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PUMP AND VALVE
INSERVICE TESTING PROGRAM
PALO VERDE NUCLEAR GENERATING STATION
UNIT 1

Prepared by: Stephen W. Wilson
Power Production Engineering

Reviewed by: Brodstickler date 3/22/82

Reviewed by: L.S. [unclear] date 3/22/82

Reviewed by: J.L. Cotton date 3/23/82

Approved by: A. Paul [unclear] date 3/23/82

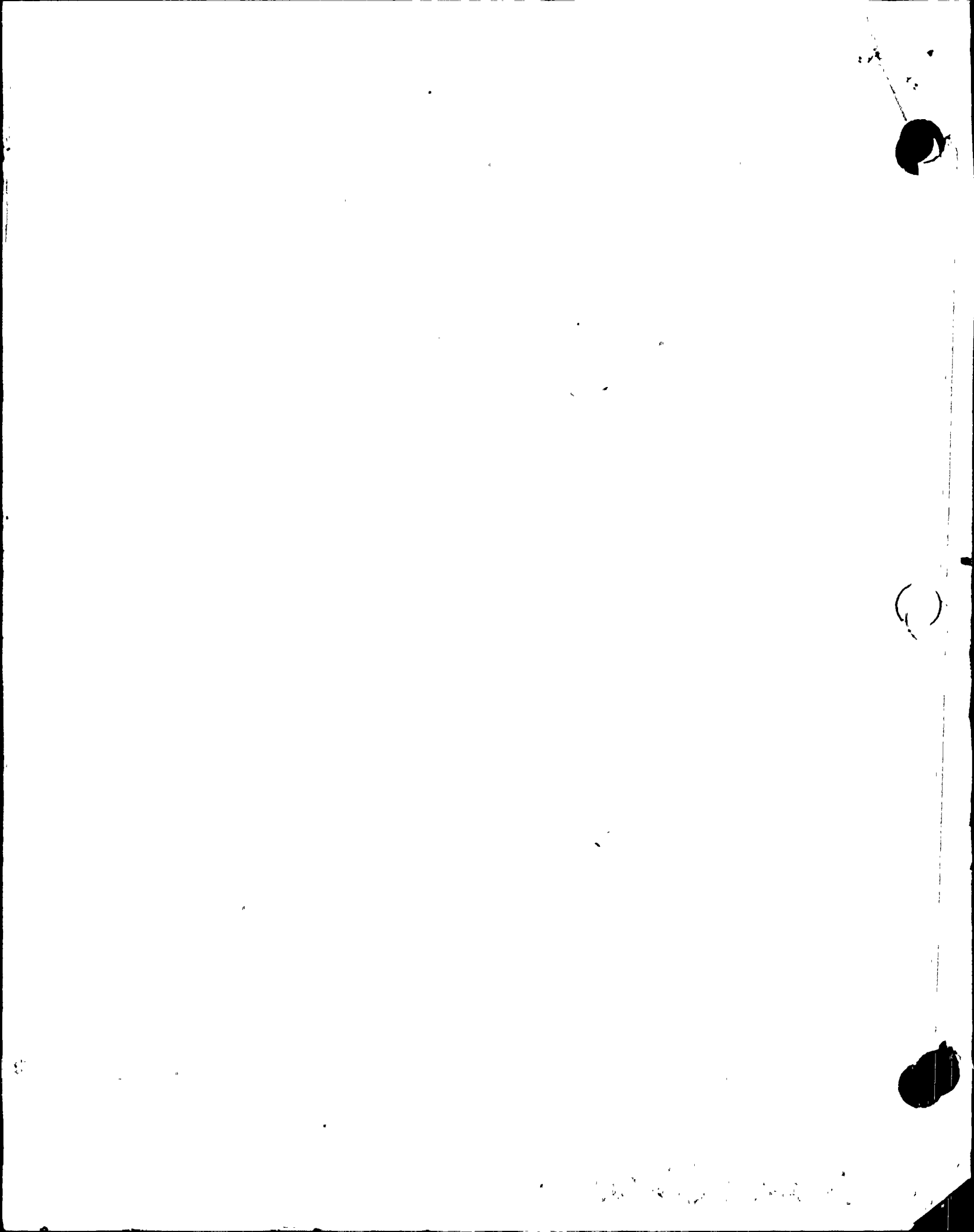
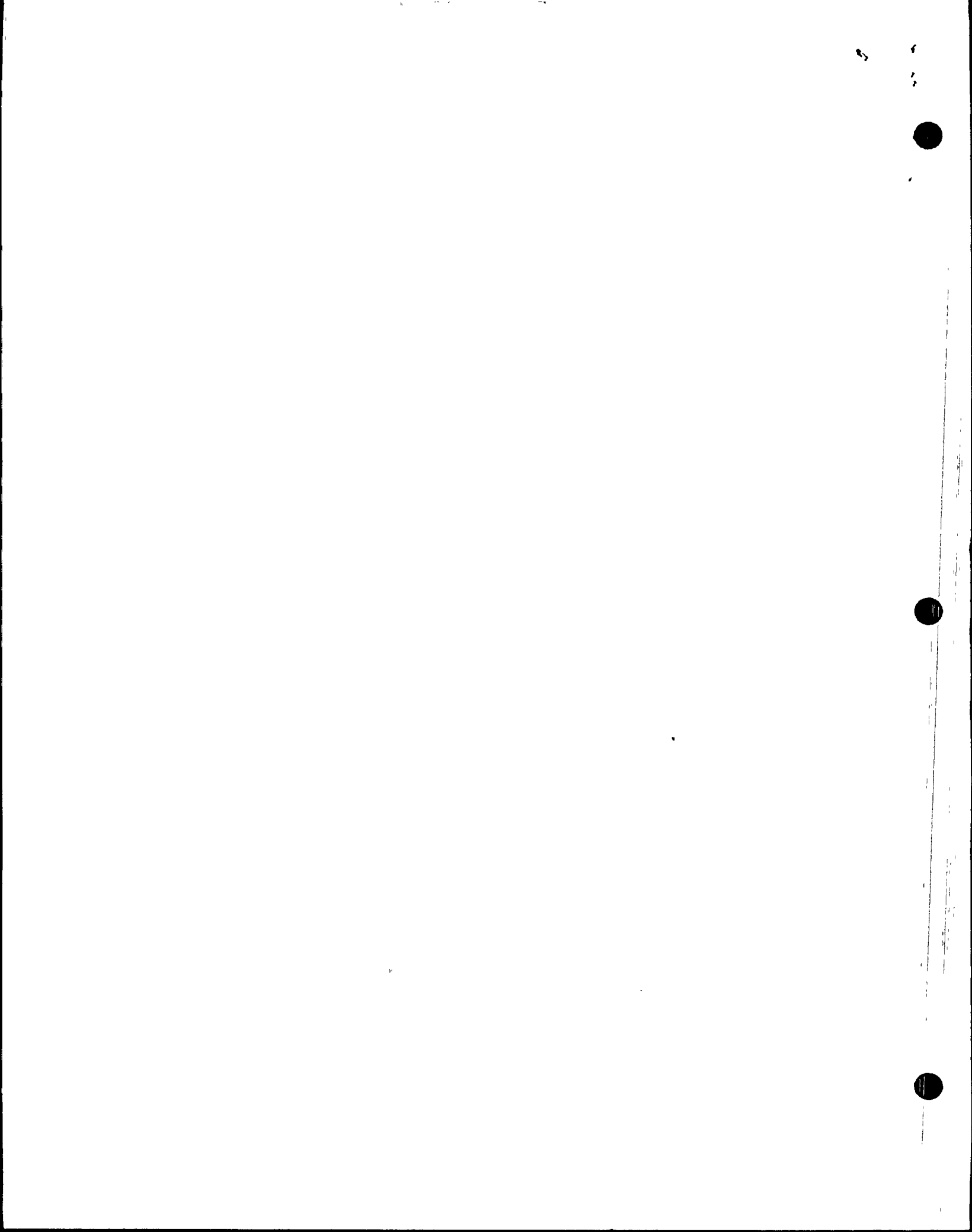


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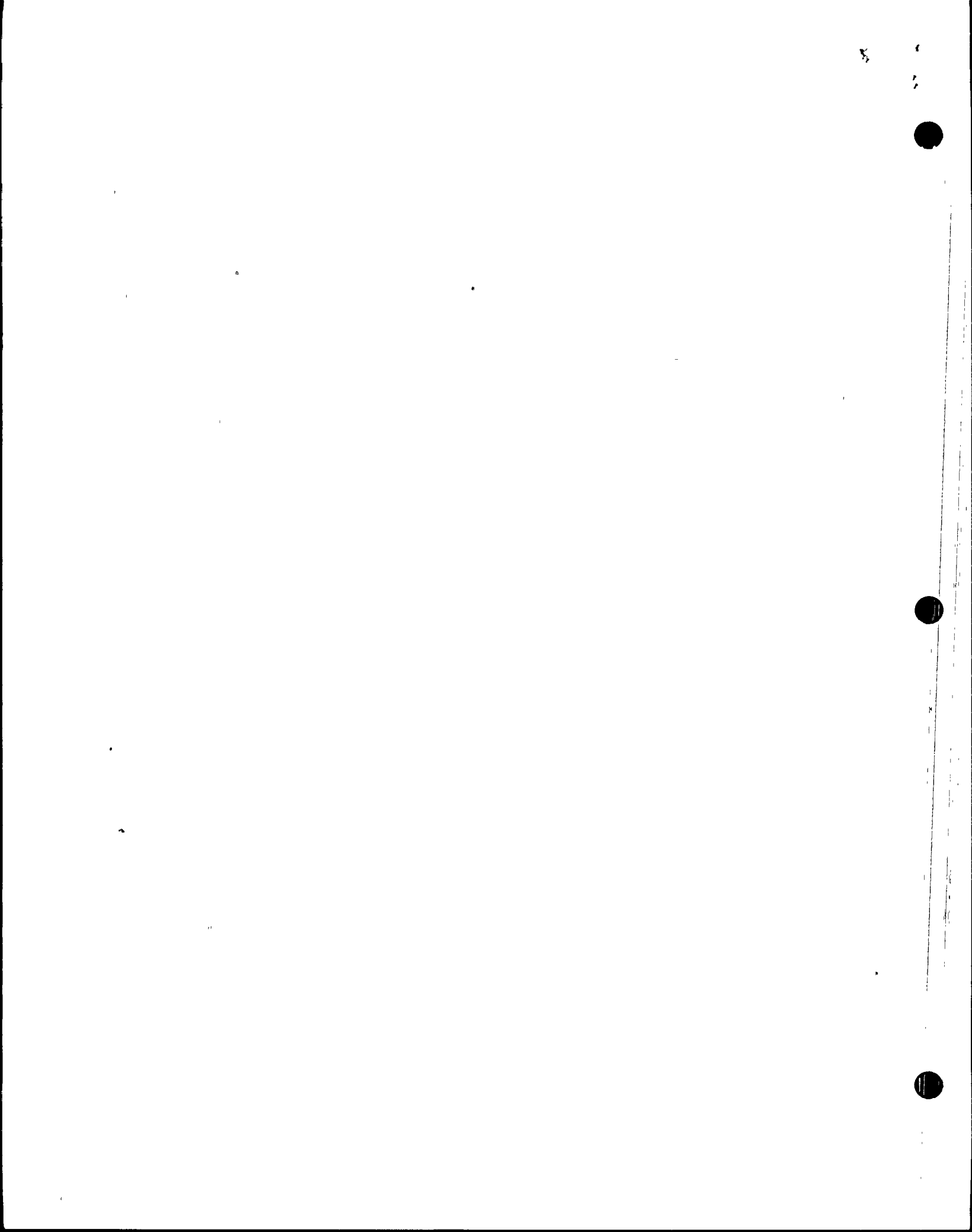
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INTRODUCTION

The Inservice Testing Program for Palo Verde Nuclear Generating Station was 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 of 1980 Addenda. Where these rules were determined to be impractical, specific relief was written.

Section 1.0 discusses the Inservice Testing Program of applicable ASME Class 1, 2 and 3 pumps. Section 2.0 discusses the Inservice Testing Program of applicable ASME 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 through Winter 1980 Addenda.

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

Section 3.1 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

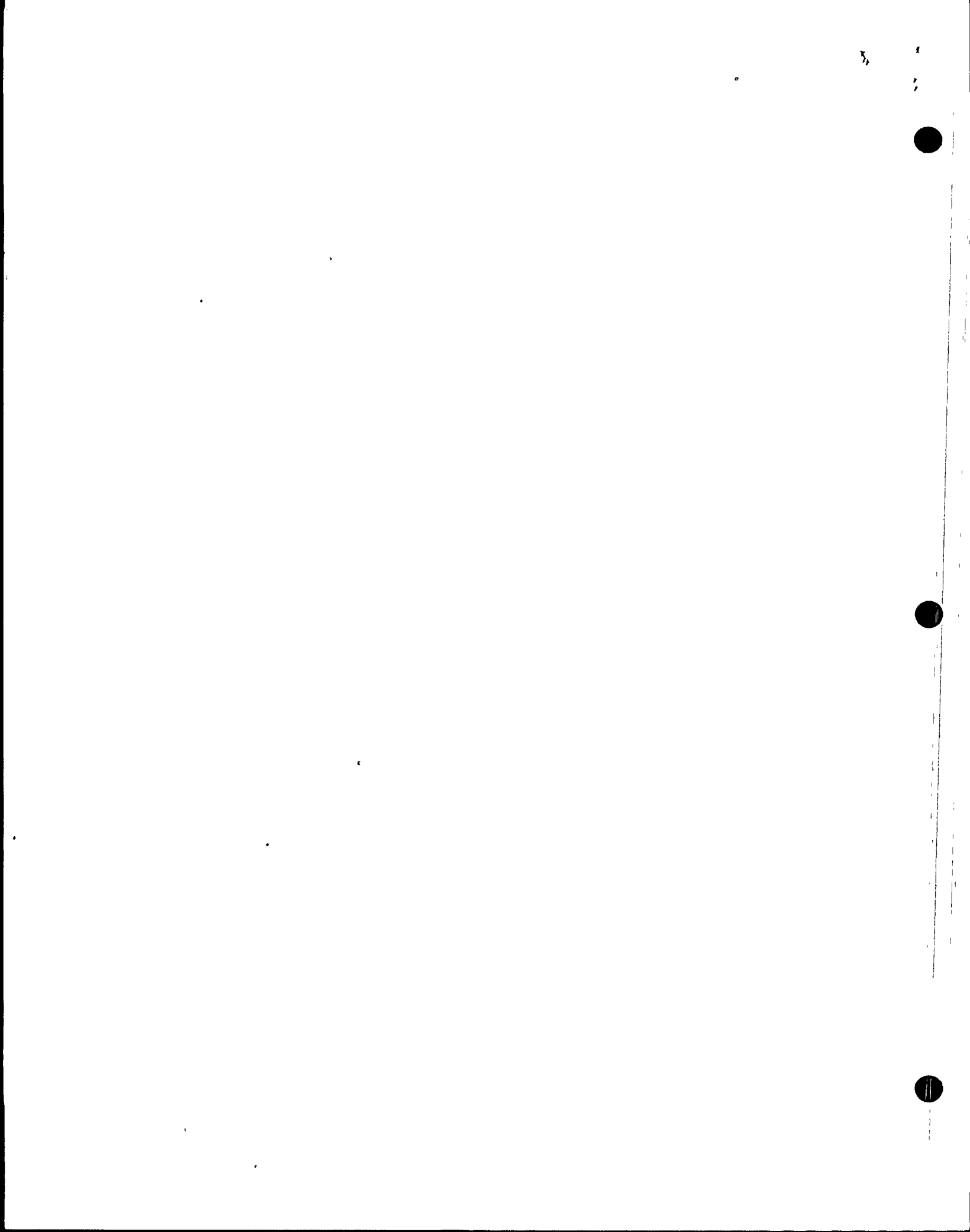
The following information is included in the Inservice Testing Program for pumps:

- 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.
- D. Test Parameters indicates the required test quantities required per Table IWP-3100-1.*
- E. Notes are general statements which can be referred to in the ISI Testing Program.

