CPB-UV3B	E2	X				2	A	42"	BTF	MO	C	C	FST VPI AJLT	CS RF RF	12s	VRR-13	73ST-3ZZ08 73ST-3ZZ03 73ST-9CL06	penet. 57
CPA-UV4A	D6	X				2	A	8"	BTF	AO	O/C	C	FST VPI AJLT	OP RF RF	8s		73ST-3ZZ11 73ST-3ZZ03 73ST-9CL07	penet. 78
CPA-UV4B	D3	X				2	A	8"	BTF	AO	O/C	C	FST VPI AJLT	OP RF RF	8s		73ST-3ZZ11 73ST-3ZZ03 73ST-9CL07	penet. 79
CPB-UV5A	D5	X				2	A	8"	BTF	AO	O/C	C	FST VPI AJLT	OP RF RF	8s		73ST-3ZZ11 73ST-3ZZ03 73ST-9CL07	penet. 78
CPB-UV5B	D2	X				2	A	8"	BTF	AO	O/C	C	FST VPI AJLT	OP RF RF	8s		73ST-3ZZ11 73ST-3ZZ03 73ST-9CL07	penet. 79

PALO VERDE NUCLEAR GENERATING STATION

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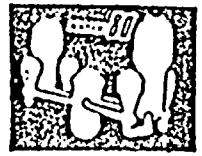
INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 3

System: Condensate Transfer (CT) Rev.: 0 Page 9 of 64 Pages



VALVE NUMBER	P & ID COORDINATES 13-M-CTP-001					ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
CTA-V016	C4	X				3	C	3"	CK	SA	C	O	PST FST	OP RF		VRR-4	73ST-3ZZ05 73ST-3ZZ06	
CTA-V018	C3	X				3	-	3"	GA	MAN	C	O	FST	RF			73ST-3ZZ06	
CTB-V019	B3	X				3	-	3"	GA	MAN	C	O	FST	RF			73ST-3ZZ06	
CTB-V020	A4	X				3	C	3"	CK	SA	C	O	PST FST	OP RF		VRR-4	73ST-3ZZ05 73ST-3ZZ06	
CTA-HV1	D2	X				3	B	10"	BTF	MO	C	O	FST VPI	OP RF	65s		73ST-3ZZ09 73ST-3ZZ03	
CTA-HV4	D3	X				3	B	10"	BTF	MO	C	O	FST VPI	OP RF	65s		73ST-3ZZ09 73ST-3ZZ03	
CTN-PSV8	G6	X				3	C	10"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
CTN-PSV23	G5	X				3	C	10"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	

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INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 3

System: Diesel Fuel Transfer (DF) Rev.: 0 Page 10 of 64 Pages

VALVE NUMBER	P & ID COORDINATES	13-M-DFP-001				ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
DFA-V012	D6	X				3	C	2"	CK	SA	C	O	FST	OP			43ST-3DF01	
DFB-V019	D2	X				3	C	2"	CK	SA	C	O	FST	OP			43ST-3DF01	

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INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 3

System: Diesel Generator (DG) Rev.: 0 Page 11 of 64 Pages

VALVE NUMBER	P & ID COORDINATES 13-M-DGP-001 SHT					ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
DGA-V002	F7	X				3	C	2"	CK	SA	O/C	C	FST	OP		VRR-15	73ST-3ZZ05	
DGA-V003	F7	X				3	C	2"	CK	SA	O/C	C	FST	OP		VRR-15	73ST-3ZZ05	
DGA-V006	E7	X				3	C	2"	CK	SA	C	O	FST	OP			73ST-3ZZ05	
DGB-V011	F4	X				3	C	2"	CK	SA	O/C	C	FST	OP		VRR-15	73ST-3ZZ05	
DGB-V012	F4	X				3	C	2"	CK	SA	O/C	C	FST	OP		VRR-15	73ST-3ZZ05	
DGB-V015	E3	X				3	C	2"	CK	SA	C	O	FST	OP			73ST-3ZZ05	
DGA-V066	B7	X				3	C	1"	CK	SA	O/C	C	FST	OP			73ST-3ZZ05	
DGA-V067	B7	X				3	C	1"	CK	SA	O/C	C	FST	OP			73ST-3ZZ05	
DGB-V068	B3	X				3	C	1"	CK	SA	O/C	C	FST	OP			73ST-3ZZ05	
DGB-V069	B3	X				3	C	1"	CK	SA	O/C	C	FST	OP			73ST-3ZZ05	

PALO VERDE NUCLEAR GENERATING STATION

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INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 3

System: Diesel Generator (DG) Rev.: 0 Page 12 of 64 Pages

VALVE NUMBER	P & ID COORDINATES	13-M-DGP-001 SH	S3	S4	S7	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
DGA-V317	F6			X		3	C	6"	CK	SA	C	O	FST	OP			43ST-3DG01 43ST-3DG05	
DGA-V318	D6			X		3	C	3"	CK	SA	O/C	O	FST	OP			43ST-3DG01 43ST-3DG05	
DGA-V332	E7				X	3	C	1"	CK	SA	C	O	FST	OP			43ST-3DG01 43ST-3DG05	
DGA-V364	C6		X			3	C	3"	CK	SA	O/C	O	FST	OP			43ST-3DG01 43ST-3DG05	

PALO VERDE NUCLEAR GENERATING STATION

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INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 3

System: Diesel Generator (DG) Rev.: 0 Page 13 of 64 Pages

VALVE NUMBER	P & ID COORDINATES 13-M-DGP-001	SB	S4	S6	S7	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
DGA-V396	G7			X		3	C	3"	CK	SA	C	O	FST	OP			43ST-3DG01 43ST-3DG05	
DGA-V397	C7			X		3	C	3"	CK	SA	C	O	FST	OP			43ST-3DG01 43ST-3DG05	
DGB-V417	F2		X			3	C	6"	CK	SA	C	O	FST	OP			43ST-3DG02 43ST-3DG06	
DGB-V418	D2		X			3	C	3"	CK	SA	O/C	O	FST	OP			43ST-3DG02 43ST-3DG06	
DGB-V432	E3				X	3	C	1"	CK	SA	C	O	FST	OP			43ST-3DG02 43ST-3DG06	
DGB-V464	C2	X				3	C	3"	CK	SA	O/C	O	FST	OP			43ST-3DG02 43ST-3DG06	
DGB-V496	G3			X		3	C	3"	CK	SA	C	O	FST	OP			43ST-3DG02 43ST-3DG06	
DGB-V497	C3			X		3	C	3"	CK	SA	C	O	FST	OP			43ST-3DG02 43ST-3DG06	

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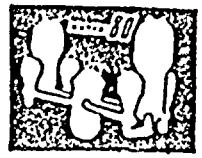
INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 3

System: Diesel Generator (DG) Rev.: 0 Page 14 of 64 Pages



VALVE NUMBER	P & ID COORDINATES	13-1-DGP-001 SH3 S4	S5	S6	S7	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
DGA-V510	E8	X				3	C	1 1/4"	CK	SA	O/C	O	FST	OP			43ST-3DG01 43ST-3DG05	
DGA-V520	G7			X		-	C	1"	CK	SA	C	O	FST	OP			43ST-3DG01 43ST-3DG05	
DGB-V610	E4	X				3	C	1 1/4"	CK	SA	O/C	O	FST	OP			43ST-3DG02 43ST-3DG06	
DGB-V620	G3			X		-	C	1"	CK	SA	C	O	FST	OP			43ST-3DG02 43ST-3DG06	
DGA-UV3	F7		X			-	B	3/8"	GA	SOL	C	O	FST	OP		VRR-16	43ST-3DG01 43ST-3DG05	
DGB-UV4	F3		X			-	B	3/8"	GA	SOL	C	O	FST	OP		VRR-16	43ST-3DG02 43ST-3DG06	
DGA-UV5	D7		X			-	B	3/8"	GA	SOL	C	O	FST	OP		VRR-16	43ST-3DG01 43ST-3DG05	
DGB-UV6	D3		X			-	B	3/8"	GA	SOL	C	O	FST	OP		VRR-16	43ST-3DG02 43ST-3DG06	

PALO VERDE NUCLEAR GENERATING STATION

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INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 3

System: Diesel Generator (DG) Rev.: 0 Page 15 of 64 Pages

VALVE NUMBER	P & ID COORDINATES	13-M-DGP-001 SH3 S.6	S.7	S.8	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
DGA-UV7	F6	X			-	B	3/8"	GA	SOL	C	O	FST	OP		VRR-16	43ST-3DG01 43ST-3DG05	
DGB-UV8	F2	X			-	B	3/8"	GA	SOL	C	O	FST	OP		VRR-16	43ST-3DG02 43ST-3DG06	
DGA-UV9	F6			X	-	B	3/8"	GA	SOL	C	O	FST	OP		VRR-16	43ST-3DG01 43ST-3DG05	
DGB-UV10	F3			X	-	B	3/8"	CK	SOL	C	O	FST	OP		VRR-16	43ST-3DG02 43ST-3DG06	
DGA-UV11	F6			X	-	B	3/8"	GA	SOL	C	O	FST	OP		VRR-16	43ST-3DG01 43ST-3DG05	
DGB-UV12	F3			X	-	B	3/8"	GA	SOL	C	O	FST	OP		VRR-16	43ST-3DG02 43ST-3DG06	
DGA-UV15	D6	X			-	B	3/8"	GA	SOL	C	O	FST	OP		VRR-16	43ST-3DG01 43ST-3DG05	
DGB-UV16	D2	X			-	B	3/8"	GA	SOL	C	O	FST	OP		VRR-16	43ST-3DG02 43ST-3DG06	