1.3 Test Frequency

An inservice test shall be run on each pump nominally every three months during plant operation. If this frequency can reasonably be accomplished during shutdown periods it will be, however, this is not mandatory. 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.

*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 Request for Relief

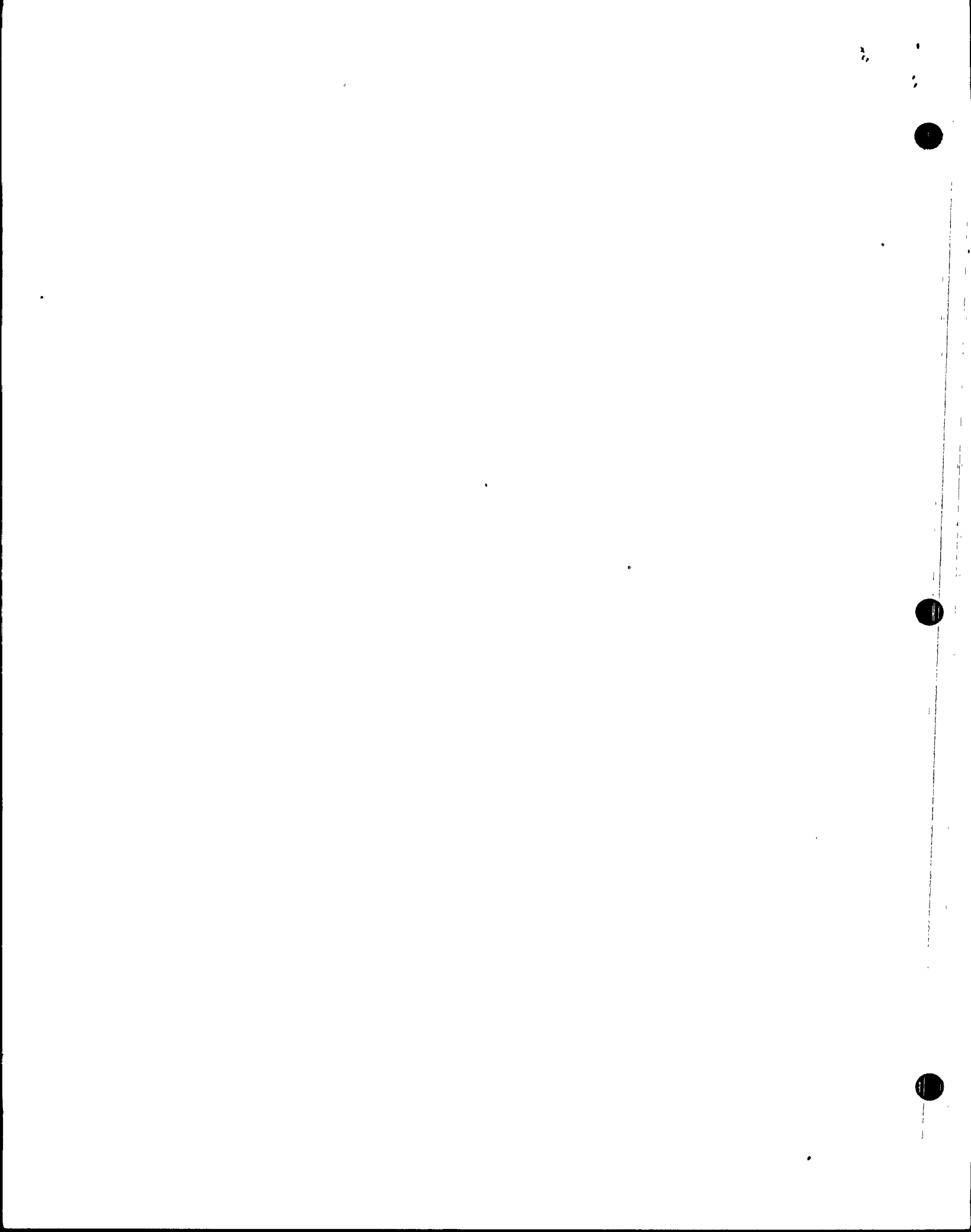
Where ASME Section XI requirements were determined to be impractical, a request for relief was written.

Where relief from an ASME Code requirement is granted within the provisions of 10CFR50.55a (g) (6) (i), it will be incorporated into the Palo Verde Inservice Testing Program.

Relief requests are shown in Appendix A.

1.5 Special Test

Where a pump is operated more frequently than every 3 months, it need not be stopped for a special test, provided the requirements of IWP-3400b are met.



- 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 or 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 Sub-section IWV.

Appendix J Leak Test (AJLT)

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

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 exercised 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.

Verify Position Indicator (VPI)

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

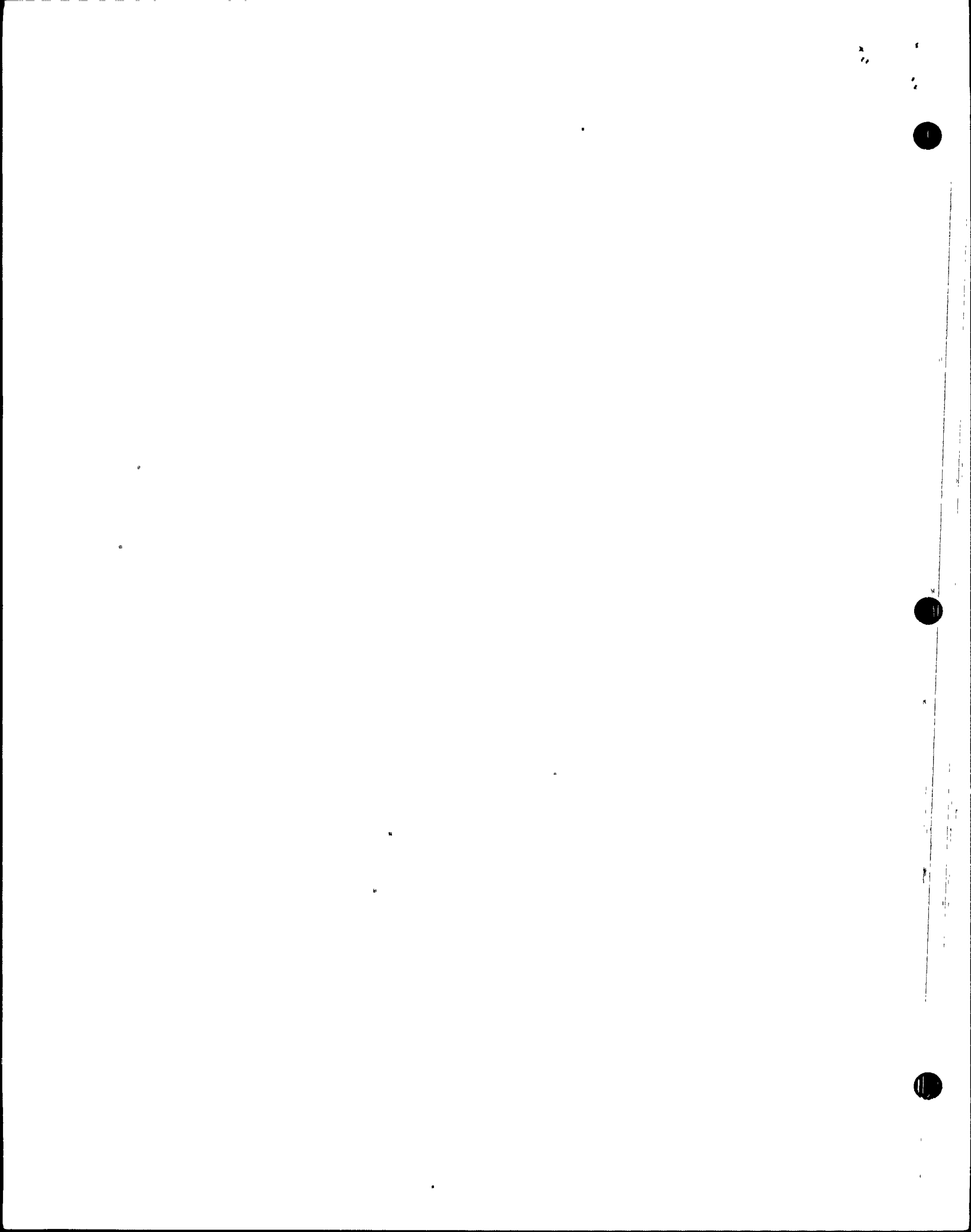
Pressure Safety Valve Testing (PSVT)

Relief and safety valve set points will be verified in accordance with IWV-3510. Category "A" relief and safety valves will be exempted from seat leak test when this test is performed.

- K. Test Mode indicated the frequency at which the preceding 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 continues until



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. Through Winter 1980 Addenda.

The Inservice Testing Program for valves will remain in effect throughout the next 10 year inservice inspection interval.

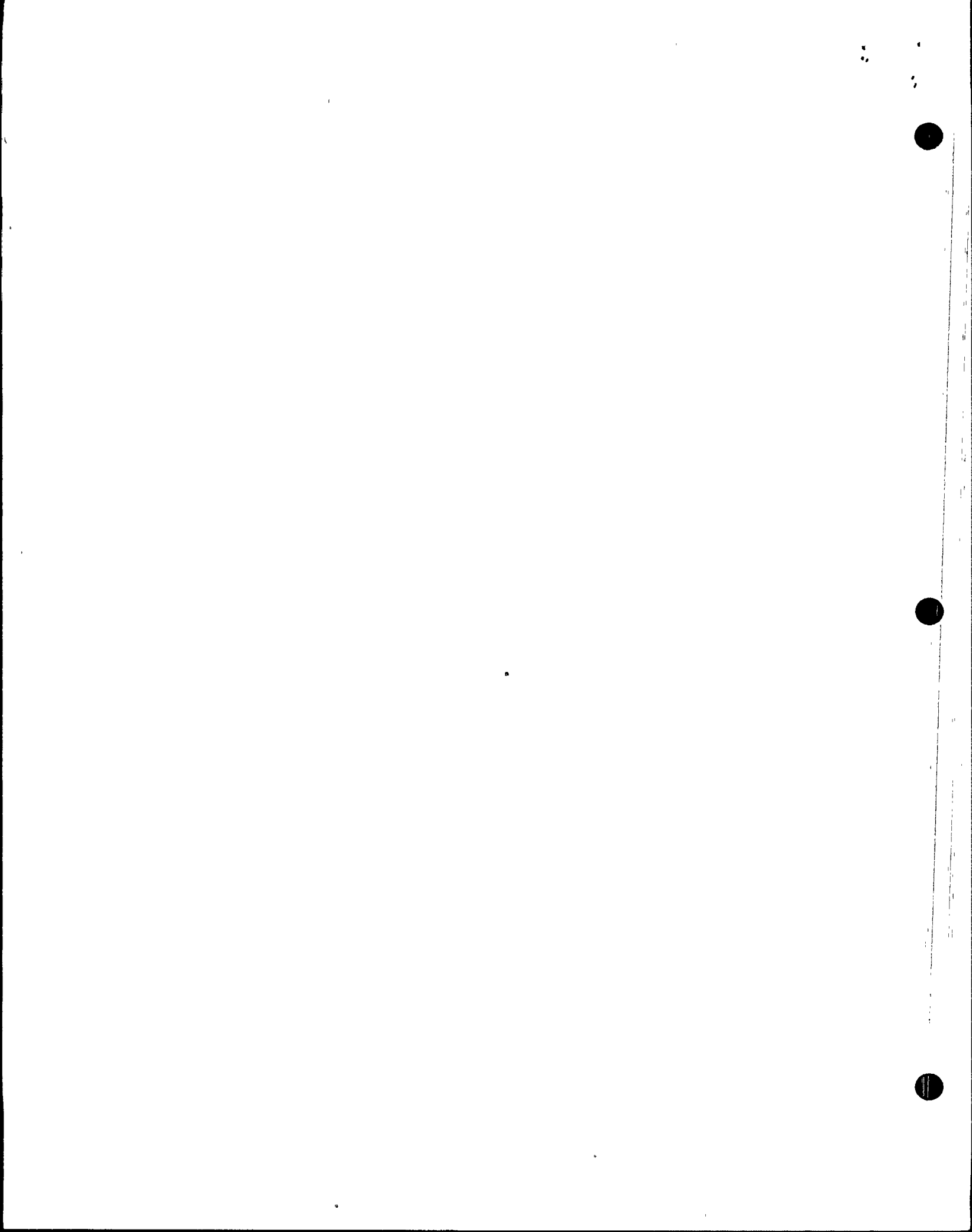
The Inservice Testing Program lists all ASME Class 1, 2 and 3 valves that have been assigned valve categories. Except for valves directly in the flow path (B passive), valves exempted per IWV-1200 are not listed. This listing is located in Section 3.2.

The tables are organized by system in order of the assigned P&ID's number and are listed in Section 2.3.

2.2 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 where on the P&ID the valve appears.
- C. ISI Class is the Owner's classification of the valve per ISI requirements. This is usually the same as the ASME Class.
- D. Valve Category indicates the category assigned to the valve based on the definitions 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 the valve during plant operation; either normally open (O), normally closed (C) or Both (O/C).



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 a 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 90 days.

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

Normal Operation (OP)

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

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.