PALO VERDE NUCLEAR GENERATING STATION

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INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 3

System: Diesel Generator (DG) Rev.: 0 Page 16 of 64 Pages

VALVE NUMBER	P & ID COORDINATES	13-M-DGP-001 SH3	S6	S7	S8	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
DGA-PSV5	C6	X				3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
DGB-PSV6	C3	X				3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	

PALO VERDE NUCLEAR GENERATING STATION

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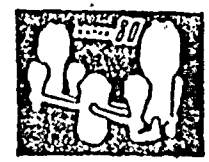
INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 3

System: Diesel Generator (DG) Rev.: 0 Page 17 of 64 Pages



VALVE NUMBER	P & ID COORDINATES	13-M-DGP-001 SH 5,6				ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
DGA-PSV7	B6	X				3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
DGB-PSV8	B3	X				3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
DGA-PSV65	E6			X		3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
DGB-PSV66	E3			X		3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
DGA-PSV81	D5		X			3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
DGB-PSV82	D5		X			3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
DGA-PSV83	C6		X			3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
DGB-PSV84	C3		X			3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
DGA-PSV85	D7		X			3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
DGB-PSV86	D4		X			3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	

PALO VERDE NUCLEAR GENERATING STATION

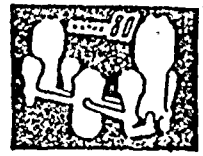
ANPP

INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 3

System: Essential Chill Water (EC) Rev.: 0 Page 18 of 64 Pages



VALVE NUMBER	P & ID COORDINATES 13-M-ECP-001					ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
ECA-V041	C7	X				3	C	1 1/2"	CK	SA	C	O	FST	OP			73ST-3ZZ05	
ECB-V072	C3	X				3	C	1 1/2"	CK	SA	C	O	FST	OP			73ST-3ZZ05	
ECA-PSV75	D6	X				3	C	1 1/2"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
ECB-PSV76	D3	X				3	C	1 1/2"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
ECA-PSV95	E5	X				3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
ECB-PSV96	E1	X				3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
ECA-PSV97	E7	X				3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
ECB-PSV98	E4	X				3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
ECA-PSV99	G7	X				3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	

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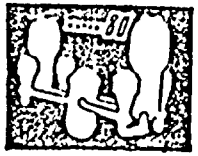
INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 3

System: Essential Chill Water (EC) Rev.: 0 Page 19 of 64 Pages



VALVE NUMBER	P & ID COORDINATES	13-M-EWP-001				ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
ECB-PSV100	G2	X				3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
ECA-PSV101	G6	X				3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
ECB-PSV102	G1	X				3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
ECA-PSV103	H7	X				3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
ECB-PSV104	H4	X				3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
ECA-PSV105	H6	X				3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
ECB-PSV106	H2	X				3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
ECA-PSV107	H5	X				3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
ECB-PSV108	H1	X				3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
ECA-PSV109	G4	X				3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	

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INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 3

System: Essential Chill Water (EC) Rev.: 0 Page 20 of 64 Pages

VALVE NUMBER	P & ID COORDINATES 13-M-ECP-001				ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
ECB-PSV117	G5	X			3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
ECB-PSV120	E3	X			3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
ECA-PSV121	E6	X			3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	

PALO VERDE NUCLEAR GENERATING STATION

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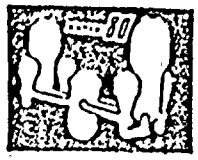
INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 3

System: Essential Cooling Water (EW) Rev.: 0 Page 21 of 64 Pages



VALVE NUMBER	P & ID COORDINATES 13-M-EWP-001					ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
EWA-V018	H7	X				3	C	2"	CK	SA	O/C	C	FST	RF		VRR-17	Disassemble	
EWB-V029	H3	X				3	C	2"	CK	SA	O/C	C	FST	RF		VRR-17	Disassemble	
EWB-V077	H3	X				3	C	2"	CK	SA	O/C	C	FST	RF		VRR-17	Disassemble	
EWA-V079	G7	X				3	C	2"	CK	SA	O/C	O	FST	OP			73ST-3ZZ05	
EWB-V080	G3	X				3	C	2"	CK	SA	O/C	O	FST	OP			73ST-3ZZ05	
EWA-V103	H7	X				3	C	2"	CK	SA	O/C	C	FST	RF		VRR-17	Disassemble	
EWA-UV65	C8	X				3	B	14"	BTF	MO	C	C	FST VPI	CS RF	60s	VRR-18	73ST-3ZZ08 73ST-3ZZ03	
EWA-UV145	C4	X				3	B	14"	BTF	MO	C	C	FST VPI	CS RF	60s	VRR-18	73ST-3ZZ08 73ST-3ZZ03	
EWA-PSV47	B7	X				3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
EWB-PSV48	B3	X				3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	

PALO VERDE NUCLEAR GENERATING STATION

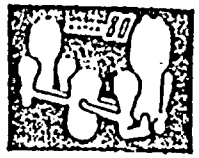
ANPP

INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 3

System: Essential Cooling Water (EW) Rev.: 0 Page 22 of 64 Pages



VALVE NUMBER	P&ID COORDINATES 13-M-EWP-001				ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
EWA-PSV61	D7	X			3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
EWB-PSV62	D3	X			3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
EWA-PSV79	F7	X			3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
EWB-PSV80	F3	X			3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
EWA-PSV103	H6	X			3	C	2"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
EWB-PSV104	H2	X			3	C	2"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
EWA-PSV105	H6	X			3	C	2"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
EWB-PSV106	H2	X			3	C	2"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	

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INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 3

System: Fire Protection (FP) Rev.: 0 Page 23 of 64 Pages

VALVE NUMBER	P&ID COORDINATES 13-M-FPP-006				ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
FPE-V090	E9	X			2	AC	6"	CK	SA	C	C	AJLT	RF			73ST-9CL01	penet. 7

PALO VERDE NUCLEAR GENERATING STATION

INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 3

System: Service Gas (GA) Rev.: 0 Page 24 of 64 Pages

VALVE NUMBER	P & ID COORDINATES	13-M-GAP-001			ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
GAE-V011	D6	X			2	AC	1"	CK	SA	O/C	C	FST AJLT	RF RF		VRR-19	73ST-9CL01 73ST-9CL01	penet. 30
GAE-V015	F2	X			2	AC	1"	CK	SA	O/C	C	FST AJLT	RF RF		VRR-19	73ST-9CL01 73ST-9CL01	penet. 29
GAA-UV1	D6	X			2	AC	1"	GA	SOL	C	C	FST VPI AJLT	OP RF RF	10s		73ST-3ZZ09 73ST-3ZZ01 73ST-9CL01	penet. 30
GAA-UV2	F3	X			2	AC	1"	GA	SOL	O	C	FST VPI AJLT	OP RF RF	10s		73ST-3ZZ09 73ST-3ZZ01 73ST-9CL01	penet. 30

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INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 3

System: Gaseous Radwaste (GR) Rev.: 0 Page 25 of 64 Pages

VALVE NUMBER	P & ID COORDINATES	13-N-GRP-001				ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
GRA-UV1	H7	X				2	A	1"	GL	MO	O	C	FST VPI AJLT	OP RF RF	12s		73ST-3ZZ09 73ST-3ZZ03 73ST-9CL01	penet. 52
GRB-UV2	G7	X				2	A	1"	GL	SOL	O	C	FST VPI AJLT	OP RF RF	10s		73ST-3ZZ09 73ST-3ZZ01 73ST-9CL01	penet. 52

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INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 3

System: Containment HVAC (HC) Rev.: 0 Page 26 of 61 Pages

VALVE NUMBER	P&ID COORDINATES 13-M-HCP-001				ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
HCB-UV44	E3	X			2	A	1"	GA	SOL	O	C	FST VPI AJLT	OP RF RF	 1s		73ST-3ZZ09 73ST-3ZZ01 73ST-9CL01	penet. 25a
HCA-UV45	E2	X			2	A	1"	GA	SOL	O	C	FST VPI AJLT	OP RF RF	 1s		73ST-3ZZ09 73ST-3ZZ01 73ST-9CL01	penet. 25a
HCA-UV46	D2	X			2	A	1"	GA	SOL	O	C	FST VPI AJLT	OP RF RF	 1s		73ST-3ZZ09 73ST-3ZZ01 73ST-9CL01	penet. 25b
HCB-UV47	D3	X			2	A	1"	GA	SOL	O	C	FST VPI AJLT	OP RF RF	 1s		73ST-3ZZ09 73ST-3ZZ01 73ST-9CL01	penet. 25b

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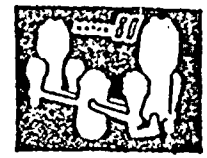
INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 3