2.3 Piping & Instrumentation Drawings

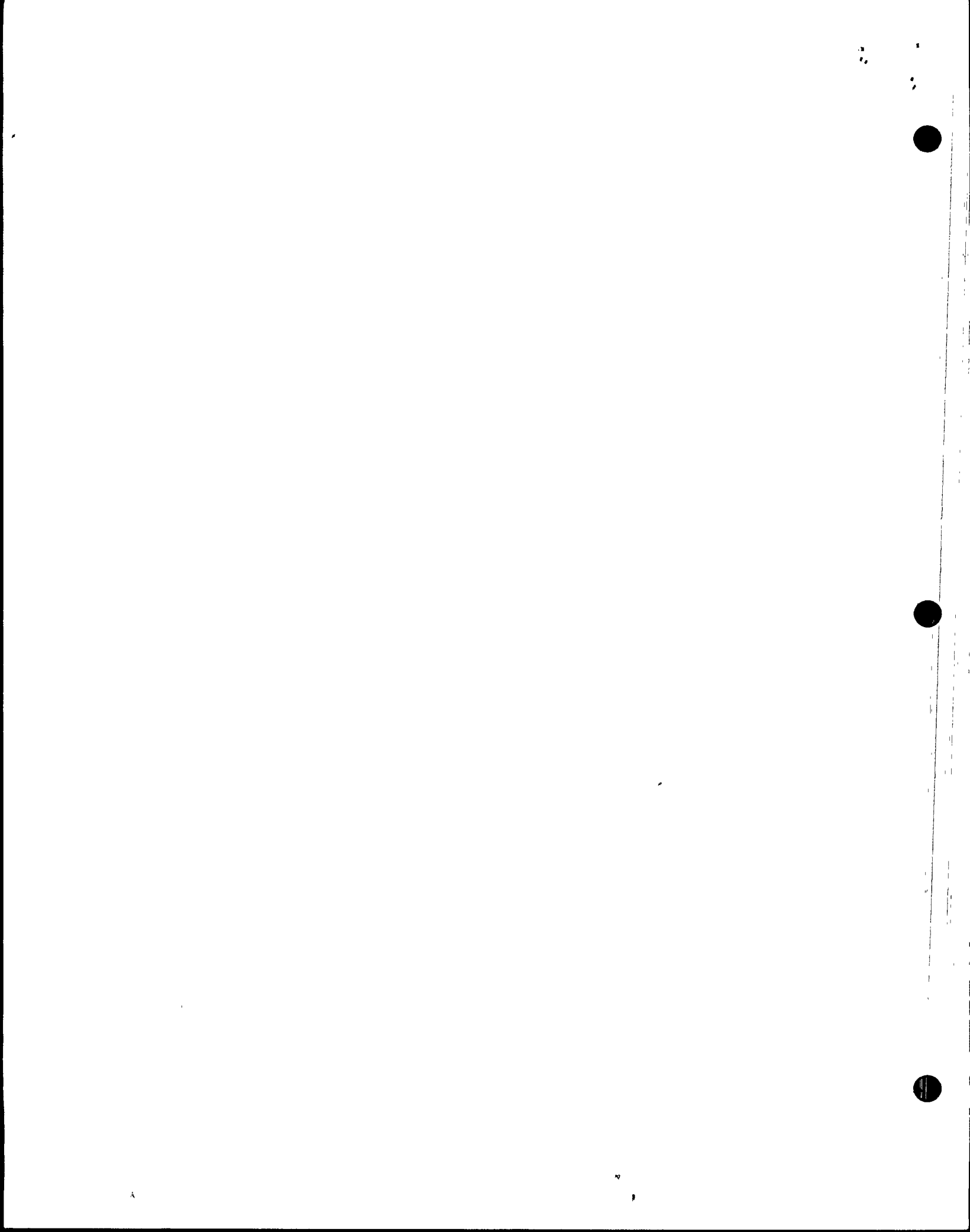
The P&ID's listed on the following page contain valves which are part of the Inservice Testing Program.

2.4 Request for Relief

Where ASME Section XI requirements were determined to be impractical, a request for relief was written.

2.5 Explanation of Abbreviations and Notes

See the following pages.



<u>P&ID #</u>	<u>REVISION #</u>	<u>TITLE</u>
AFP-001	9	Auxiliary Feedwater System
CHP-001	5	Chemical and Volume Control System
CHP-002	7	Chemical and Volume Control System
CHP-003	5	Chemical and Volume Control System
CPP-001	7	Containment Purge System
CTP-001	4	Condensate Storage and Transfer System
DFP-001	8	Diesel Fuel Oil and Transfer System
DGP-001	7	Diesel Generator System
DWP-002		Demineralized Water System
ECP-001	8	Essential Chilled Water System
EWP-001	6	Essential Cooling Water System
FPP-006	6	Fire Protection System
GAP-001	5	Service Gas System
GRP-001	7	Gaseous Radwaste System
HCP-001	7	HVAC Containment Bldg.
HPP-001	4	Containment Hydrogen Control
IAP-002	4	Instrument and Service Air System
IAP-003	1	Instrument and Service Air System
NCP-003	7	Nuclear Cooling Water System
PCP-001	7	Fuel Pool Cooling and Clean Up System
RCP-001	4*	Reactor Coolant System
RCP-002	3	Reactor Coolant System
RDP-001	5	Radioactive Waste and Drain System
SGP-001	9*	Main Steam System
SGP-002	6	Main Steam System
SIP-001	7	Safety Injection & Shutdown Cooling System
SIP-002	5	Safety Injection & Shutdown Cooling System
SIP-003	4	Safety Injection & Shutdown Cooling System
SPP-001	5	Essential Spray Pond System
SPP-002	3	Essential Spray Pond System
SSP-001	7	Nuclear Sampling System
WCP-001	9	Normal Chilled Water System

* Available DCN'S have been incorporated on this revision.

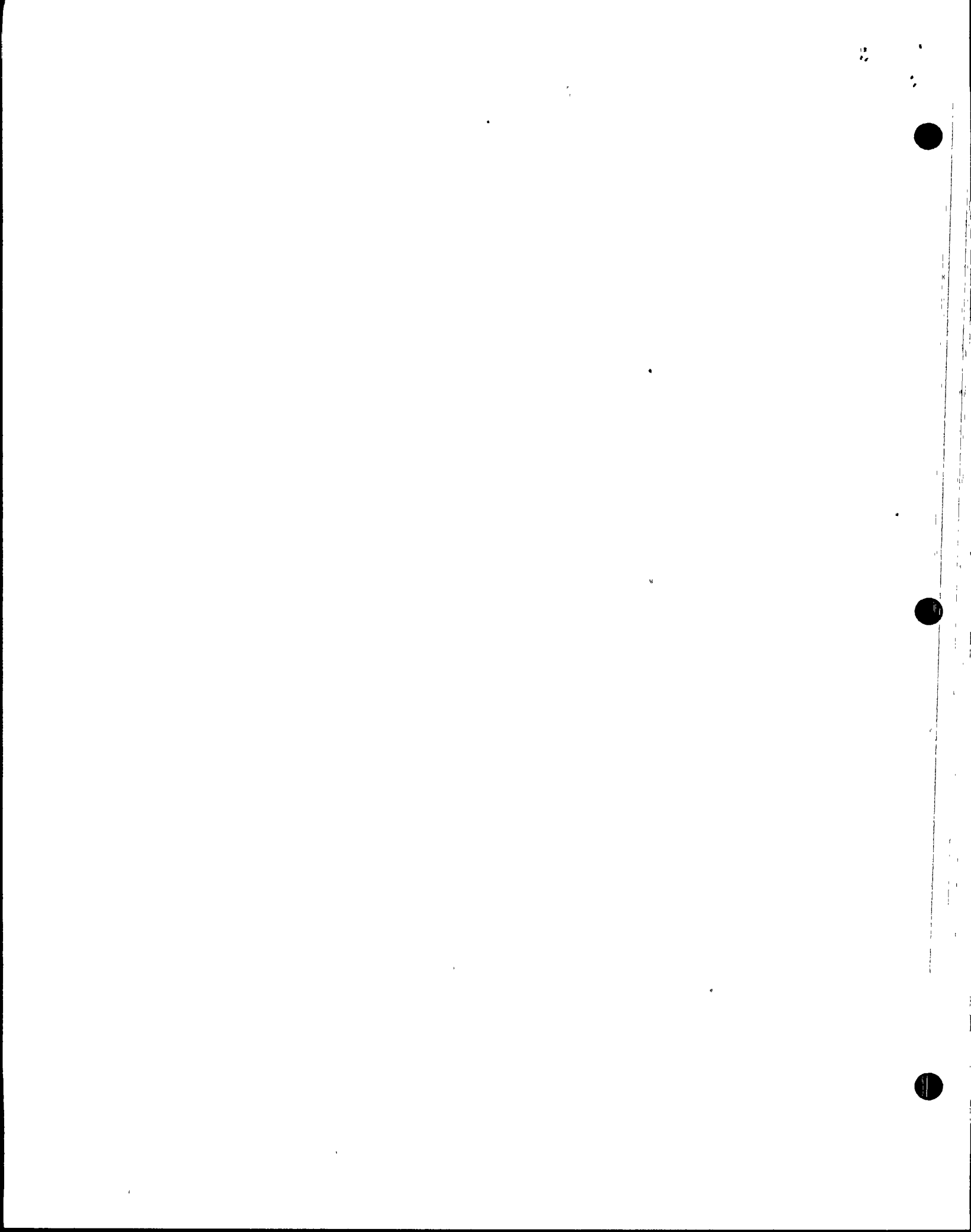
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INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

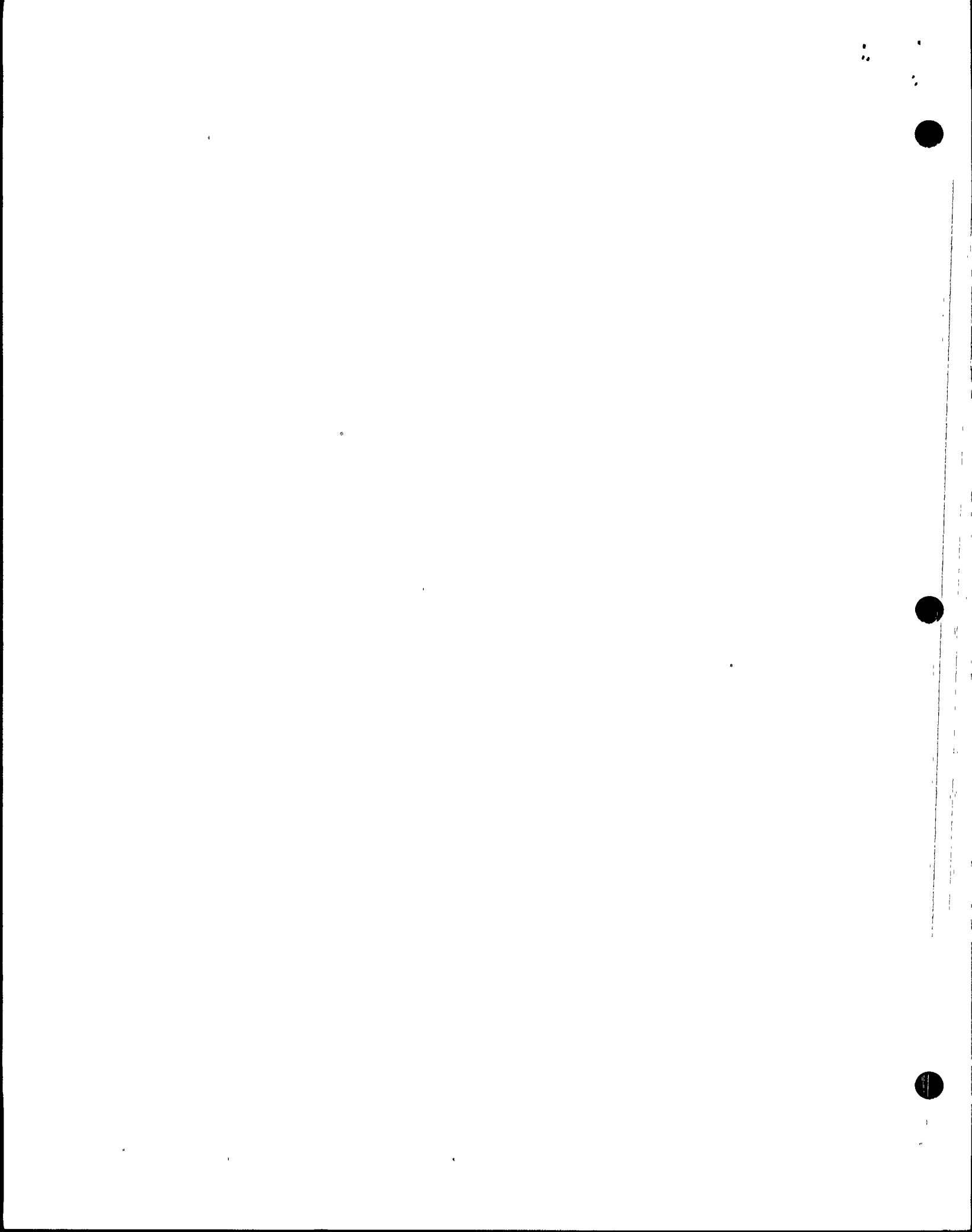
SYSTEM EXPLANATION OF ABBREVIATIONS											P & ID	REVISION - DATE	PAGE
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
					CK								CHECK
					GA								GATE
					GL								GLOBE
					PL								PLUG
					PSV								PRESSURE SAFETY VALVE
					TW								THREE WAY

2-5



INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

SYSTEM										P & ID	REVISION - DATE	PAGE	
EXPLANATION OF ABBREVIATIONS													
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
					BTF								BUTTERFLY
					DIA								DIAPHRAGM
						M							MANUAL
						AO							AIR OPERATOR
						HY							HYDRAULIC
						MO							MOTOR OPERATOR
						SA							SELF ACTUATED
						SO							SOLENOID