System: Containment HVAC (HC) Rev.: 0 Page 27 of 64 Pages



VALVE NUMBER	P & ID COORDINATES 13-M-HPP-001					ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
HPA-V002	F7	X				2	AC	2"	CK	SA	C	C	AJLT	RF			73ST-9CL01	penet. 38
HPB-V004	C7	X				2	AC	2"	CK	SA	C	C	AJLT	RF			73ST-9CL01	penet. 39
HPA-HV7A	F5	X				2	A	1"	GL	SOL	C	O/C	FST VPI AJLT	OP RF RF	O-1s C-1s		73ST-3ZZ09 73ST-3ZZ01 73ST-9CL01	penet. 35
HPA-HV7B	G6	X				2	A	1"	GL	SOL	C	O/C	FST VPI AJLT	OP RF RF	O-1s C-1s		73ST-3ZZ09 73ST-3ZZ01 73ST-9CL01	penet. 38
HPB-HV8A	C5	X				2	A	1"	GL	SOL	C	O/C	FST VPI AJLT	OP RF RF	O-1s C-1s		73ST-3ZZ09 73ST-3ZZ01 73ST-9CL01	penet. 36
HPB-HV8B	B6	X				2	A	1"	GL	SOL	C	O/C	FST VPI AJLT	OP RF RF	O-1s C-1s		73ST-3ZZ09 73ST-3ZZ01 73ST-9CL01	penet. 39
HPA-UV1	E7	X				2	A	2"	GL	MO	C	O/C	FST VPI AJLT	OP RF RF	O-12s C-12s		73ST-3ZZ09 73ST-3ZZ03 73ST-9CL01	penet. 35
HPB-UV2	D7	X				2	A	2"	GL	MO	C	O/C	FST VPI AJLT	OP RF RF	O-12s C-12s		73ST-3ZZ09 73ST-3ZZ03 73ST-9CL01	penet. 36

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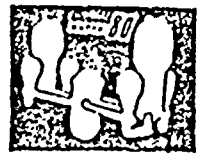
INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 3

System: Hydrogen Purge (HP) Rev.: 0 Page 28 of 64 Pages



VALVE NUMBER	P&ID COORDINATES 13-M-HPP-001					ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
HPA-UV3	E6	X				2	A	2"	GL	MO	C	O/C	FST VPI AJLT	OP RF RF	O-12s C-12s		73ST-3ZZ09 73ST-3ZZ03 73ST-9CL01	penet. 35
HPB-UV4	D6	X				2	A	2"	GL	MO	C	O/C	FST VPI AJLT	OP RF RF	O-12s C-12s		73ST-3ZZ09 73ST-3ZZ03 73ST-9CL01	penet. 36
HPA-UV5	F6	X				2	A	2"	GL	MO	C	O/C	FST VPI AJLT	OP RF RF	O-12s C-12s		73ST-3ZZ09 73ST-3ZZ03 73ST-9CL01	penet. 38
HPB-UV6	C6	X				2	A	2"	GL	MO	C	O/C	FST VPI AJLT	OP RF RF	O-12s C-12s		73ST-3ZZ09 73ST-3ZZ03 73ST-9CL01	penet. 39
HPA-UV23	G6	X				2	A	1/2"	GL	SOL	C	C	FST VPI AJLT	OP RF RF	5s		73ST-3ZZ09 73ST-3ZZ01 73ST-9CL01	penet. 38
HPA-UV24	F4	X				2	A	1/2"	GL	SOL	C	C	FST VPI AJLT	OP RF RF	5s		73ST-3ZZ09 73ST-3ZZ01 73ST-9CL01	penet. 35

PALO VERDE NUCLEAR GENERATING STATION

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INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 3

System: Instrument Air (IA) Rev.: 0 Page 29 of 64 Pages

VALVE NUMBER	P & ID COORDINATES	13-M-IAP-002	13-M-IAP-003	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
IAE-V021	G5	X		2	AC	2"	CK	SA	O	C	FST AJLT	RF RF		VRR-19	73ST-9CL01 73ST-9CL01	penet. 31
IAE-V073	H7	X		2	AC	3"	CK	SA	C	C	AJLT	RF			73ST-9CL01	penet. 59
IAE-UV2	G6	X		2	A	2"	GA	SOL	O	C	FST VPI AJLT	CS RF RF	 10s	VRR-20	73ST-3ZZ08 73ST-3ZZ01 73ST-9CL01	penet. 31

PALO VERDE NUCLEAR GENERATING STATION

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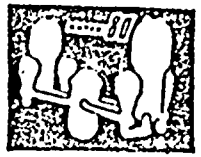
INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 3

System: Nuclear Cooling Water (NC) Rev.: 0 Page 30 of 64 Pages



VALVE NUMBER	P & ID COORDINATES	13-M-NCP-002	13-M-NCP-003	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
NCE-V118	E6		X	2	AC	10"	CK	SA	O	C	FST AJLT	CS RF		VRR-21	73ST-3ZZ06 73ST-9CL01	penet. 33
NCB-UV401	E7		X	2	A	10"	BTF	MO	O	C	FST VPI AJLT	CS RF RF	10s	VRR-21	73ST-3ZZ08 73ST-3ZZ03 73ST-9CL01	penet. 33
NCA-UV402	F7		X	2	A	10"	BTF	MO	O	C	FST VPI AJLT	CS RF RF	10s	VRR-21	73ST-3ZZ08 73ST-3ZZ03 73ST-9CL01	penet. 34
NCB-UV403	F6		X	2	A	10"	BTF	MO	O	C	FST VPI AJLT	CS RF RF	10s	VRR-21	73ST-3ZZ08 73ST-3ZZ03 73ST-9CL01	penet. 34
NCA-PSV250	E2	X		3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
NCB-PSV251	D2	X		3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	

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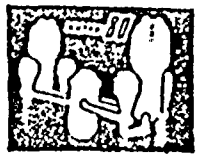
INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 3

System: Fuel Pool Cooling (PC) Rev.: 0 Page 31 of 64 Pages



VALVE NUMBER	P & ID COORDINATES 13-M-PCP-001				ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
PCA-PSV35	E13	X			3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
PCB-PSV36	C13	X			3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	

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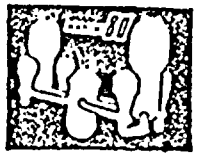
INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 3

System: Reactor Coolant (RC) Rev.: 0 Page 32 of 64 Pages



VALVE NUMBER	P & ID COORDINATES 13-M-RCP-001					ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
RCA-HV101	G15	X				2	B	1"	GL	SOL	C	O/C	FST VPI	CS RF	O-3s C-5s	VRR-22	73ST-3ZZ08 43ST-3RC04	
RCB-HV102	G15	X				2	B	1"	GL	SOL	C	O/C	FST VPI	CS RF	O-3s C-5s	VRR-22	73ST-3ZZ08 43ST-3RC04	
RCA-HV103	G14	X				2	B	1"	GL	SOL	C	O/C	FST VPI	CS RF	O-3s C-5s	VRR-22	73ST-3ZZ08 43ST-3RC04	
RCB-HV105	G15	X				2	B	1"	GL	SOL	C	O/C	FST VPI	CS RF	O-3s C-5s	VRR-22	73ST-3ZZ08 43ST-3RC04	
RCA-HV106	F15	X				2	B	1"	GL	SOL	C	O/C	FST VPI	CS RF	O-3s C-5s	VRR-22	73ST-3ZZ08 43ST-3RC04	
RCB-HV108	G13	X				1	B	1"	GL	SOL	C	O/C	FST VPI	CS RF	O-3s C-5s	VRR-22	73ST-3ZZ08 43ST-3RC04	
RCB-HV109	G14	X				1	B	1"	GL	SOL	C	O/C	FST VPI	CS RF	O-3s C-5s	VRR-22	73ST-3ZZ08 43ST-3RC04	
RCE-PSV200	F12	X				1	C	6"	PSV	SA	C	O	PSVT				73ST-9ZZ18 73ST-9ZZ20	
RCE-PSV201	F12	X				1	C	6"	PSV	SA	C	O	PSVT				73ST-9ZZ18 73ST-9ZZ20	
RCE-PSV202	F12	X				1	C	6"	PSV	SA	C	O	PSVT				73ST-9ZZ18 73ST-9ZZ20	

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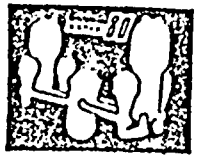
INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 3

System: Reactor Coolant (RC) Rev.: 0 Page 33 of 64 Pages



VALVE NUMBER	P & ID COORDINATES	13-M-RCP-001			ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
RCE-PSV203	G12	X			1	C	6"	PSV	SA	C	O	PSVT				73ST-9ZZ18 73ST-9ZZ20	

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INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 3

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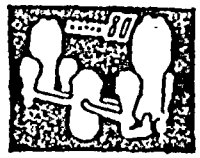

VALVE NUMBER	P&ID COORDINATES	13-M-RDP-001				ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
RDA-UV23	G5	X				2	A	3"	GA	MO	O	C	FST VPI AJLT	OP RF RF	20s		73ST-3ZZ09 73ST-3ZZ03 73ST-9CL01	penet. 9
RDB-UV24	G4	X				2	A	3"	GA	AO	O	C	FST VPI AJLT	OP RF RF	5s		73ST-3ZZ09 73ST-3ZZ03 73ST-9CL01	penet. 9
RDB-UV407	F4	X				2	A	1/2"	GL	SOL	C	C	FST VPI AJLT	OP RF RF	5s		73ST-3ZZ09 73ST-3ZZ01 73ST-9CL01	penet. 9

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INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 3