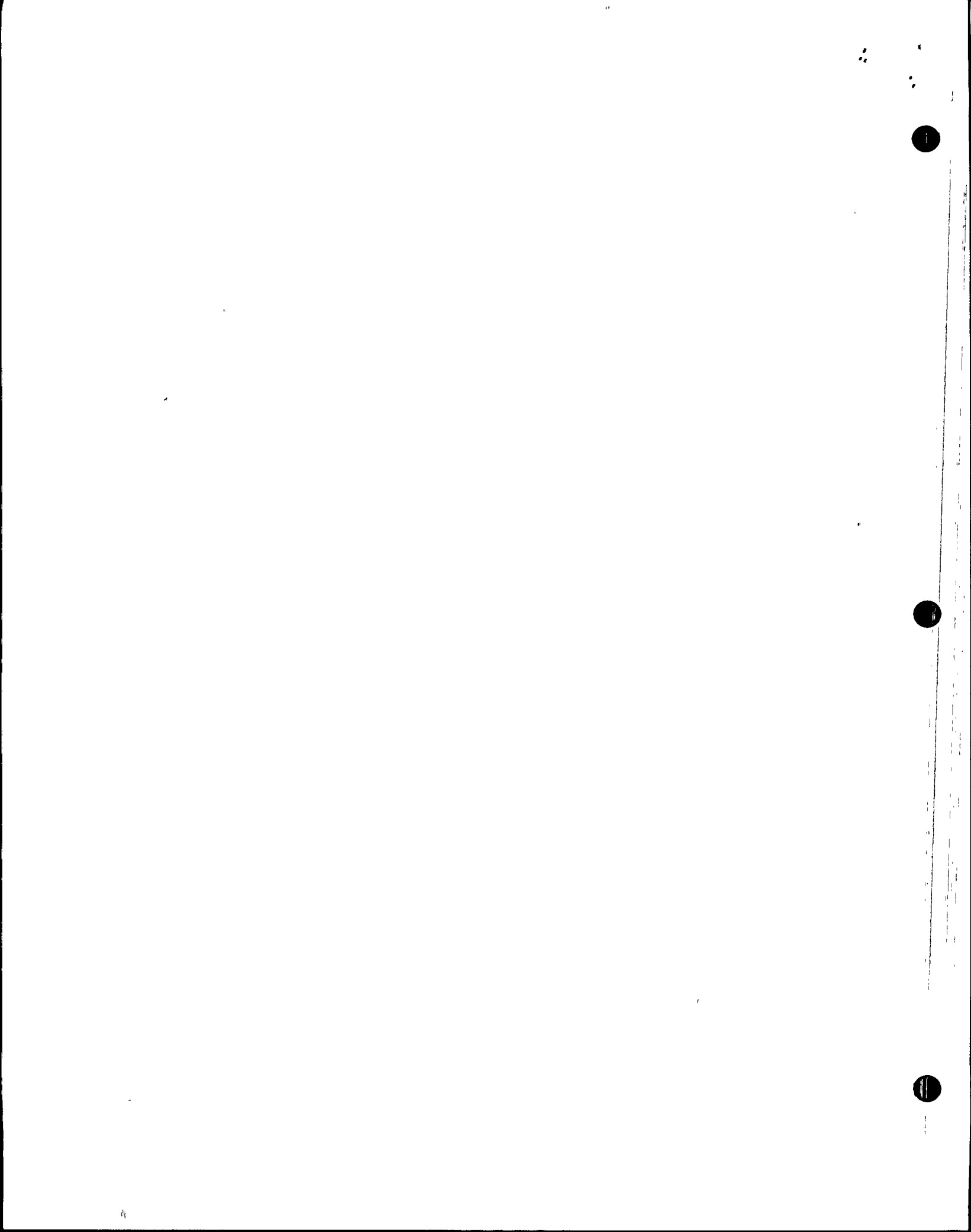


INSERVICE TESTING PROGRAM

ISI CLASS 1, 2 & 3 VALVES

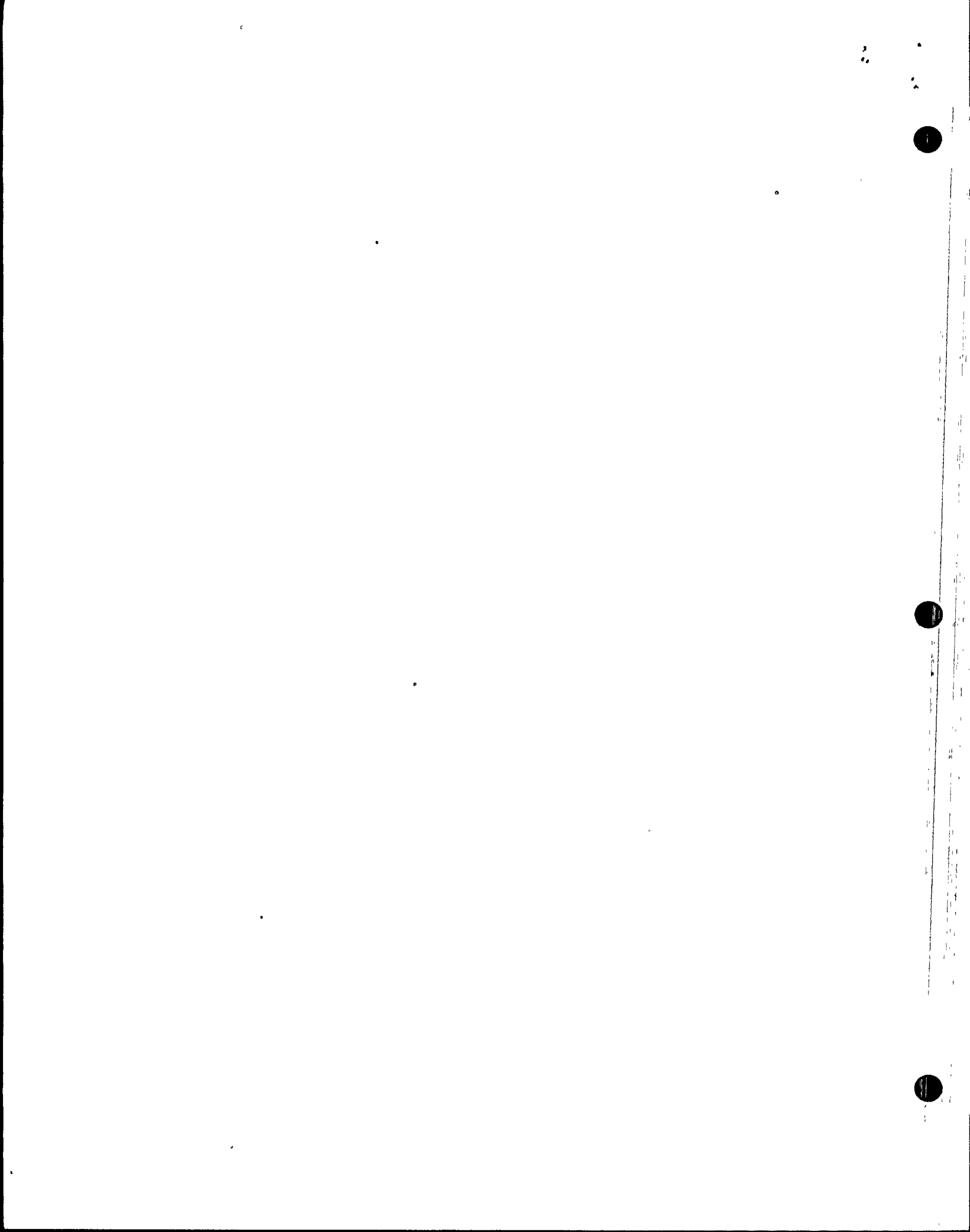
PALO VERDE NUCLEAR GENERATING STATION

SYSTEM	EXPLANATION OF ABBREVIATIONS										P & ID	REVISION - DATE	PAGE
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
									AJLT				APPENDIX J LEAK TEST
									FST				FULL STROKE TEST
									PST				PARTIAL STROKE TEST
									FT				FAIL TEST
									VPI				VERIFY POSITION INDICATOR
									PSVT				PRESSURE SAFETY VALVE TEST



INSERVICE TESTING PROGRAM
 ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

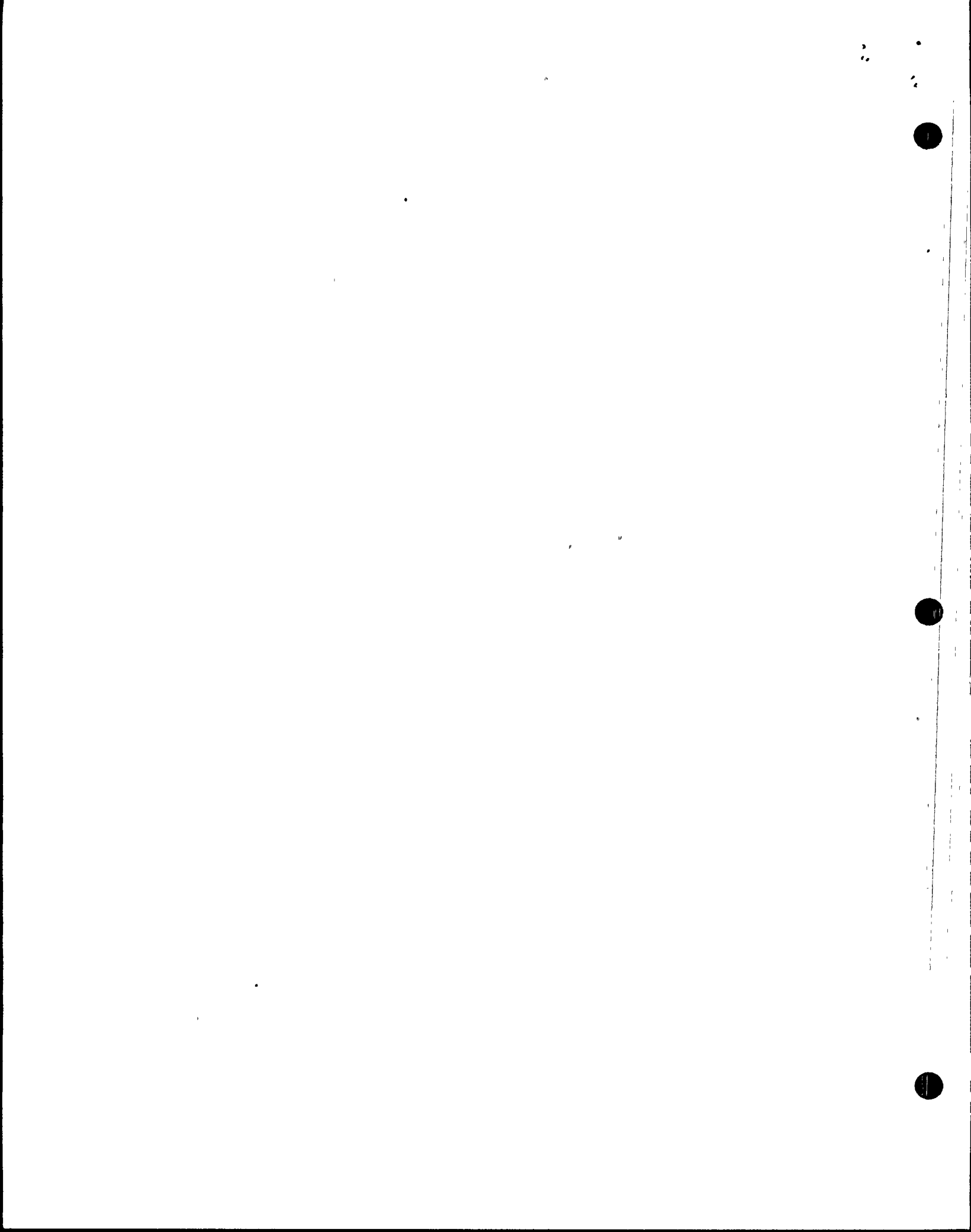
SYSTEM EXPLANATION OF ABBREVIATIONS											P & ID	REVISION - DATE	PAGE
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
									CS				COLD SHUTDOWN
									RF				REACTOR REFUELING
											VRR		VALVE RELIEF REQUEST



EXPLANATION OF NOTES

NOTES:

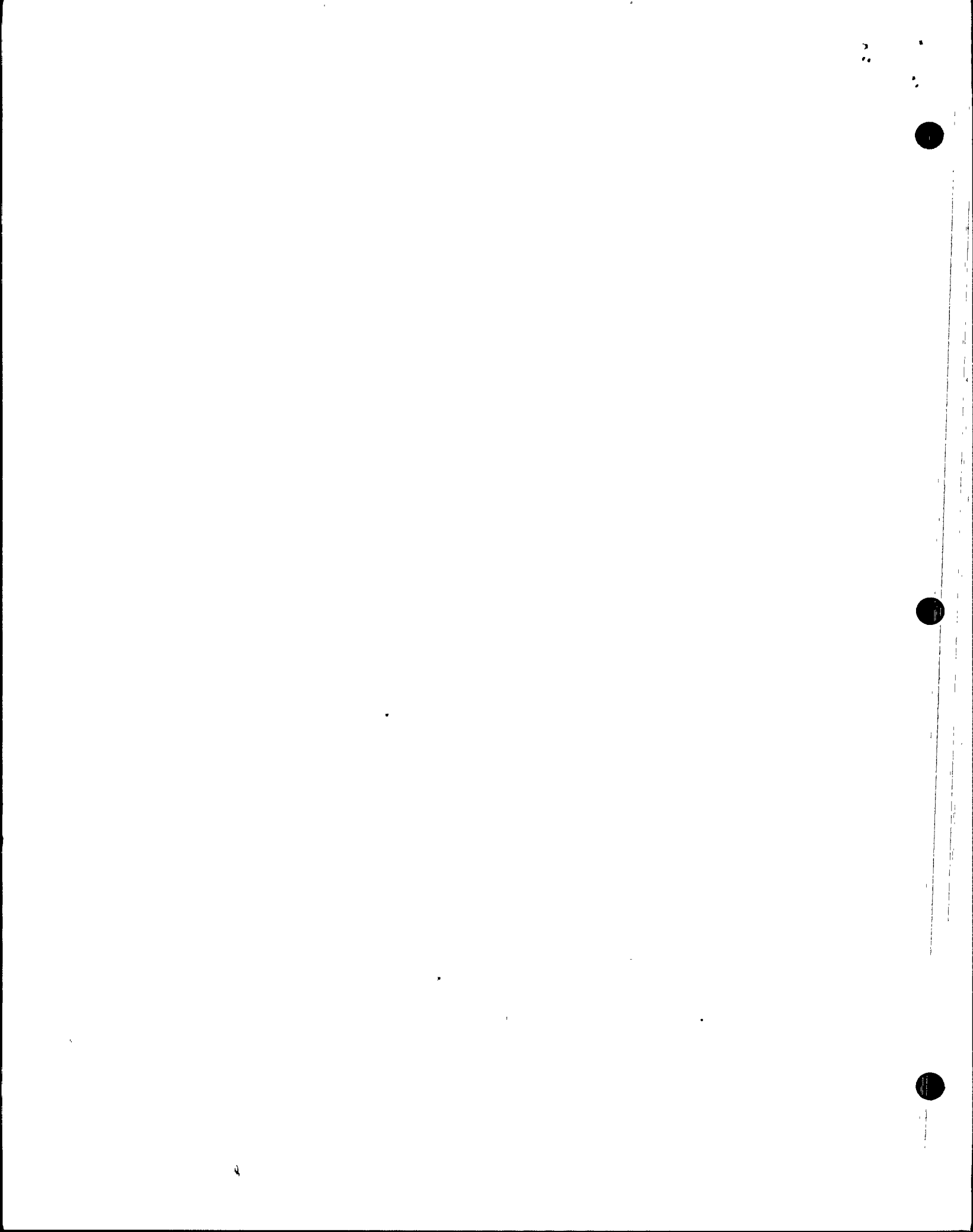
1. This valve is within a non-safety related system, however, it is used for containment isolation and therefore will be tested in accordance with 10CFR50 Appendix J requirements.
2. This valve is a pressure relief valve and will be tested at the frequency stated in IWV-3511.
3. This valve is a passive valve and does not require testing.
4. This valve cannot be full stroke exercised.
5. This valve cannot be partially stroke exercised during plant operation.
6. All motor operated valves fail-as-is and therefore do not require a fail safe test per IWV-3415.
7. Position of valve is determined to be non-safety related and therefore requires no testing.
9. This valve is A passive and will only be tested in accordance with 10CFR50 Appendix J rules.
10. This valve will be tested in accordance with 10CFR50 Appendix J requirements.
11. This valve operates during normal operation and therefore requires no special testing (IWV-3414).
12. Operability of this valve shall be noted as required when the system is tested for operability. No special testing is required.



SECTION 3.1

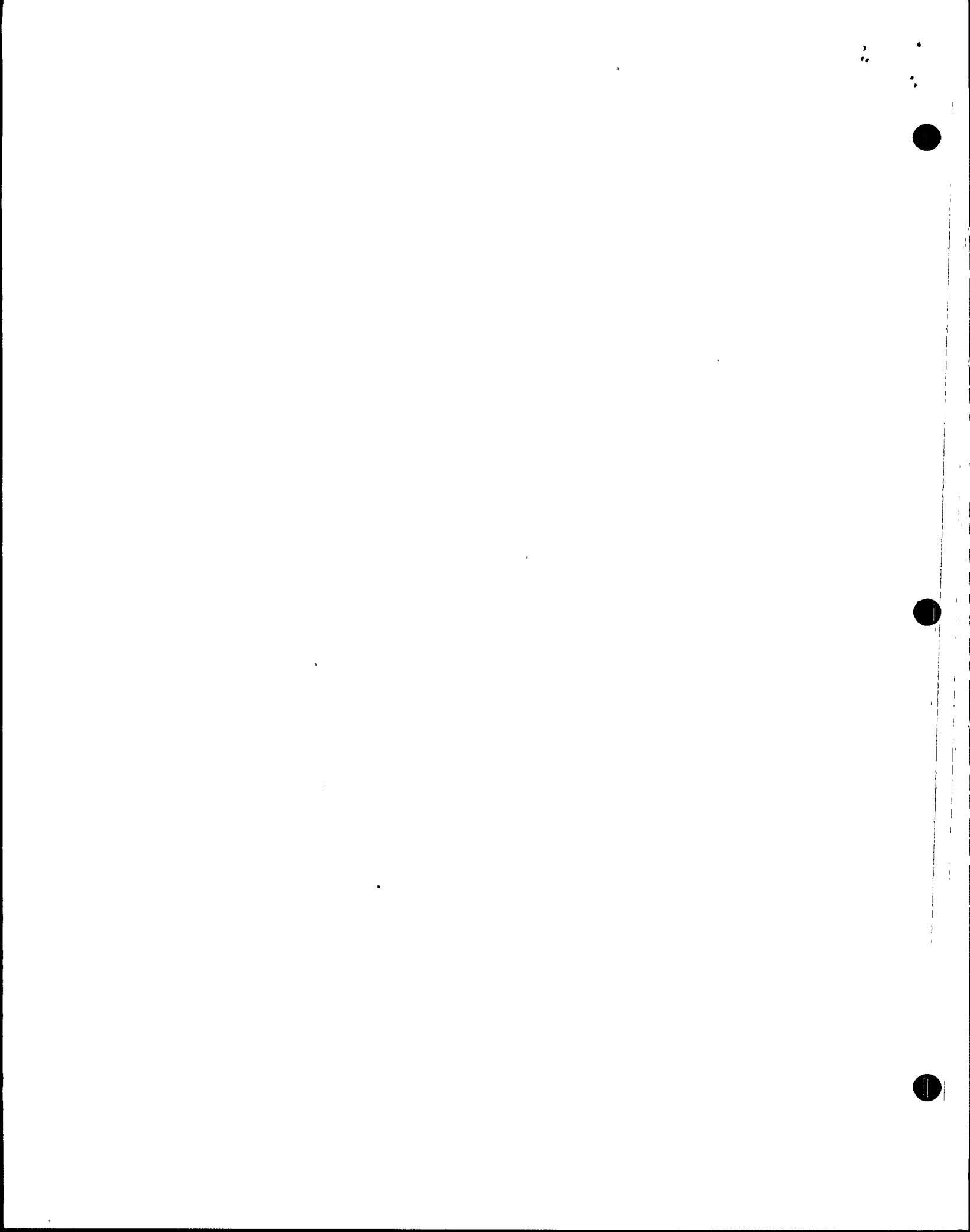
INSERVICE TESTING PROGRAM - PUMPS

PALO VERDE NUCLEAR GENERATING STATION



INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 PUMPS
PALO VERDE NUCLEAR GENERATING STATION

PUMP NUMBER	PUMP NAME	ISI CLASS	P & ID AND . COORDINATES	TEST PARAMETERS						NOTES
				SPEED	INLET PRES.	DIFF. PRES.	FLOW RATE	VIBRATION	BEARING TEMP.	
AFA-P01	Auxiliary Feedwater Pump (Turbine Driven)	3	AFP-001 E-S	0	0	C	0	M	PRR-1	
AFB-P01	Auxiliary Feedwater Pump (Motor Driven)	3	AFP-001 C-6	N/A	0	C	0	M	PRR-1	
CHA-P01	Charging Pump No. 1	2	CHP-002 B-3	N/A	M	C	0	M	PRR-1	
CHB-P01	Charging Pump No. 2	2	CHP-002 D-3	N/A	M	C	0	M	PRR-1	
CHE-P01	Charging Pump No. 3	2	CHP-002 F-3	N/A	M	C	0	M	PRR-1	
CTA-P01	Condensate Transfer Pump	3	CTP-001 C-5	N/A	M	C	0	M	PRR-1	
CTB-P01	Condensate Transfer Pump	3	CTP-001 A-5	N/A	M	C	0	M	PRR-1	
DFA-P01	Diesel Generator Fuel Oil Transfer Pump	3	DFP-001 B-6	N/A	C	C	0	PRR-2	PRR-1	
DFB-P01	Diesel Generator Fuel Oil Transfer Pump	3	DFP-001 B-2	N/A	C	C	0	PRR-2	PRR-1	
ECA-P01	Essential Chilled Water Circulation Pump	3	ECP-001 B-8	N/A	M	C	0	M	PRR-1	
ECB-P01	Essential Chilled Water Circulation Pump	3	ECP-001 B-8	N/A	M	C	0	M	PRR-1	
EWA-P01	Essential Cooling Water System Pump	3	EWP-001 D-5	N/A	M	C	0	M	PRR-1	

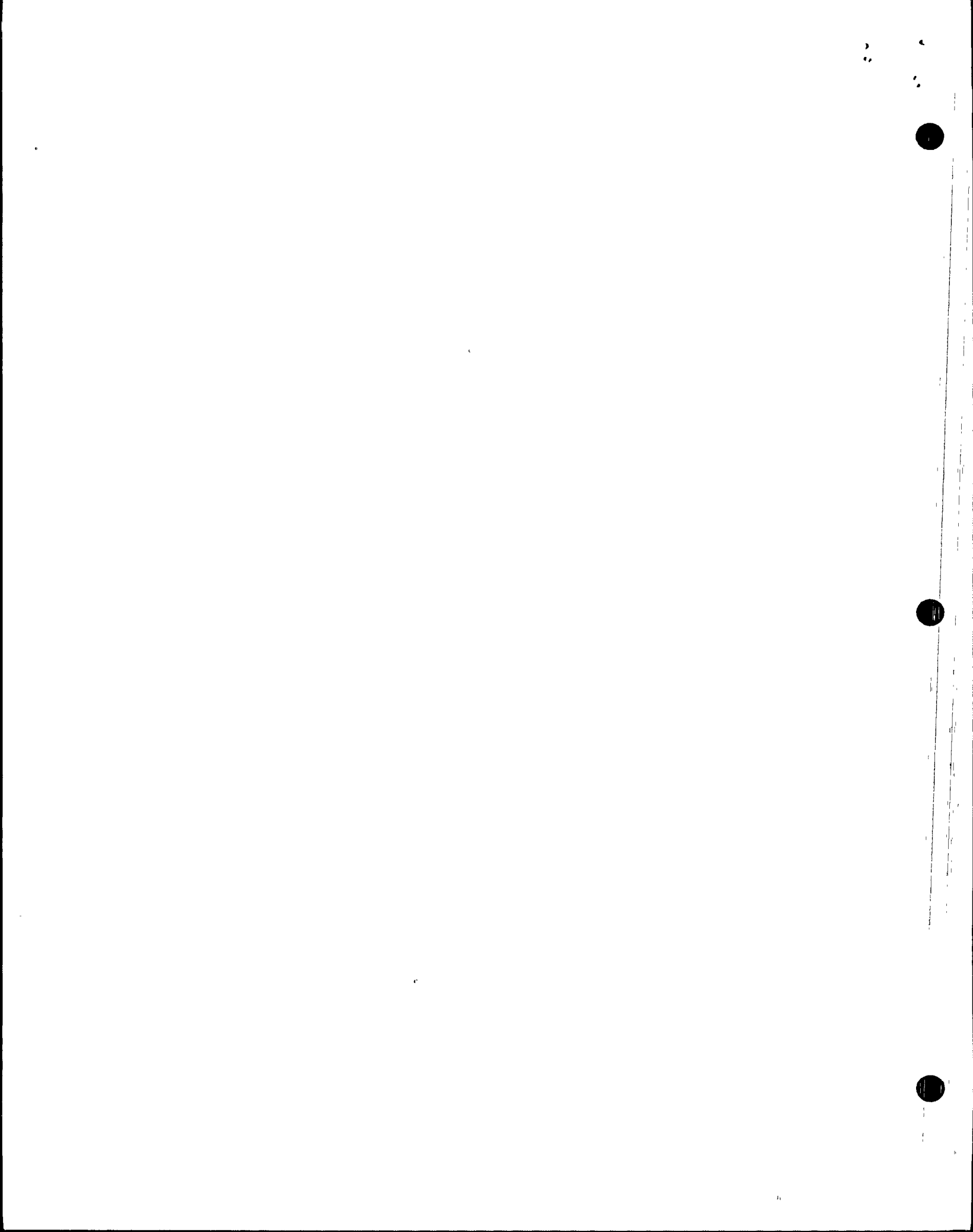


INSERVICE TESTING PROGRAM

ISI CLASS 1, 2 & 3 PUMPS

PALO VERDE NUCLEAR GENERATING STATION

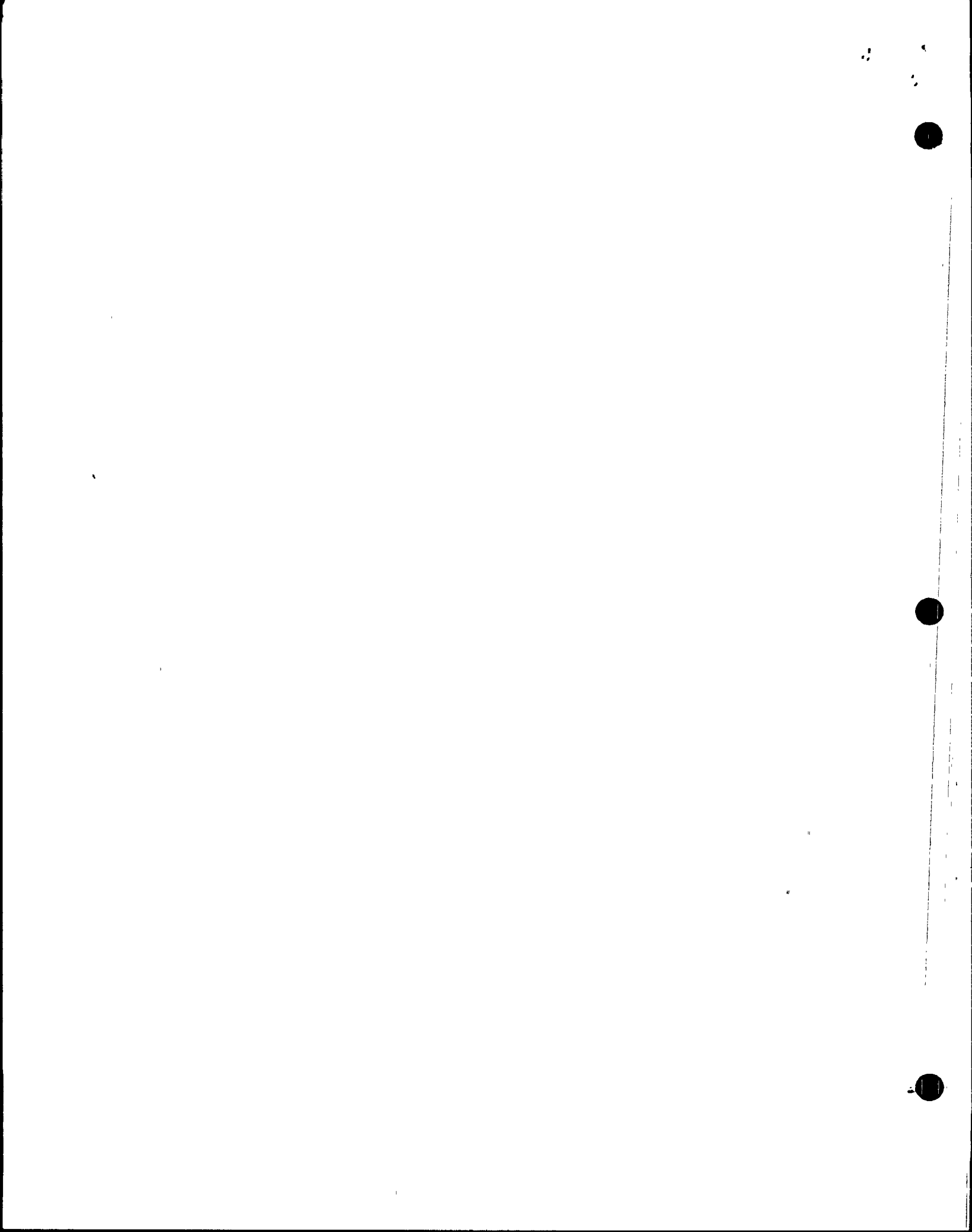
PUMP NUMBER	PUMP NAME	ISI CLASS	P & ID AND COORDINATES	TEST PARAMETERS						NOTES
				SPEED	INLET PRES.	DIFF. PRES.	FLOW RATE	VIBRATION	BEARING TEMP.	
EWB-P01	Essential Cooling Water System Pump	3	EWP-001 D-2	N/A	M	C	0	M	PRR-1	
SIA-P01	Low Pressure Safety Injection Pump #1	2	SIP-002 F-11	N/A	M	C	0	M	PRR-1	
SIA-P02	High Pressure Safety Injection Pump #1	2	SIP-002 F-11	N/A	M	C	0	M	PRR-1	
SIA-P03	Containment Spray Pump #1	2	SIP-002 H-11	N/A	M	C	0	M	PRR-1	
SIA-P05	Spray Chemical Addition Pump #1	2	SIP-002 D-14	N/A	M	C	0	M	PRR-1	
SIB-P01	Low Pressure Safety Injection Pump #2	2	SIP-002 B-11	N/A	M	C	0	M	PRR-1	
SIB-P02	High Pressure Safety Injection Pump #2	2	SIP-002 A-11	N/A	M	C	0	M	PRR-1	
SIB-P03	Containment Spray Pump #2	2	SIP-002 C-11	N/A	M	C	0	M	PRR-1	
SIB-P05	Spray Chemical Addition Pump #2	2	SIP-002 C-14	N/A	M	C	0	M	PRR-1	
SPA-P01	Essential Spray Pond Pump #1	3	SPP-001 D-4	N/A	C	C	0	PRR-3	PRR-1	
SPB-P01	Essential Spray Pond Pump #2	3	SPP-001 D-7	N/A	C	C	0	PRR-3	PRR-1	



APPENDIX A

REQUEST FOR RELIEF

FOR PUMPS



PUMP RELIEF REQUEST NO. 1

SYSTEM: Safety Related

COMPONENT: All pumps listed in the program

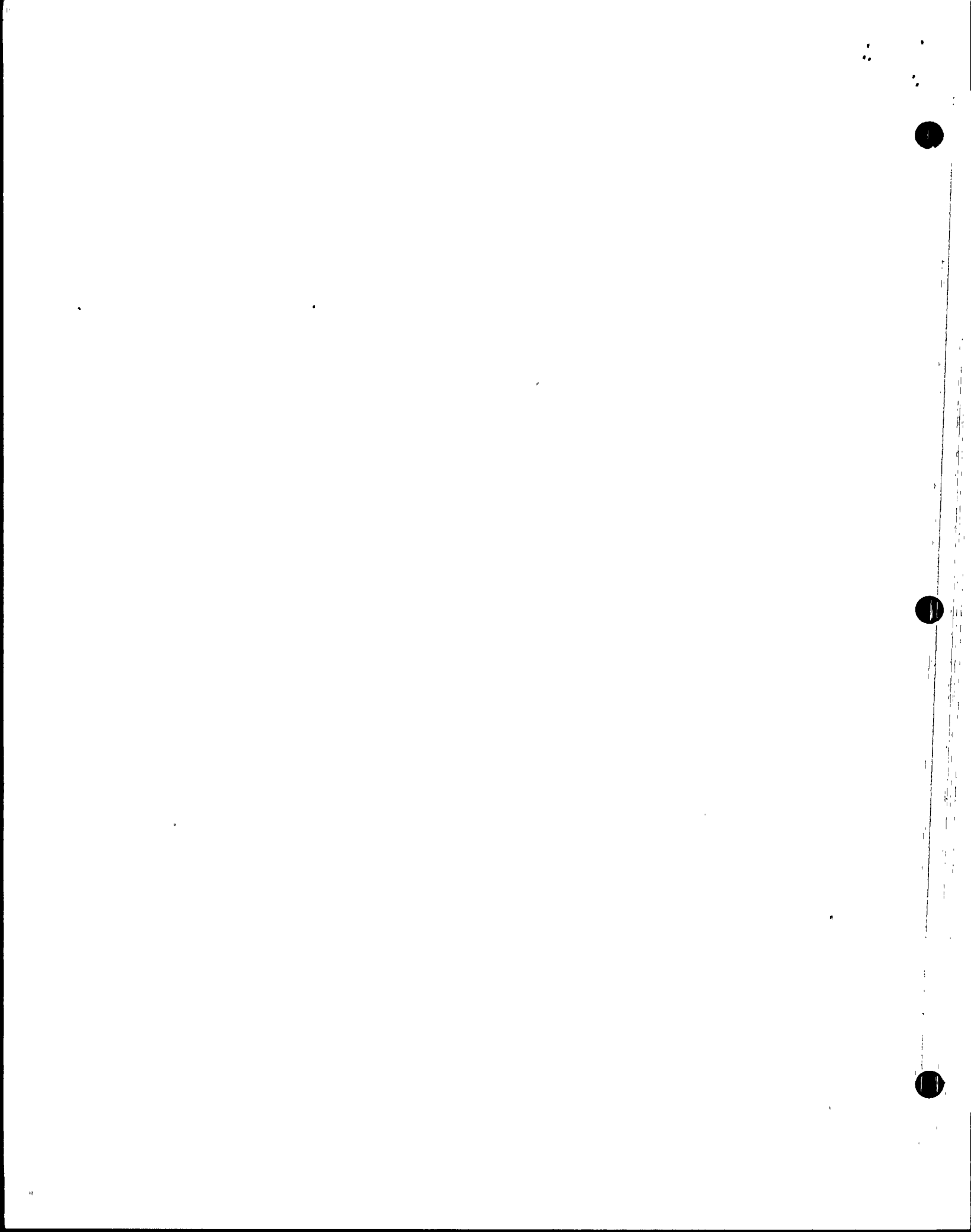
CLASS: 2 & 3

FUNCTION: To provide to safety related systems

TEST REQUIREMENT: 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.