System: Main Steam (SG) Rev.: 0 Page 35 of 64 Pages

VALVE NUMBER	P & ID COORDINATES	13-M-SGP-001	13-M-SGP-002			ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
SGE-V003	E10		X			2	C	24"	CK	SA	O	C	FST	CS-3		VRR-23	73ST-3ZZ05	penet. 8
SGE-V005	A10		X			2	C	24"	CK	SA	O	C	FST	CS-3		VRR-23	73ST-3ZZ05	penet. 10
SGE-V006	A10		X			2	C	24"	CK	SA	O	C	FST	CS-3		VRR-23	73ST-3ZZ05	penet. 10
SGE-V007	E10		X			2	C	24"	CK	SA	O	C	FST	CS-3		VRR-23	73ST-3ZZ05	penet. 8
SGA-V043	E12	X				3	C	6"	CK	SA	C	O	FST	OP			43ST-3AF02	
SGA-V044	C12	X				3	C	6"	CK	SA	C	O	FST	OP			43ST-3AF02	
SGE-V642	G11		X			2	C	8"	CK	SA	O	C	FST	CS-3		VRR-23	73ST-3ZZ05	penet. 11
SGE-V652	G10		X			2	C	8"	CK	SA	O	C	FST	CS-3		VRR-23	73ST-3ZZ05	penet. 11
SGE-V653	C10		X			2	C	8"	CK	SA	O	C	FST	CS-3		VRR-23	73ST-3ZZ05	penet. 12
SGE-V693	C11		X			2	C	8"	CK	SA	O	C	FST	CS-3		VRR-23	73ST-3ZZ05	penet. 12

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INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 3

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VALVE NUMBER	P & ID COORDINATES	13-M-SGP-001	13-M-SGP-002			ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
SGE-V887	D12	X				3	C	2"	CK	SA	C	O	FST	OP			43ST-3AF02	
SGE-V888	D12	X				3	C	2"	CK	SA	C	O	FST	OP			43ST-3AF02	
SGB-HV178	E15	X				2	B	12"	GL	AO	C	O/C	FST FT VPI	CS CS RF	0-120s C-40s	VRR-26	73ST-3ZZ08 73ST-3ZZ08 73ST-3ZZ02	penet. 2
SGA-HV179	A14	X				2	B	12"	GL	AO	C	O/C	FST FT VPI	CS CS RF	0-120s C-40s	VRR-26	73ST-3ZZ08 73ST-3ZZ08 73ST-3ZZ02	penet. 2
SGA-HV184	F14	X				2	B	12"	GL	AO	C	O/C	FST FT VPI	CS CS RF	0-120s C-40s	VRR-26	73ST-3ZZ08 73ST-3ZZ08 73ST-3ZZ02	penet. 1
SGB-HV185	C15	X				2	B	12"	GL	AO	C	O/C	FST FT VPI	CS CS RF	0-120s C-40s	VRR-26	73ST-3ZZ08 73ST-3ZZ08 73ST-3ZZ02	penet. 3
SGB-HV200	F11		X			2	B	3/8"	GA	SOL	O/C	C	FST VPI	OP RF	1s		73ST-3ZZ10 73ST-3ZZ01	penet. 11
SGB-HV201	C11		X			2	B	3/8"	GA	SOL	O/C	C	FST VPI	OP RF	1s		73ST-3ZZ10 73ST-3ZZ01	penet. 12
SGB-UV130	G12		X			2	B	8"	GA	AO	O	C	FST VPI	CS RF	9.6s	VRR-24	73ST-3ZZ08 73ST-3ZZ02	penet. 11

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ISI CLASS 1, 2, & 3 VALVES

UNIT: 3

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VALVE NUMBER	P & ID COORDINATES	13-M-SGP-001	13-M-SGP-002	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
SGB-UV132	E12		X		2	B	24"	GA	HY	O	C	FST PST VPI	CS OP RF	7.6s		73ST-3ZZ08 73ST-3ZZ10 73ST-3ZZ02	penet. 8
SGA-UV134	E13	X			2	B	6"	GA	MO	C	O/C	FST VPI	OP RF	0-5s C-5s		73ST-3ZZ10 43ST-3AF02	penet. 2
SGA-UV134A	E13	X			2	B	1"	GL	SOL	C	O/C	FST VPI	OP RF-3	0-3s C-5s	VRR-25	73ST-3ZZ10 43ST-3AF02	penet. 2
SGB-UV135	C12		X		2	B	8"	GA	AO	O	C	FST VPI	CS RF	9.6s	VRR-24	73ST-3ZZ08 73ST-3ZZ02	penet. 12
SGB-UV137	A12		X		2	B	24"	GA	HY	O	C	FST PST VPI	CS OP RF	7.6s		73ST-3ZZ08 73ST-1ZZ10 73ST-3ZZ02	penet. 10
SGA-UV138	C12	X			2	B	6"	GA	MO	C	O/C	FST VPI	OP RF	0-5s C-5s		73ST-3ZZ10 43ST-3AF02	penet. 3
SGA-UV138A	C12	X			2	B	1"	GL	SOL	C	O/C	FST VPI	OP RF-3	0-3s C-5s	VRR-25	73ST-3ZZ10 43ST-3AF02	penet. 3
SGE-UV169	E11	X			2	B	4"	GA	AO	O/C	C	FST VPI	OP RF			73ST-3ZZ10 73ST-3ZZ02	penet. 2

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ISI CLASS 1, 2, & 3 VALVES

UNIT: 3

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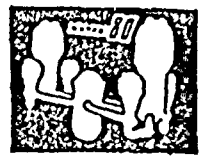

VALVE NUMBER	P&ID COORDINATES	13-M-SGP-001	13-M-SGP-002			ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
SGE-UV170	G10	X				2	B	28"	GA	HY	O	C	FST PST FT VPI	CS-3 OP CS RF	3.8s		43ST-3SG01 43ST-3SG01 43ST-3SG01 73ST-3ZZ02	penet. 1
SGE-UV171	D10	X				2	B	28"	GA	HY	O	C	FST PST FT VPI	CS-3 OP CS RF	3.8s		43ST-3SG01 43ST-3SG01 43ST-3SG01 73ST-3ZZ02	penet. 3
SGA-UV172	G12		X			2	B	8"	GA	AO	O	C	FST VPI	CS RF	9.6s	VRR-24	73ST-3ZZ08 73ST-3ZZ02	penet. 11
SGA-UV174	E12		X			2	B	24"	GA	HY	O	C	FST PST VPI	CS OP RF	7.6s		73ST-3ZZ08 73ST-3ZZ10 73ST-3ZZ02	penet. 8
SGA-UV175	C12		X			2	B	8"	GA	AO	O	C	FST VPI	CS RF	9.6s	VRR-24	73ST-3ZZ08 73ST-3ZZ02	penet. 12
SGA-UV177	A12		X			2	B	24"	GA	HY	O	C	FST PST VPI	CS OP RF	7.6s		73ST-3ZZ08 73ST-3ZZ10 73ST-3ZZ02	penet. 9

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INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 3

System: Main Steam (SG) Rev.: 0 Page 39 of 64 Pages

VALVE NUMBER	P&ID COORDINATES	13-M-SGP-001	13-M-SGP-002			ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
SGE-UV180	E10	X				2	B	28"	GA	HY	O	C	FST PST FT VPI	CS-3 OP CS RF	3.8s		43ST-3SG01 43ST-3SG01 43ST-3SG01 73ST-3ZZ02	penet. 2
SGE-UV181	B10	X				2	B	28"	GA	HY	O	C	FST PST FT VPI	CS-3 OP CS RF	3.8s		43ST-3SG01 43ST-3SG01 43ST-3SG01 73ST-3ZZ02	penet. 4
SGE-UV183	B11	X				2	B	4"	GA	AO	O/C	C	FST VPI	OP RF	4.6s		73ST-3ZZ10 73ST-3ZZ02	penet. 3
SGA-UV204	G3		X			2	B	1/2"	GL	SOL	O	C	FST VPI	OP RF	5s		73ST-3ZZ10 73ST-3ZZ01	penet. 37B
SGA-UV211	G3		X			2	B	1/2"	GL	SOL	O	C	FST VPI	OP RF	5s		73ST-3ZZ10 73ST-3ZZ01	penet. 37A
SGB-UV219	G3		X			2	B	1/2"	GL	SOL	O	C	FST VPI	OP RF	5s		73ST-3ZZ10 73ST-3ZZ01	penet. 37B
SGA-UV220	G6		X			2	B	1/2"	GL	SOL	O	C	FST VPI	OP RF	5s		73ST-3ZZ10 73ST-3ZZ01	penet. 49
SGB-UV221	G5		X			2	B	1/2"	GL	SOL	O	C	FST VPI	OP RF	5s		73ST-3ZZ10 73ST-3ZZ01	penet. 49

PALO VERDE NUCLEAR GENERATING STATION

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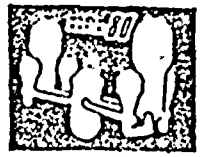
INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 3