ALTERANTE TESTING: None



PUMP RELIEF REQUEST NO. 2

SYSTEM: Diesel Generator Fuel Oil Transfer System

COMPONENTS: DFA-P01 & DFB-P01

P&ID & COORDINATES: DFP-001 @ B-6 and B-2

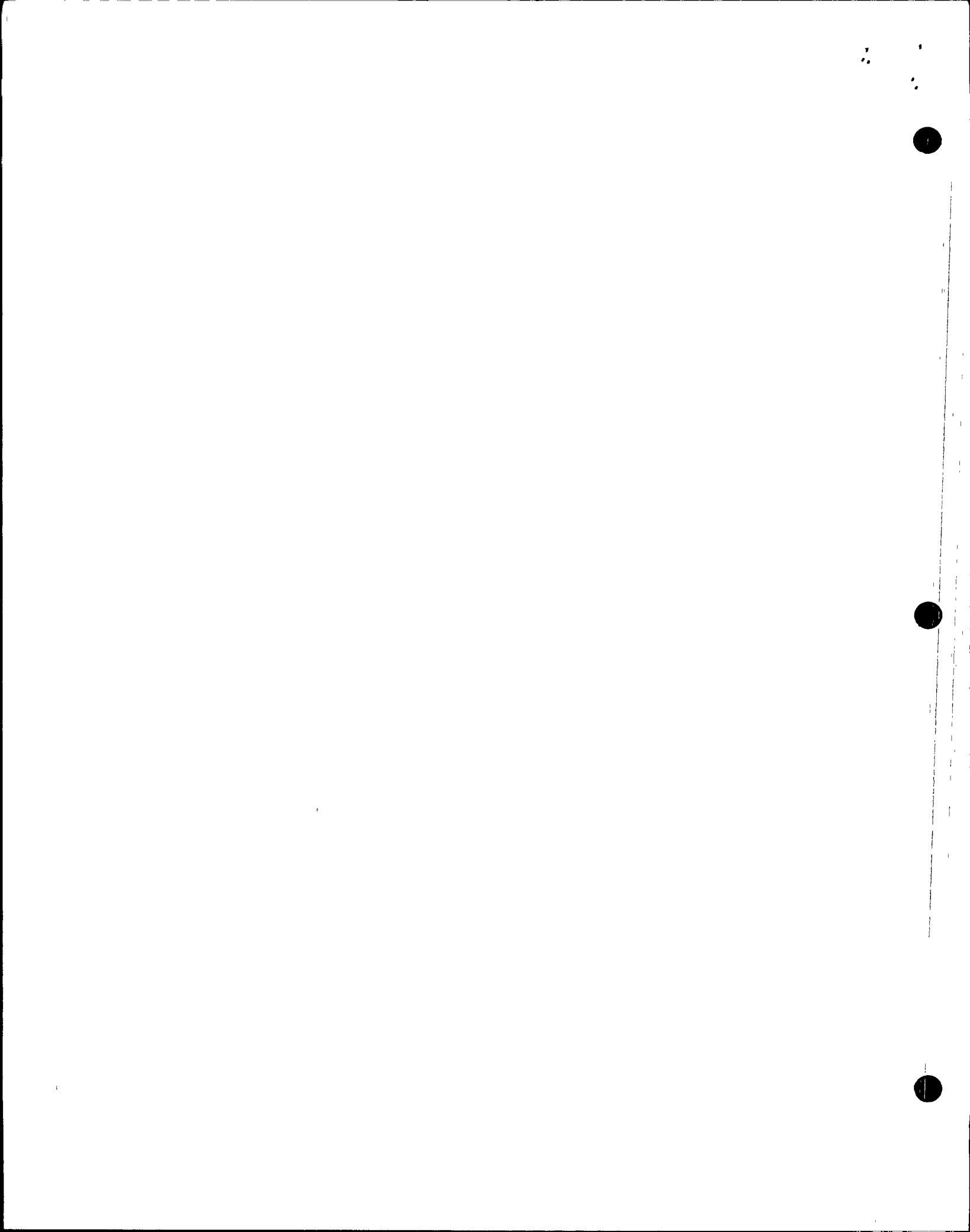
CLASS: 3

FUNCTION: To provide fuel oil to the standby diesel generators.

TEST REQUIREMENTS: Measure displacement vibration amplitude of pump.

BASIS FOR RELIEF: These pumps are immersable 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. 3

SYSTEM: Essential Spray Pond System

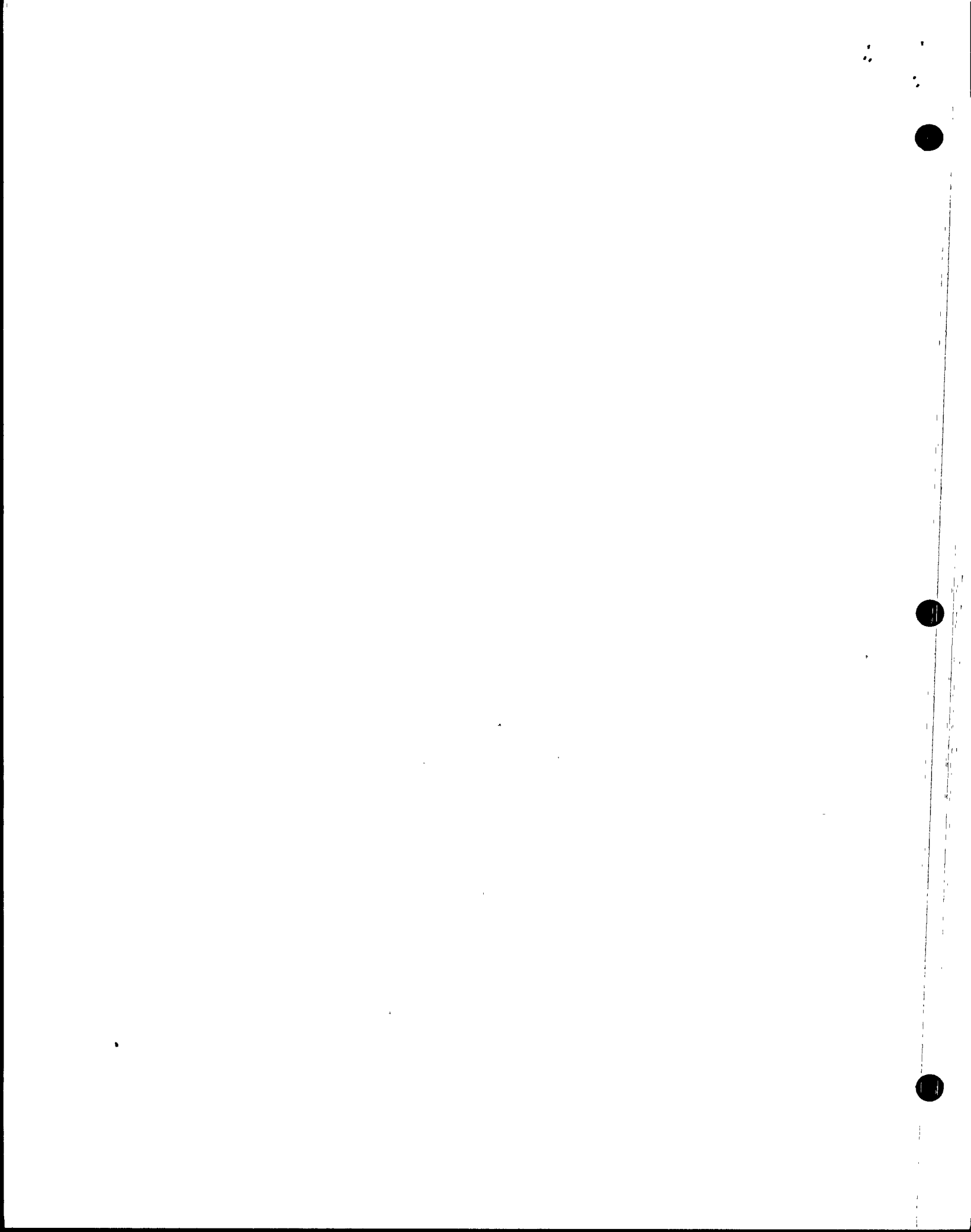
COMPONENTS: SPA-P01 & SPB-P01

P&ID & COORDINATES: SPP-001 @ D-4 & D-7

TEST REQUIREMENT: Measure displacement vibration amplitude of pump.

BASIS FOR RELIEF: These pumps are immersable centrifugal sump pumps located in the Essential Spray Pond Sump, 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.



SECTION 3.2

INSERVICE TESTING PROGRAM-VALVES

PALO VERDE NUCLEAR GENERATING STATION



Arizona
Public
Service

INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

Power
Production
Engineering

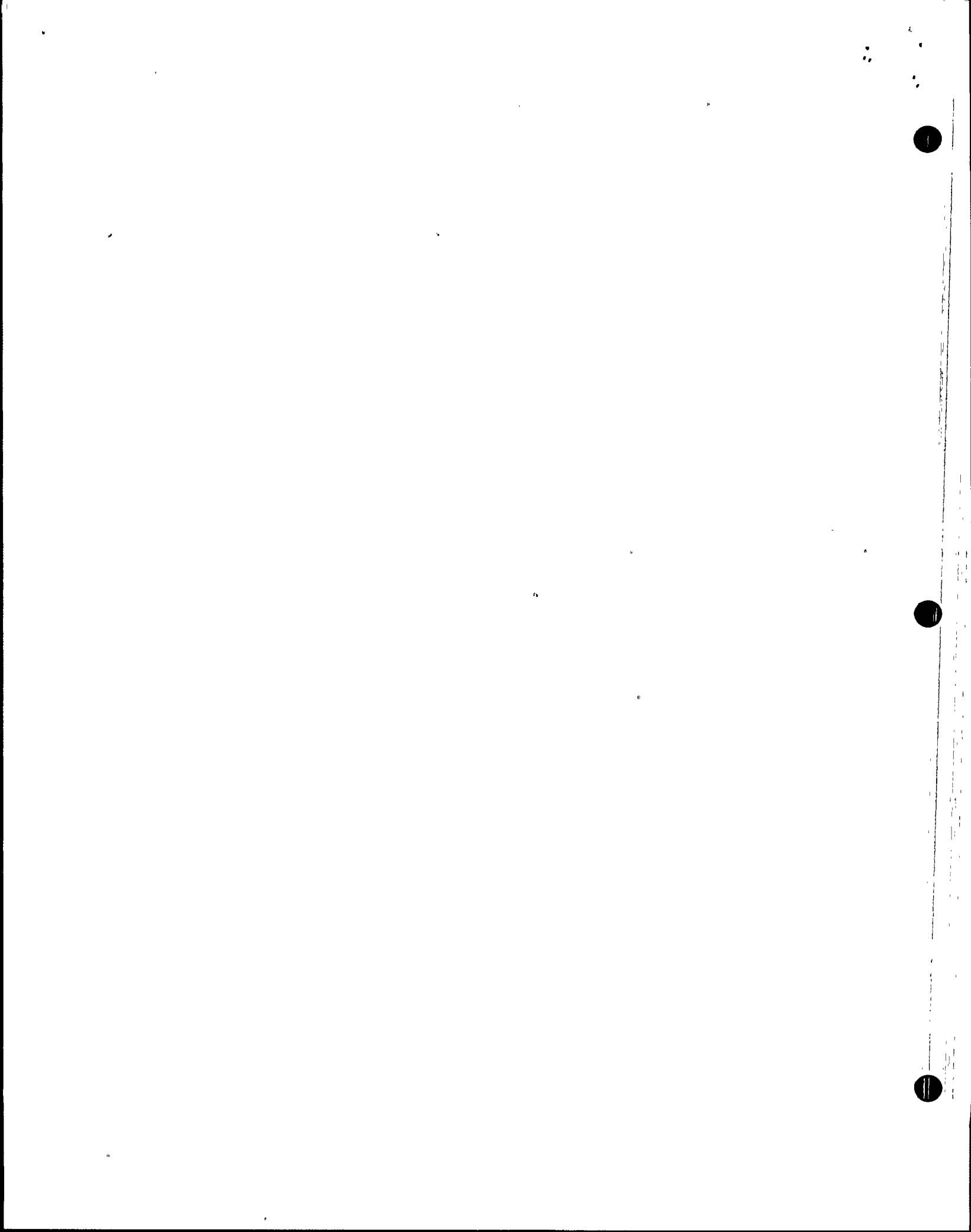
SYSTEM										P & ID	REVISION - DATE		PAGE
AUXILIARY					FEEDWATER					AFP-001	1	2/82	1 of 118
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
V002	G7	3	B	6"	GA	M	O	O	NA				NOTE 3
V005	E7	3	C	8"	CK	SA	C	C	NA				NOTE 3
V006	E7	3	B	8"	GA	M	O	O	NA				NOTE 3
V007	E7	3	C	8"	CK	SA	C	O	FST	OP			
V009	C7	3	C	8"	CK	SA	C	C	NA				NOTE 3
V015	E5	3	C	6"	CK	SA	C	O	FST	CS	VRR-11		NOTE 5
V016	E5	3	B	6"	GA	M	O	O	NA				NOTE 3
V017	D7	3	B	3"	GA	M	O	O	NA				NOTE 3