System: Main Steam (SG) Rev.: 0



VALVE NUMBER	P&ID COORDINATES	13-M-SGP-001	13-M-SGP-002	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
SGB-UV222	C3		X	2	B	1/2"	GL	SOL	O	C	FST VPI	OP RF	5s		73ST-3ZZ10 73ST-3ZZ01	penet. 63B
SGA-UV223	C3		X	2	B	1/2"	GL	SOL	O	C	FST VPI	OP RF	5s		73ST-3ZZ10 73ST-3ZZ01	penet. 63B
SGB-UV224	D3		X	2	B	1/2"	GL	SOL	O	C	FST VPI	OP RF	5s		73ST-3ZZ10 73ST-3ZZ01	penet. 63A
SGA-UV225	D2		X	2	B	1/2"	GL	SOL	O	C	FST VPI	OP RF	5s		73ST-3ZZ10 73ST-3ZZ01	penet. 63A
SGB-UV226	C2		X	2	B	1/2"	GL	SOL	O	C	FST VPI	OP RF	5s		73ST-3ZZ10 73ST-3ZZ01	penet. 48
SGA-UV227	C5		X	2	B	1/2"	GL	SOL	O	C	FST VPI	OP RF	5s		73ST-3ZZ10 73ST-3ZZ01	penet. 48
SGB-UV228	G2		X	2	B	1/2"	GL	SOL	O	C	FST VPI	OP RF	5s		73ST-3ZZ10 73ST-3ZZ01	penet. 37A
SGA-UV500P	E3		X	2	B	6"	GA	AO	O	C	FST VPI	OP RF	9.6s		73ST-3ZZ10 73ST-3ZZ02	penet. 46
SGB-UV500Q	E2		X	2	B	6"	GA	AO	O	C	FST VPI	OP RF	9.6s		73ST-3ZZ10 73ST-3ZZ02	penet. 46
SGB-UV500R	A3		X	2	B	6"	GA	AO	O	C	FST VPI	OP RF	9.6s		73ST-3ZZ10 73ST-3ZZ02	penet. 47

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INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 3

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VALVE NUMBER	P & ID COORDINATES	13-M-SGP-001	13-M-SGP-002			ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
SGA-UV500S	A2		X			2	B	6"	GA	AO	O	C	FST VPI	OP RT	9.6s		73ST-3ZZ10 73ST-3ZZ02	penet. 47
SGA-UV1133	D14	X				2	B	1"	GL	SOL	O	C	FST VPI	OP RF-3	4.6s	VRR-27	73ST-3ZZ10 73ST-3ZZ07	penet. 2
SGA-UV1134	C14	X				2	B	1"	GL	SOL	O	C	FST VPI	OP RF-3	4.6s	VRR-27	73ST-3ZZ10 73ST-3ZZ07	penet. 3
SGB-UV1135A	H11	X				2	B	1"	GL	SOL	O	C	FST VPI	OP RF-3	4.6s	VRR-27	73ST-3ZZ10 73ST-3ZZ07	penet. 1
SGB-UV1135B	F11	X				2	B	1"	GL	SOL	O	C	FST VPI	OP RF-3	4.6s	VRR-27	73ST-3ZZ10 73ST-3ZZ07	penet. 2
SGB-UV1136A	D11	X				2	B	1"	GL	SOL	O	C	FST VPI	OP RF-3	4.6s	VRR-27	73ST-3ZZ10 73ST-3ZZ07	penet. 3
SGB-UV1136B	B11	X				2	B	1"	GL	SOL	O	C	FST VPI	OP RF-3	4.6s	VRR-27	73ST-3ZZ10 73ST-3ZZ07	penet. 4
SGE-PSV554	D12	X				2	C	6"	PSV	SA	C	O	PSVT				73ST-3ZZ18 73ST-3ZZ20	penet. 3
SGE-PSV555	D13	X				2	C	6"	PSV	SA	C	O	PSVT				73ST-3ZZ18 73ST-3ZZ20	penet. 3

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UNIT: 3

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VALVE NUMBER	P & ID COORDINATES 13-M-SGP-001 13-M-SGP-002					ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
SGE-PSV556	D14	X				2	C	6"	PSV	SA	C	O	PSVT				73ST-3ZZ18 73ST-3ZZ20	penet. 3
SGE-PSV557	D14	X				2	C	6"	PSV	SA	C	O	PSVT				73ST-3ZZ18 73ST-3ZZ20	penet. 3
SGE-PSV558	B14	X				2	C	6"	PSV	SA	C	O	PSVT				73ST-3ZZ18 73ST-3ZZ20	penet. 4
SGE-PSV559	B14	X				2	C	6"	PSV	SA	C	O	PSVT				73ST-3ZZ18 73ST-3ZZ20	penet. 4
SGE-PSV560	B13	X				2	C	6"	PSV	SA	C	O	PSVT				73ST-3ZZ18 73ST-3ZZ20	penet. 4
SGE-PSV561	B12	X				2	C	6"	PSV	SA	C	O	PSVT				73ST-3ZZ18 73ST-3ZZ20	penet. 4
SGE-PSV572	H12	X				2	C	6"	PSV	SA	C	O	PSVT				73ST-3ZZ18 73ST-3ZZ20	penet. 1
SGE-PSV573	H13	X				2	C	6"	PSV	SA	C	O	PSVT				73ST-3ZZ18 73ST-3ZZ20	penet. 1
SGE-PSV574	H14	X				2	C	6"	PSV	SA	C	O	PSVT				73ST-3ZZ18 73ST-3ZZ20	penet. 1
SGE-PSV575	H15	X				2	C	6"	PSV	SA	C	O	PSVT				73ST-3ZZ18 73ST-3ZZ20	penet. 1

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VALVE NUMBER	P & ID COORDINATES	13-M-SGP-001	13-M-SGP-002		ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
SGE-PSV576	F14	X			2	C	6"	PSV	SA	C	O	PSVT				73ST-3ZZ18 73ST-3ZZ20	penet. 2
SGE-PSV577	F14	X			2	C	6"	PSV	SA	C	O	PSVT				73ST-3ZZ18 73ST-3ZZ20	penet. 2
SGE-PSV578	F13	X			2	C	6"	PSV	SA	C	O	PSVT				73ST-3ZZ18 73ST-3ZZ20	penet. 2
SGE-PSV579	F12	X			2	C	6"	PSV	SA	C	O	PSVT				73ST-3ZZ18 73ST-3ZZ20	penet. 2
SGE-PSV691	F15	X			2	C	6"	PSV	SA	C	O	PSVT				73ST-3ZZ18 73ST-3ZZ20	penet. 2
SGE-PSV692	H16	X			2	C	6"	PSV	SA	C	O	PSVT				73ST-3ZZ18 73ST-3ZZ20	penet. 1
SGE-PSV693	B15	X			2	C	6"	PSV	SA	C	O	PSVT				73ST-3ZZ18 73ST-3ZZ20	penet. 4
SGE-PSV694	D15	X			2	C	6"	PSV	SA	C	O	PSVT				73ST-3ZZ18 73ST-3ZZ20	penet. 3

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ISI CLASS 1, 2, & 3 VALVES

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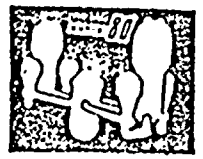

VALVE NUMBER	P & ID COORDINATES	13-M-STP-001	13-M-STP-002		ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
SIE-V113	F14		X		2	C	3"	CK	SA	C	O	FST	RF		VRR-23	73ST-3ZZ06	penet. 13
SIE-V114	F14		X		2	C	12"	CK	SA	C	O	FST	RF		VRR-29	73ST-3ZZ06	penet. 17
(IR-V120) SIB-V120	C12	X			2	C	1/2"	CK	SA	C	O	FST	OP			73ST-3ZZ05	
SIE-V123	F12		X		2	C	3"	CK	SA	C	O	FST	RF		VRR-28	73ST-3ZZ06	penet. 14
SIE-V124	F11		X		2	C	12"	CK	SA	C	O	FST	CS		VRR-29	73ST-3ZZ06	penet. 18
(IR-V130) SIA-V130	E12	X			2	C	1/2"	CK	SA	C	O	FST	OP			73ST-3ZZ05	
SIE-V133	F7		X		2	C	3"	CK	SA	C	O	FST	RF		VRR-28	73ST-3ZZ06	penet. 15
SIE-V134	F6		X		2	C	12"	CK	SA	C	O	FST	CS		VRR-29	73ST-3ZZ06	penet. 19
SIE-V143	F4		X		2	C	3"	CK	SA	C	O	FST	RF		VRR-28	73ST-3ZZ06	penet. 16
SIE-V144	F4		X		2	C	12"	CK	SA	C	O	FST	CS		VRR-29	73ST-3ZZ06	penet. 20

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VALVE NUMBER	P&ID COORDINATES	13-M-STP-001	13-M-STP-002			ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
SIA-V157	G13	X				2	C	18"	CK	SA	C	O	PST FST	OP RF		VRR-30	43ST-3SI03 73ST-3ZZ06	
SIB-V158	C13	X				2	C	18"	CK	SA	C	O	PST FST	OP RF		VRR-30	43ST-3SI03 73ST-3ZZ06	
SIA-V164	F8		X			2	AC	10"	CK	SA	C	O	PST AJLT	RF RF		VRR-31	73ST-3ZZ06 73ST-9CL01	penet. 21
SIB-V165	F6		X			2	AC	10"	CK	SA	C	O	PST AJLT	RF RF		VRR-31	73ST-3ZZ06 73ST-9CL01	penet. 22
SIB-V200	B12	X				2	C	20"	CK	SA	C	O	PST FST	OP RF		VRR-30	43ST-3SI11 73ST-3ZZ06	
SIA-V201	F12	X				2	C	20"	CK	SA	C	O	PST FST	OP RF		VRR-30	43ST-3SI11 73ST-3ZZ06	
SIA-V205	G14	X				2	C	24"	CK	SA	C	O	PST	CS		VRR-32	73ST-3ZZ05	
SIB-V206	A14	X				2	C	24"	CK	SA	C	O	PST	CS		VRR-32	73ST-3ZZ05	
SIE-V215	A15		X			1	AC	14"	CK	SA	C	O/C	LT PST	RF RF-3		VRR-33	73ST-9SI03 73ST-3ZZ06	
SIE-V217	A13		X			1	AC	14"	CK	SA	C	O/C	LT FST	RF CS		VRR-34	73ST-9SI03 73ST-3ZZ06	

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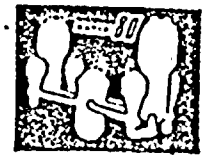

VALVE NUMBER	P&ID COORDINATES 13-M-STP-001	13-M-STP-002	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
SIE-V225	A12	X	1	AC	14"	CK	SA	C	O/C	LT PST	RF RF-3		VRR-33	73ST-9SI03 73ST-3ZZ06	
SIE-V227	A10	X	1	AC	14"	CK	SA	C	O/C	LT FST	RF CS		VRR-34	73ST-9SI03 73ST-3ZZ06	
SIE-V235	A7	X	1	AC	14"	CK	SA	C	O/C	LT PST	RF RF-3		VRR-33	73ST-9SI03 73ST-3ZZ06	
SIE-V237	A6	X	1	AC	14"	CK	SA	C	O/C	LT FST	RF CS		VRR-34	73ST-9SI03 73ST-3ZZ06	
SIE-V245	A5	X	1	AC	14"	CK	SA	C	O/C	LT PST	RF RF-3		VRR-33	73ST-9SI03 73ST-3ZZ06	
SIE-V247	A4	X	1	AC	14"	CK	SA	C	O/C	LT FST	RF CS		VRR-34	73ST-9SI03 73ST-3ZZ06	
SIE-V404	F6	X	2	C	4"	CK	SA	C	O	FST	RF		VRR-28	73ST-3ZZ06	
SIB-V405	B4	X	2	C	4"	CK	SA	C	O	FST	RF		VRR-28	73ST-3ZZ06	
SIA-V424	F10	X	2	C	2"	CK	SA	C	O	FST	OP			43ST-3SI10	
SIB-V426	A10	X	2	C	2"	CK	SA	C	O	FST	OP			43ST-3SI10	

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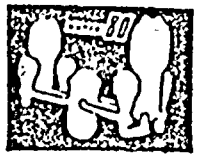

VALVE NUMBER	P & ID COORDINATES	13-M-STP-001	13-M-STP-002			ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
SIA-V434	F9	X				2	C	10"	CK	SA	C	O	FST	OP			73ST-3ZZ05	
SIB-V446	B9	X				2	C	10"	CK	SA	C	O	FST	OP			73ST-3ZZ05	
SIB-V448	B10	X				2	C	2"	CK	SA	C	O	FST	OP			43ST-3SI11	
SIA-V451	G10	X				2	C	2"	CK	SA	C	O	FST	OP			43ST-3SI11	
SIB-V484	C9	X				2	C	10"	CK	SA	C	O	FST	OP			73ST-3ZZ05	
SIA-V485	H9	X				2	C	10"	CK	SA	C	O	FST	OP			73ST-3ZZ05	
SIA-V486	G10	X				2	C	2"	CK	SA	C	O	FST	OP			43ST-3SI03	
SIB-V487	C10	X				2	C	2"	CK	SA	C	O	FST	OP			43ST-3SI03	
SIA-V522	C2		X			1	AC	3"	CK	SA	C	O/C	LT FST	RF RF		 VRR-35	73ST-9SI03 73ST-3ZZ06	
SIA-V523	F2		X			1	AC	3"	CK	SA	C	O/C	LT FST AJLT	RF RF RF		 VRR-35	73ST-9SI03 73ST-3ZZ06 73ST-9CL01	penet. 77

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VALVE NUMBER	P&ID COORDINATES	13-M-STP-001	13-M-STP-002	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
SIB-V532	C10		X	1	AC	3"	CK	SA	C	O/C	LT FST	RF RF		VRR-35	73ST-9SI03 73SI-3ZZ06	
SIB-V533	F9		X	1	AC	3"	CK	SA	C	O/C	LT FST AJLT	RF RF RF		VRR-35	73ST-9SI03 73SI-3ZZ06 73SI-9CL01	penet. 67
SIE-V540	C13		X	1	AC	12"	CK	SA	C	O/C	LT FST	RF RF		VRR-34	73ST-9SI03 73SI-3ZZ06	
SIE-V541	C11		X	1	AC	12"	CK	SA	C	O/C	LT FST	RF RF		VRR-34	73ST-9SI03 73SI-3ZZ06	
SIE-V542	C6		X	1	AC	12"	CK	SA	C	O/C	LT FST	RF RF		VRR-34	73ST-9SI03 73ST-3ZZ06	
SIE-V543	C4		X	1	AC	12"	CK	SA	C	O/C	LT FST	RF RF		VRR-34	73ST-9SI03 73ST-3ZZ06	
SIA-HV306	G5	X		2	B	10"	GL	MO	O	O	FST TP/VPI	OP RF	30s		73ST-3ZZ11 73ST-3SI01	
SIB-HV307	B4	X		2	B	10"	GL	MO	O	O	FST TP/VPI	OP RF	30s		73ST-3ZZ11 73SI-3SI01	
SIC-HV321	G2		X	1	A	3"	GL	MO	C	O	FST TP/VPI AJLT	CS RF RF	10s	VRR-36	73ST-3ZZ08 73ST-3SI01 73SI-9CL01	penet. 77
SID-HV331	G9		X	1	A	3"	GL	MO	C	O	FST TP/VPI AJLT	CS RF RF	10s	VRR-36	73ST-3ZZ08 73ST-3SI01 73SI-9CL01	penet. 67

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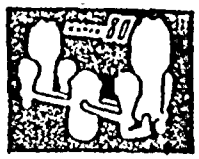

VALVE NUMBER	P&ID COORDINATES	13-M-STP-001	13-M-STP-002	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
SIA-HV604	G3	X		2	B	3"	GA	MO	C	O	FST TP/VPI	CS RF	30s	VRR-36	73ST-3ZZ08 73ST-3SI01	
SIA-HV605	E15		X	2	B	1"	GL	SOL	C	O	FST VPI	RF RF	5s	VRR-37	43ST-3SI01 43ST-3SI01	
SIA-HV606	E12		X	2	B	1"	GL	SOL	C	O	FST VPI	RF RF	5s	VRR-37	43ST-3SI01 43ST-3SI01	
SIA-HV607	E7		X	2	B	1"	GL	SOL	C	O	FST VPI	RF RF	5s	VRR-37	43ST-3SI01 43ST-3SI01	
SIA-HV608	E4		X	2	B	1"	GL	SOL	C	O	FST VPI	RF RF	5s	VRR-37	43ST-3SI01 43ST-3SI01	
SIB-HV609	C3	X		2	B	3"	GA	MO	C	O	FST TP/VPI	CS RF	30s	VRR-36	73ST-3ZZ08 43ST-3SI01	
SIB-HV613	E15		X	2	B	1"	GL	SOL	C	O	FST VPI	RF RF	5s	VRR-37	43ST-3SI01 43ST-3SI01	
SIB-HV623	E12		X	2	B	1"	GL	SOL	C	O	FST VPI	RF RF	5s	VRR-37	43ST-3SI01 43ST-3SI01	
SIB-HV633	E7		X	2	B	1"	GL	SOL	C	O	FST VPI	RF RF	5s	VRR-37	43ST-3SI01 43ST-3SI01	
SIB-HV643	E4		X	2	B	1"	GL	SOL	C	O	FST VPI	RF RF	5s	VRR-37	43ST-3SI01 43ST-3SI01	

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VALVE NUMBER	P & ID COORDINATES	13-M-STP-001	13-M-STP-002			ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
SIA-HV657	H4	X				2	B	16"	BTF	MO	C	O/C	FST VPI	OP RF	O-30s C-30s		73ST-3ZZ11 73ST-3ZZ02	
SIB-HV658	C4	X				2	B	16"	BTF	MO	C	O/C	FST VPI	OP RF	O-30s C-30s		73ST-3ZZ11 73ST-3ZZ02	
SIA-HV685	G8	X				2	B	10"	GA	MO	C	O/C	FST VPI	OP RF	O-50s C-50s		73ST-3ZZ11 73ST-3ZZ02	
SIA-HV686	H6	X				2	B	20"	GA	MO	C	O/C	FST VPI	OP RF	O-100s C-100s		73ST-3ZZ11 73ST-3ZZ02	
SIB-HV690	H13		X			2	A	10"	GL	MO	C	O	FST VPI AJLT	OP RF RF	 30s		73ST-3ZZ10 73ST-3ZZ02 73ST-9CL01	penet. 26
SIA-HV691	H4		X			2	A	10"	GL	MO	C	O	FST VPI AJLT	OP RF RF	 30s		73ST-3ZZ10 73ST-3ZZ02 73ST-9CL01	penet. 27
SIB-HV694	B8	X				2	B	10"	GA	MO	C	O/C	FST VPI	OP RF	O-50s C-50s		73ST-3ZZ11 73ST-3ZZ02	
SIB-HV696	C6	X				2	B	20"	GA	MO	C	O/C	FST VPI	OP RF	O-100s C-100s		73ST-3ZZ11 73ST-3ZZ02	
SIB-UV322	D2		X			2	B	1"	GL	AO	O/C	C	FST VPI	OP RF	 5s		73ST-3ZZ10 73ST-3ZZ02	
SIB-UV332	D10		X			2	B	1"	GL	AO	O/C	C	FST VPI	OP RF	 5s		73ST-3ZZ10 73ST-3ZZ02	