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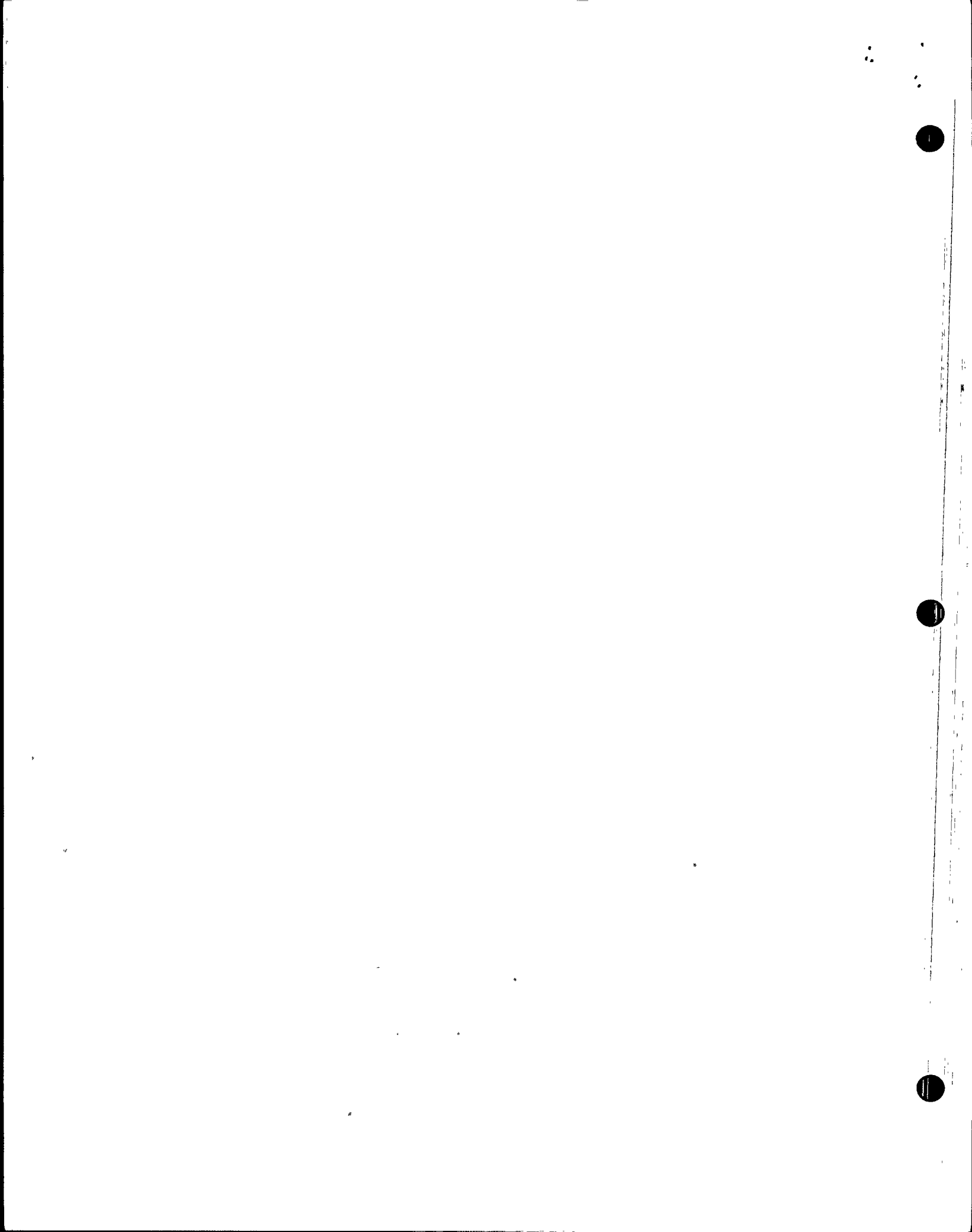
INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

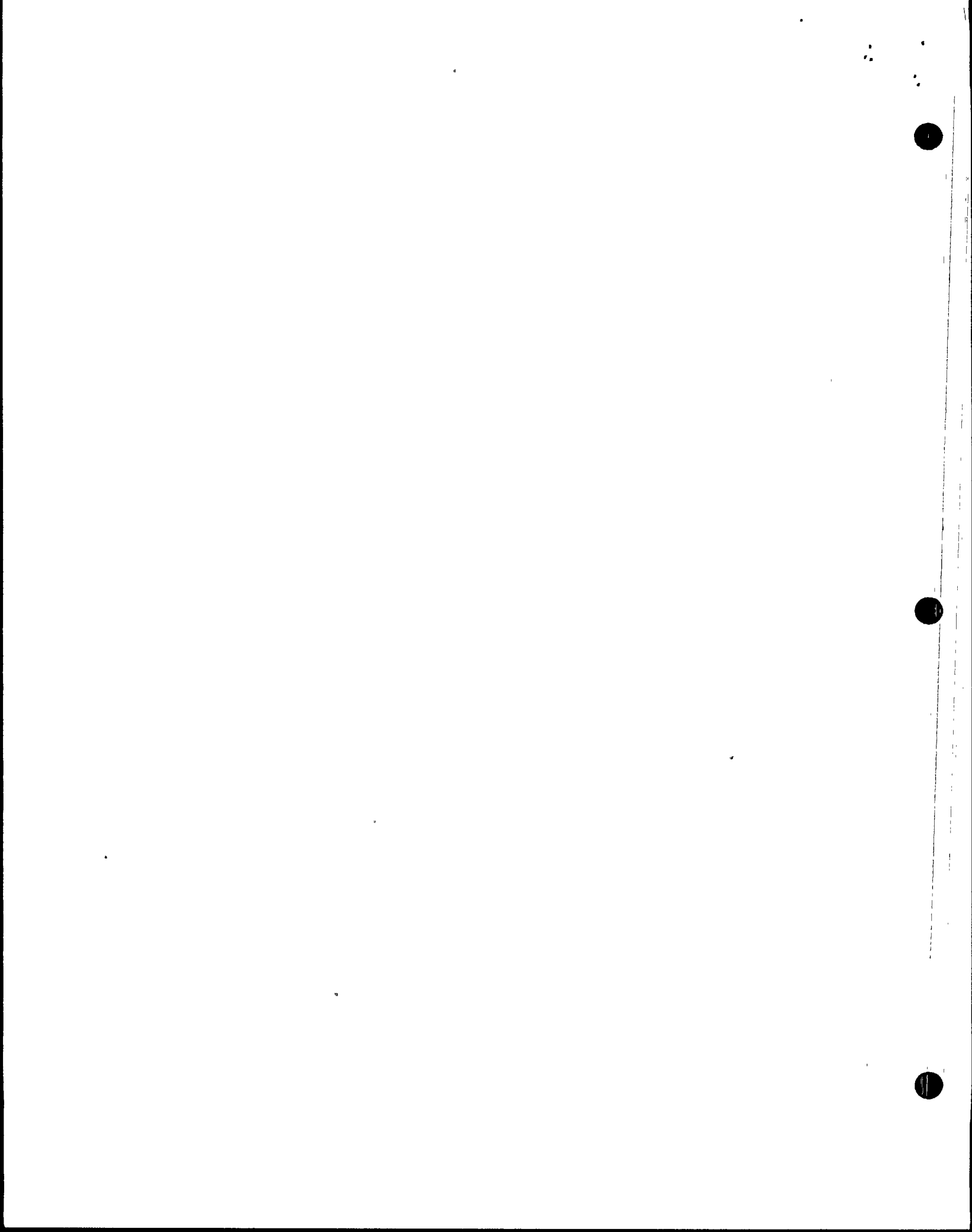
SYSTEM AUXILIARY FEEDWATER										P & ID AFP-001	REVISION - DATE 1 2/82	PAGE 2 OF 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
V018	D7	3	B	6"	GL	M	C	C	NA				NOTE 3
V021	C7	3	B	8"	GA	M	O	O	NA				NOTE 3
V022	C7	3	C	8"	CK	SA	C	O	FST	OP			
V024	C6	3	C	6"	CK	SA	C	O	FST	CS		VRR-11	NOTE 5
V025	C5	3	B	6"	GA	M	O	O	NA				NOTE 3
V026	B7	3	B	3"	GA	M	O	O	NA				NOTE 3
V027	A7	3	B	6"	GL	M	C	C	NA				NOTE 3
V079	E1	2	C	6"	CK	SA	C	O	FST	CS		VRR-11	NOTE 5



INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

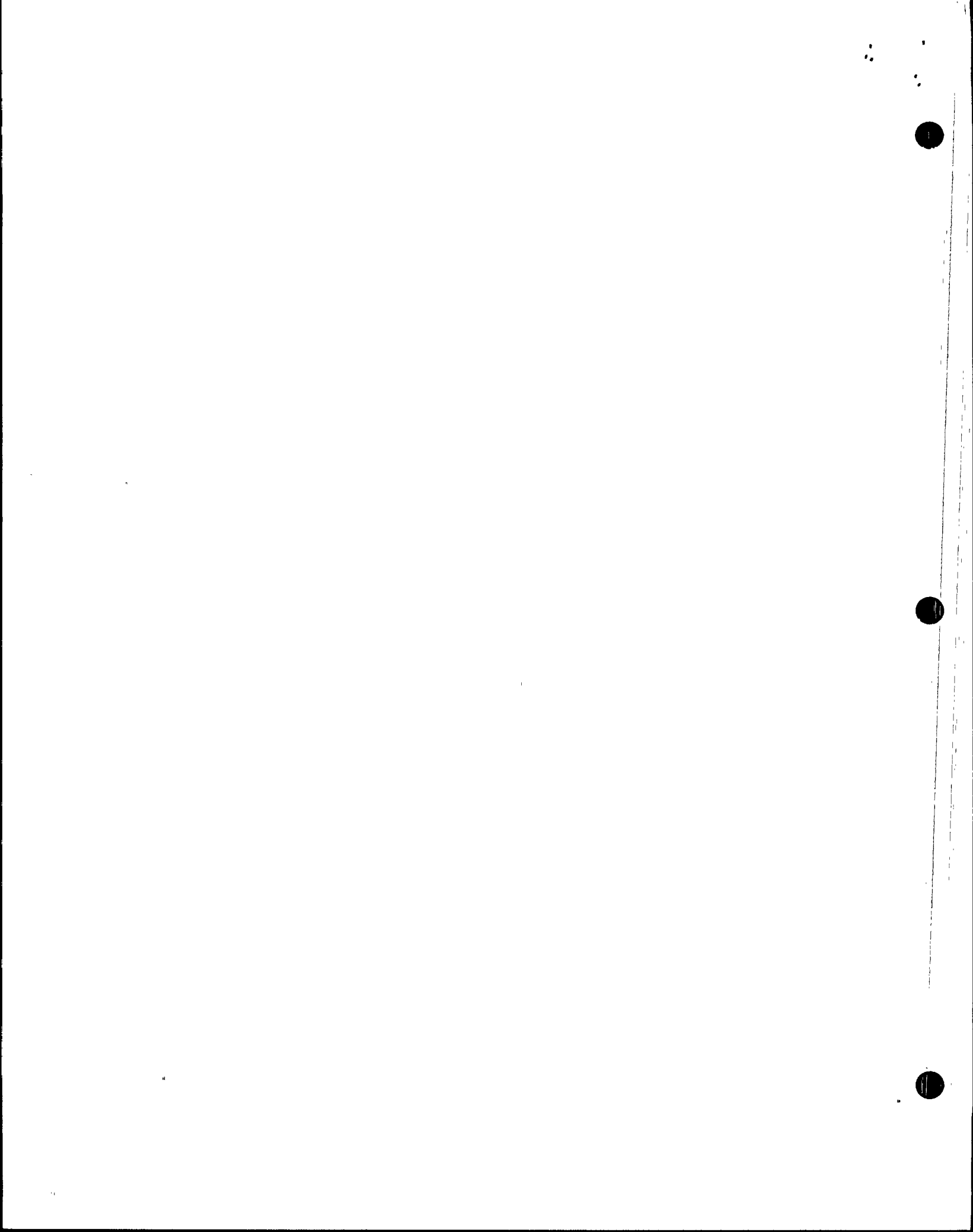
SYSTEM AUXILIARY FEEDWATER										P & ID AFP-001	REVISION - DATE 1 2/82		PAGE 3 of 118
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
V080	C1	2	C	6"	CK	SA	C	O	FST	CS		VRR-11	NOTE 5
V096	G7	3	C	4"	CK	SA	C	C	NA				NOTE 3
V115	F5	3	B	3/4"	GL	M	C	C	NA				NOTE 3
V137	E5	3	C	6"	CK	SA	C	O	FST	OP			
V138	C6	3	C	6"	CK	SA	C	O	FST	OP			
HV30	B4	3	B	6"	GL	MO	C	O	FST VPI	OP RF			NOTE 6
HV31	C4	3	B	6"	GL	MO	C	O	FST VPI	OP RF			NOTE 6
HV32	E4	3	B	6"	GL	MO	C	O	FST VPI	OP RF			NOTE 6





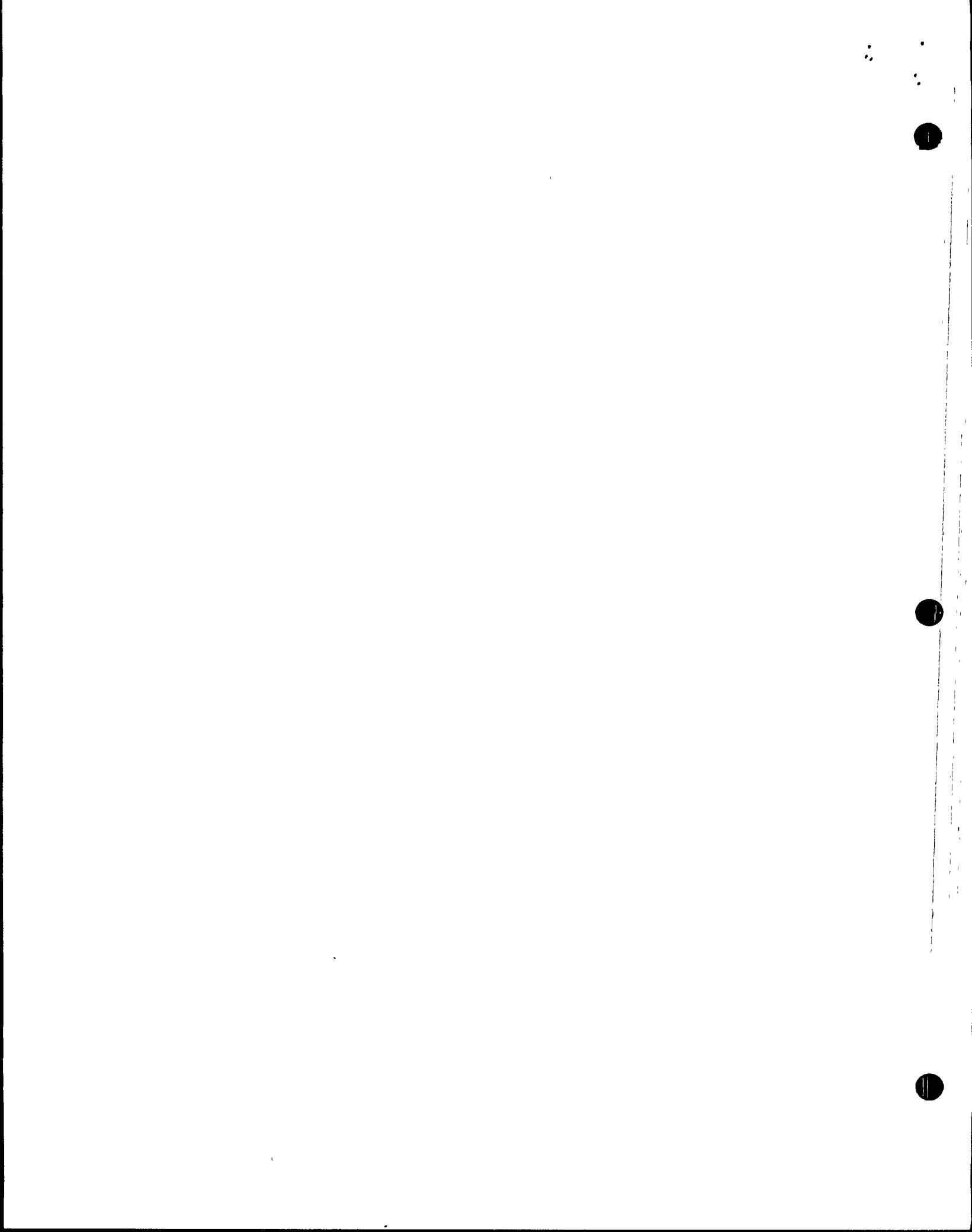
INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