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VALVE NUMBER	P&ID COORDINATES	13-M-STP-001	13-M-STP-002		ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
(IR-682) SIB-UV602	D15	X			2	B	/2"	GL	SOL	C	O	FST VPI	OP RF	8s		73ST-3ZZ10 73ST-3ZZ01	
(IR-683) SIA-UV603	D15	X			2	B	/2"	GL	SOL	C	O	FST VPI	OP RF	8s		73ST-3ZZ10 73ST-3ZZ01	
SIB-UV611	B16		X		2	B	2"	GL	AO	O/C	C	FST VPI	OP RF	10s		73ST-3ZZ10 73ST-3ZZ02	
SIB-UV614	A14		X		1	B	14"	GA	MO	O	O	FST VPI	CS RF	30s	VRR-38	73ST-9ZZ08 73ST-3ZZ02	
SIB-UV615	G13		X		2	B	12"	GL	MO	C	O	FST TP/VPI	OP RF	10s		73ST-3ZZ11 73ST-3SI01	penet. 17
SIB-UV616	G14		X		2	B	2"	GL	MO	C	O	FST VPI	OP RF	10s		73ST-3ZZ11 73ST-3SI02	penet. 13
SIA-UV617	G15		X		2	B	2"	GL	MO	C	O	FST VPI	OP RF	10s		73ST-3ZZ11 73ST-3SI02	penet. 13
SIB-UV618	B16		X		1	B	1"	GL	AO	O/C	C	FST VPI	OP RF	5s		73ST-3ZZ10 73ST-3ZZ02	
SIB-UV621	C13		X		2	B	2"	GL	AO	O/C	C	FST VPI	OP RF	10s		73ST-3ZZ10 73ST-3ZZ02	
SIB-UV624	A12		X		1	B	14"	GA	MO	O	O	FST VPI	CS RF	30s	VRR-38	73ST-3ZZ08 73ST-3ZZ02	

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ISI CLASS 1, 2, & 3 VALVES

UNIT: 3

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VALVE NUMBER	P & ID COORDINATES	73-M-SIP-001	73-M-SIP-002	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
SIB-UV625	G11	X		2	B	12"	GL	MO	C	O	FST TP/VPI	OP RF	10s		73ST-3ZZ11 73ST-3SI01	penet. 18
SIB-UV626	G12	X		2	B	2"	GL	MO	C	O	FST VPI	OP RF	10s		73ST-3ZZ11 73ST-3ZZ02	penet. 14
SIA-UV627	G12	X		2	B	2"	GL	MO	C	O	FST VPI	OP RF	10s		73ST-3ZZ11 73ST-3ZZ02	penet. 14
SIB-UV628	B13	X		1	B	1"	GL	AO	O/C	C	FST VPI	OP RF	5s		73ST-3ZZ10 73ST-3ZZ02	
SIB-UV631	C8	X		2	B	2"	GL	AO	O/C	C	FST VPI	OP RF	10s		73ST-3ZZ10 73ST-3ZZ02	
SIA-UV634	A7	X		1	B	14"	GA	MO	O	O	FST VPI	CS RF	30s	VRR-38	73ST-3ZZ08 73ST-3ZZ02	
SIA-UV635	G6	X		2	B	12"	GL	MO	C	O	FST TP/VPI	OP RF	10s		73ST-3ZZ11 73ST-3ZZ01	penet. 19
SIB-UV636	G7	X		2	B	2"	GL	MO	C	O	FST VPI	OP RF	10s		73ST-3ZZ11 73ST-3ZZ02	penet. 15
SIA-UV637	G8	X		2	B	2"	GL	MO	C	O	FST VPI	OP RF	10s		73ST-3ZZ11 73ST-3ZZ02	penet. 15
SIB-UV638	B8	X		1	B	1"	GL	AO	O/C	C	FST VPI	OP RF	5s		73ST-3ZZ10 73ST-3ZZ02	

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ISI CLASS 1, 2, & 3 VALVES

UNIT: 3

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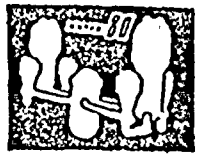

VALVE NUMBER	P & ID COORDINATES 13-M-SIP-001 13-M-SIP-002					ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
SIB-UV641	C5		X			2	B	2"	GL	AO	O/C	C	FST VPI	OP RF	10s		73ST-3ZZ10 73ST-3ZZ02	
SIA-UV644	A4		X			1	B	14"	GA	MO	O	O	FST VPI	CS RF	30s	VRR-38	73ST-3ZZ08 73ST-3ZZ02	
SIA-UV645	G4		X			2	B	12"	GL	MO	C	O	FST TP/VPI	OP RF	10s		73ST-3ZZ11 73ST-3SI01	penet. 20
SIB-UV646	G4		X			2	B	2"	GL	MO	C	O	FST VPI	OP RF	10s		73ST-3ZZ11 73ST-3ZZ02	penet. 16
SIA-UV647	G5		X			2	B	2"	GL	MO	C	O	FST VPI	OP RF	10s		73ST-3ZZ11 73ST-3ZZ02	penet. 16
SIB-UV648	B7		X			1	B	1"	GL	AO	O/C	C	FST VPI	OP RF	5s		73ST-3ZZ10 73ST-3ZZ02	
SIA-UV651	C3		X			1	A	16"	GA	MO	C	O/C	LT FST VPI	RF CS RF	O-80s C-80s	 VRR-39	73ST-9SI03 73ST-3ZZ08 73ST-3ZZ02	
SIB-UV652	C10		X			1	A	16"	GA	MO	C	O/C	LT FST VPI	RF CS RF	O-80s C-80s	 VRR-39	73ST-9SI03 73ST-3ZZ08 73ST-3ZZ02	
SIC-UV653	E3		X			1	A	16"	GA	MO	C	O/C	LT FST VPI AJLT	RF CS RF RF	O-80s C-80s	VRR-39	73ST-9SI03 73ST-3ZZ08 73ST-3ZZ02 73ST-9CL01	penet. 27

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ISI CLASS 1, 2, & 3 VALVES

UNIT: 3

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VALVE NUMBER	P&ID COORDINATES	13-M-STP-001	13-M-STP-002			ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
SID-UV654	E10		X			1	A	16"	GA	MO	C	O/C	LT FST VPI AJLT	RF CS RF RF	0-80s C-80s	VRR-39	73ST-9SI03 73ST-3ZZ08 73ST-3ZZ02 73ST-9CL01	penet. 26
SIA-UV655	G3		X			2	A	16"	GA	MO	C	O/C	FST VPI AJLT	CS RF RF	0-80s C-80s	VRR-39	73ST-3ZZ08 73ST-3ZZ02 73ST-9CL01	penet. 27
SIB-UV656	G10		X			2	A	16"	GA	MO	C	O/C	FST VPI AJLT	CS RF RF	0-80s C-80s	VRR-39	73ST-3ZZ08 73ST-3ZZ02 73ST-9CL01	penet. 26
SIB-UV659	A6	X				2	B	4"	GL	SOL	O	C	FST VPI	OP RF	10s		73ST-3ZZ11 73ST-3ZZ01	
SIA-UV660	F6	X				2	B	4"	GL	SOL	O	C	FST VPI	OP RF	10s		73ST-3ZZ11 73ST-3ZZ01	
SIA-UV664	G10	X				2	B	2"	GL	MO	O	C	FST VPI	OP RF	10s		73ST-3ZZ10 73ST-3ZZ02	
SIB-UV665	B10	X				2	B	2"	GL	MO	O	C	FST VPI	OP RF	10s		73ST-3ZZ10 73ST-3ZZ02	
SIA-UV666	F10	X				2	B	2"	GL	MO	O	C	FST VPI	OP RF	10s		73ST-3ZZ11 73ST-3ZZ02	
SIB-UV667	A10	X				2	B	2"	GL	MO	O	C	FST VPI	OP RF	10s		73ST-3ZZ11 73ST-3ZZ02	

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ISI CLASS 1, 2, & 3 VALVES

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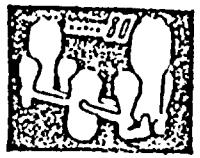

VALVE NUMBER	P & ID COORDINATES	13-M-STP-001	13-M-STP-002			ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
SIB-UV668	B10	X				2	B	2"	GL	MO	O	C	FST VPI	OP RF	10s		73ST-3ZZ10 73ST-3ZZ02	
SIA-UV669	G10	X				2	B	2"	GL	MO	O	C	FST VPI	OP RF	10s		73ST-3ZZ10 73ST-3ZZ02	
SIB-UV671	C6	X				2	A	8"	GA	MO	C	O	FST VPI AJLT	OP RF RF	10s		73ST-3ZZ10 73ST-3ZZ02 73ST-9CL01	penet. 22
SIA-UV672	G6	X				2	A	8"	GA	MO	C	O	FST VPI AJLT	OP RF RF	10s		73ST-3ZZ10 73ST-3ZZ02 73ST-9CL01	penet. 21
SIA-UV673	G16	X				2	A	24"	BTF	MO	C	O	FST VPI AJLT	OP RF RF	25s		73ST-3ZZ10 73ST-3ZZ02 73ST-9CL01	penet. 23
SIA-UV674	G14	X				2	A	24"	BTF	MO	C	O	FST VPI AJLT	OP RF RF	25s		73ST-3ZZ10 73ST-3ZZ02 73ST-9CL01	penet. 23
SIB-UV675	A16	X				2	A	24"	BTF	MO	C	O	FST VPI AJLT	OP RF RF	25s		73ST-3ZZ10 73ST-3ZZ02 73ST-9CL01	penet. 24
SIB-UV676	A14	X				2	A	24"	BTF	MO	C	O	FST VPI AJLT	OP RF RF	25s		73ST-3ZZ10 73ST-3ZZ02 73ST-9CL01	penet. 24
(IR-680) SIB-UV680	C13	X				2	B	1/2"	GL	SOL	C	O	FST VPI	OP RF	8s		73ST-3ZZ10 73ST-3ZZ05	
(IR-681) SIA-UV681	E13	X				2	B	1/2"	GL	SOL	C	O	FST VPI	OP RF	8s		73ST-3ZZ10 73ST-3ZZ05	

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ISI CLASS 1, 2, & 3 VALVES

UNIT: 3

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VALVE NUMBER	P & ID COORDINATES	13-M-STP-001	13-M-STP-002			ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
SIA-UV682	D10	X				2	A	2"	GL	AO	C	C	FST VPI AJLT	OP RF RF	 5s		73ST-3ZZ10 73ST-3ZZ02 73ST-9CL01	penet. 28
SIA-UV688	G9	X				2	B	10"	GA	MO	C	O/C	FST VPI	OP RF	0-50s C-50s		73ST-3ZZ10 73ST-3ZZ02	
SIB-UV693	C9	X				2	B	10"	GA	MO	C	O/C	FST VPI	OP RF	0-50s C-50s		73ST-3ZZ10 73ST-3ZZ02	
SIA-UV708	G15	X				2	A	1/2"	GL	SOL	C	O/C	FST VPI AJLT	OP RF RF	0-5s C-5s		73ST-3ZZ10 73ST-3ZZ01 73ST-9CL01	penet. 23
SIA-UV709	E8	X				2	B	1/2"	GL	SOL	C	O/C	FST VPI	OP RF	0-3s C-5s		73ST-3ZZ10 73ST-3ZZ01	
SIB-UV710	A7	X				2	B	1/2"	GL	SOL	C	O/C	FST VPI	OP RF	0-3s C-5s		73ST-3ZZ10 73ST-3ZZ01	
(IR-100) SIE-PSV100	F15	X				2	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
(IR-118) SIE-PSV118	F15	X				2	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SIB-PSV140	B15	X				2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	penet. 24
SIB-PSV141	B14	X				2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	

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ISI CLASS 1, 2, & 3 VALVES

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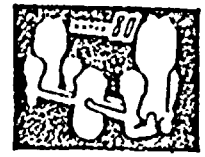

VALVE NUMBER	P & ID COORDINATES	13-M-STP-001	13-M-STP-002			ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
SIA-PSV151	H15	X				2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	penet. 23
SIA-PSV159	G15	X				2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SIA-PSV160	D15	X				2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SIA-PSV161	H6	X				2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SIA-PSV162	G5	X				2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SIB-PSV166	G9		X			2	C	1 1/2"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SIB-PSV169	D10		X			1	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SIA-PSV178	D14	X				2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SIA-PSV179	F3		X			2	C	6"	PSV	SA	C	O	PSVT	RF			73ST-9ZZ19 73ST-9ZZ20	penet. 27
SIB-PSV187	C14	X				2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	

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ISI CLASS 1, 2, & 3 VALVES

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VALVE NUMBER	P&ID COORDINATES	13-M-STP-001	13-M-STP-002			ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
SIB-PSV189	F10		X			2	C	6"	PSV	SA	C	O	PSVT	RF			73ST-9ZZ19 73ST-9ZZ20	penet. 26
SIB-PSV191	D6	X				2	C	1 1/2"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SIB-PSV192	C4	X				2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SIB-PSV193	D6	X				2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SIA-PSV194	H6	X				2	C	1 1/2"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SIE-PSV211	E15		X			2	C	2"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SIE-PSV221	E12		X			2	C	2"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SIE-PSV231	E7		X			2	C	2"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SIE-PSV241	E5		X			2	C	2"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SIE-PSV250	F14	X				2	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	

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ISI CLASS 1, 2, & 3 VALVES

UNIT: 3

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VALVE NUMBER	P & ID COORDINATES	13-M-STP-001	13-M-STP-002			ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
SIA-PSV285	F9	X				2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SIB-PSV286	B9	X				2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SIB-PSV287	C9	X				2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SIE-PSV288	E5	X				2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SIA-PSV289	G9	X				2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SIE-PSV407	E8	X				2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SIB-PSV409	B2	X				2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SIA-PSV417	F3	X				2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SIA-PSV439	H3	X				2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SIB-PSV449	D3	X				2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	

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ISI CLASS 1, 2, & 3 VALVES

UNIT: 3

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VALVE NUMBER	P & ID COORDINATES	13-M-STP-001	13-M-STP-002		ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
SIA-PSV468	G2		X		2	C	3/4"	PSV	SA	C	O	PSVT				73SI-9ZZ19 73ST-9ZZ20	
SIA-PSV469	D3		X		1	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SIE-PSV473	E10	X			2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SIE-PSV474	E9	X			2	C	3/4"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	penet. 28

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ISI CLASS 1, 2, & 3 VALVES

UNIT: 3

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VALVE NUMBER	P & ID COORDINATES	13-M-SPP-001	13-M-SPP-002		ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
SPB-V012	C6	X			3	C	24"	CK	SA	C	O	FST	OP			43ST-3SP02	
SPA-V041	C4	X			3	C	24"	CK	SA	C	O	FST	OP			43ST-3SP02	
SPA-PSV29	D3		X		3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SPB-PSV30	D7		X		3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SPA-PSV137	G2		X		3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SPB-PSV138	G5		X		3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SPA-PSV139	F2		X		3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SPB-PSV140	F5		X		3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SPA-PSV141	F2		X		3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SPB-PSV142	F5		X		3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	

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INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 3

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VALVE NUMBER	P & ID COORDINATES	13-M-SPP-001	13-M-SPP-002	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
SPA-PSV143	F2		X		3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	
SPB-PSV144	E5		X		3	C	1"	PSV	SA	C	O	PSVT				73ST-9ZZ19 73ST-9ZZ20	

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INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 3

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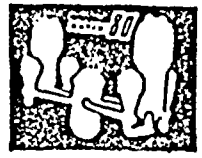


VALVE NUMBER	P & ID COORDINATES	13-N-SSP-001				ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
SSB-UV200	G6	X				2	A	1/2"	GL	SOL	C	C	FST VPI AJLT	OP RF RF	 5s		73ST-3ZZ09 73ST-3ZZ01 73ST-9CL01	penet. 42C
SSB-UV201	F6	X				2	A	1/2"	GL	SOL	C	C	FST VPI AJLT	OP RF RF	 5s		73ST-3ZZ09 73ST-3ZZ01 73ST-9CL01	penet. 42A
SSB-UV202	E6	X				2	A	1/2"	GL	SOL	C	C	FST VPI AJLT	OP RF RF	 5s		73ST-3ZZ09 73ST-3ZZ01 73ST-9CL01	penet. 42B
SSA-UV203	G7	X				2	A	1/2"	GL	SOL	C	C	FST VPI AJLT	OP RF RF	 5s		73ST-3ZZ09 73ST-3ZZ01 73ST-9CL01	penet. 42C
SSA-UV204	F7	X				2	A	1/2"	GL	SOL	C	C	FST VPI AJLT	OP RF RF	 5s		73ST-3ZZ09 73ST-3ZZ01 73ST-9CL01	penet. 42A
SSA-UV205	E7	X				2	A	1/2"	GL	SOL	C	C	FST VPI AJLT	OP RF RF	 5s		73ST-3ZZ09 73ST-3ZZ01 73ST-9CL01	penet. 42B

PALO VERDE NUCLEAR GENERATING STATION

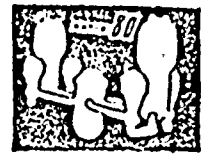
ANPP

INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, & 3 VALVES

UNIT: 3

System: Normal Chiller Water (WC) Rev.: 0



VALVE NUMBER	P & ID COORDINATES 13-M-WCP-001				ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX STROKE TIME	RELIEF REQUEST	PROCEDURES	REMARKS
WCE-V039	G7	X			2	AC	10"	CK	SA	O	C	FST AJLT	RT RT		VRR-19	73ST-9CL01 73ST-9CL01	
WCB-UV61	F7	X			2	A	10"	GA	MO	O	C	FSI VPI AJLT	OP RT RT	 10s		73ST-3ZZ10 73SI-3ZZ03 73SI-9CL01	
WCA-UV62	F6	X			2	A	10"	GA	MO	O	C	FST VPI AJLT	OP RT RT	 10s		73SI-3ZZ10 73SI-3ZZ03 73SI-9CL01	
WCB-UV63	F6	X			2	A	10"	GA	MO	O	C	FST VPI AJLT	OP RT RT	 10s		73SI-3ZZ10 73SI-3ZZ03 73SI-9CL01	