SYSTEM CHEMICAL AND VOLUME CONTROL										P&ID CHP-001	REVISION - DATE 1 2/82		PAGE 5 of 118
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
V020	F15	2	B	1"	GL	M	C	C	NA				NOTE 3
V022	F15	2	B	1"	GL	M	C	C	NA				NOTE 3
V023	F15	2	B	1"	GL	M	C	C	NA				NOTE 3
V024	F14	2	B	1"	GL	M	C	C	NA				NOTE 3
V043	G12	2	B	1"	GL	M	C	C	NA				NOTE 3
V393	G15	2	B	3/4"	GL	M	C	C	NA				NOTE 3
V429	D16	2	C	2"	CK	SA	O/C	O	FST	OP			NOTE 11
V431	G11	1	C	2"	CK	SA	C	O	FST	CS		VRR-12	NOTE 5



INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

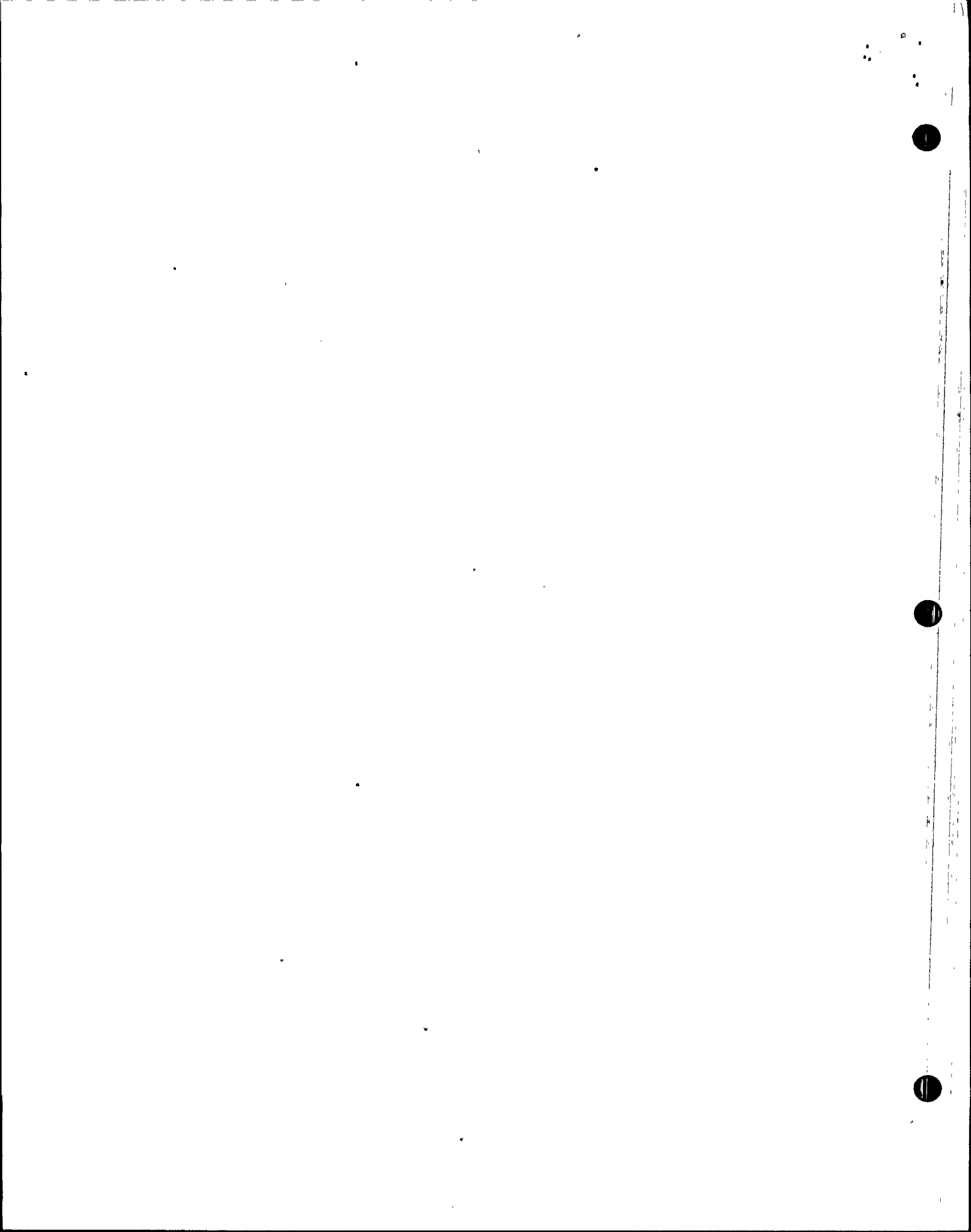
SYSTEM CHEMICAL AND VOLUME CONTROL										P & ID CHP-001	REVISION - DATE 1 2/82	PAGE 6 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
V433	G9	1	C	2"	CK	SA	O/C	O	FST	OP			NOTE 11
V434	F9	1	B	2"	GA	M	O	O	NA				NOTE 3
V435	F10	1	C	2"	CK	SA	O/C	O	FST	OP			NOTE 11
V436	D15	2	B	1"	GL	M	C	C	NA				NOTE 3
V613	G6	2	B	1"	GL	M	C	C	NA				NOTE 3
V787	H1	1	C	1"	CK	SA	O	O/C	FST	CS		VRR-13	NOTE 5
V788	H1	1	B	1"	GL	M	O	O	NA				NOTE 3
V802	G2	1	C	1"	CK	SA	O	O/C	FST	CS		VRR-13	NOTE 5



INSERVICE TESTING PROGRAM
 ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

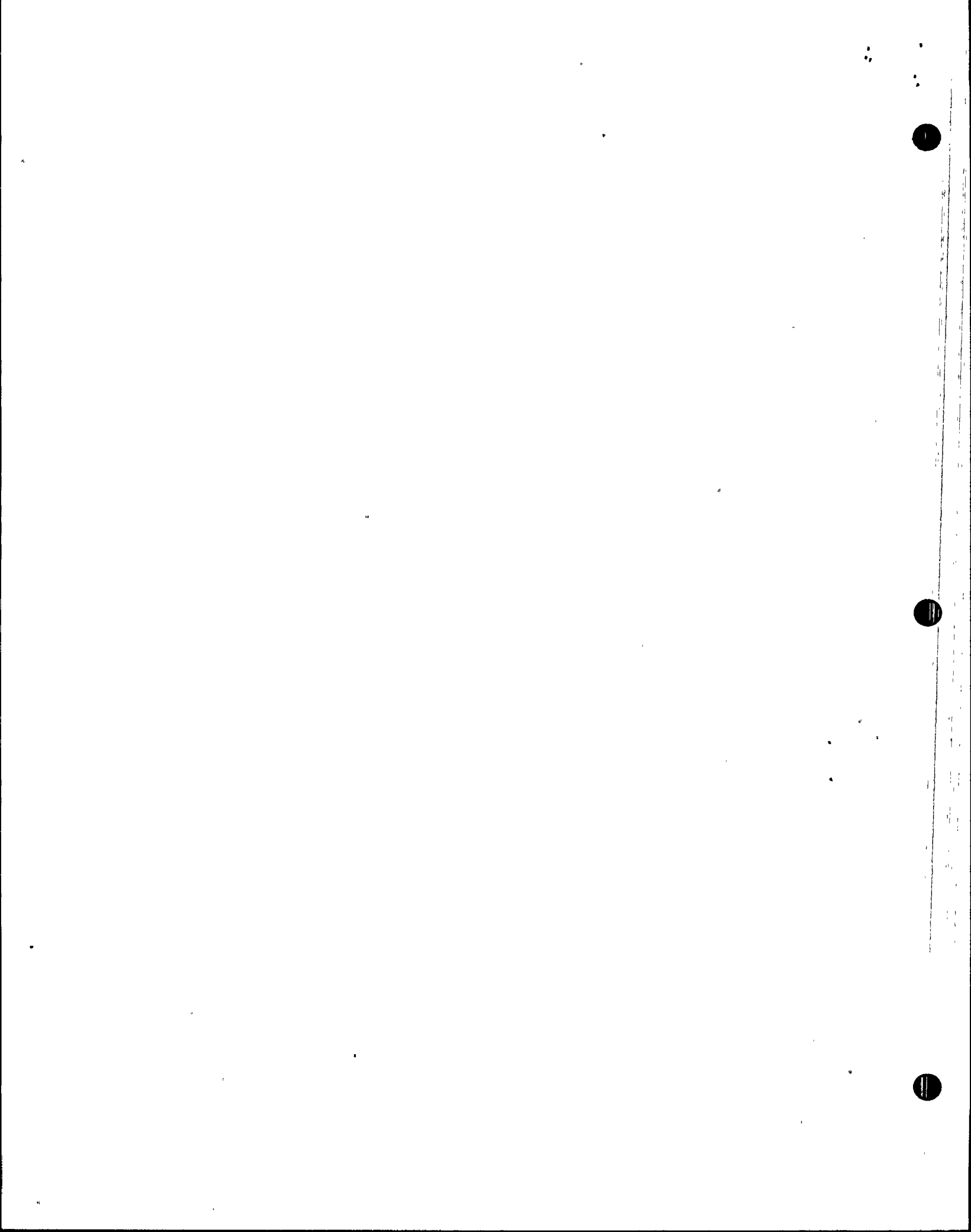
SYSTEM CHEMICAL AND VOLUME CONTROL	P & ID CHP-001	REVISION DATE 1 2/82	PAGE 7 OF 118
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VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
V803	G1	1	B	1"	GL	M	O	O	NA				NOTE 3
V807	F1	1	C	1"	CK	SA	O	O/C	FST	CS	VRR-13		NOTE 5
V808	F1	1	B	1"	GL	M	O	O	NA				NOTE 3
V812	E1	1	C	1"	CK	SA	O	O/C	FST	CS	VRR-13		NOTE 5
V813	E1	1	B	1"	GL	M	O	O	NA				NOTE 3
V816	G5	2	B	1½"	GL	M	O	O	NA				NOTE 3
V818	G4	2	B	1½"	GL	M	O	O	NA				NOTE 3
V819	F5	2	B	1½"	GL	M	O	O	NA				NOTE 3



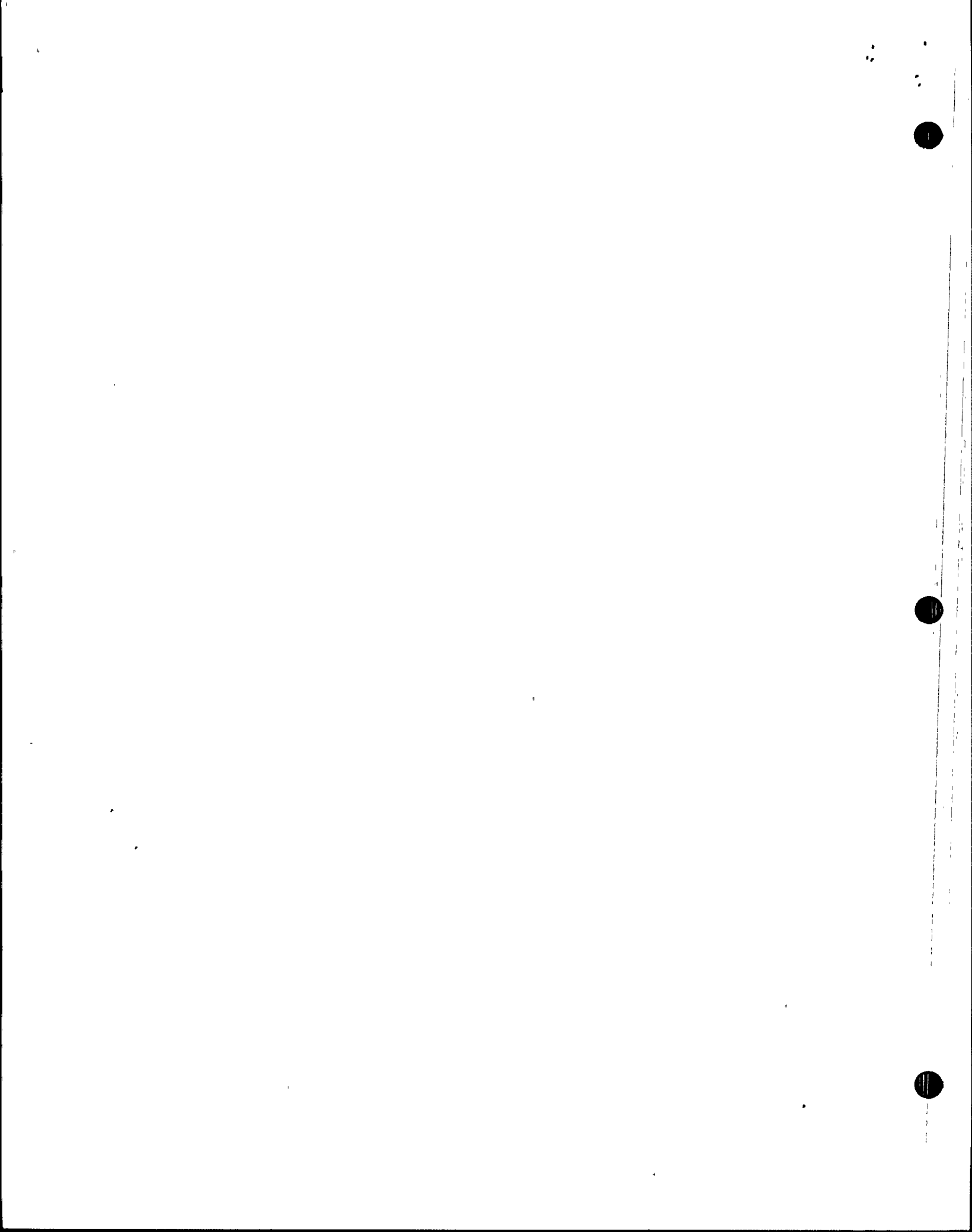
INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

SYSTEM CHEMICAL AND VOLUME CONTROL										P & ID CHP-001		REVISION - DATE 1 2/82		PAGE 8 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS		
V821	F4	2	B	1½"	GL	M	C	C	NA				NOTE 3		
V822	G4	2	B	1"	GL	M	C	C	NA				NOTE 3		
V823	F4	2	B	1"	GL	M	C	C	NA				NOTE 3		
V835	G3	2	A,C	1½"	CK	SA	O	O/C	AJLT FST	RF OP			NOTES 10,11		
V836	G6	2	B	1½"	GL	M	O	O	NA				NOTE 3		
V839	G7	2	B	1½"	GL	M	O	O	NA				NOTE 3		
V844	H5	2	B	3/4"	GL	M	C	C	NA				NOTE3		
V854	E15	2	A	3/4"	GL	M	C	C	AJLT	RF			NOTE 9		



INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

SYSTEM CHEMICAL AND VOLUME CONTROL										P & ID CHP-001		REVISION - DATE 1 2/82		PAGE 9 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS		
V866	H1	1	C	1"	CK	SA	O	O/C	FST	CS		VRR-13	NOTE 5		
V867	G1	1	C	1"	CK	SA	O	O/C	FST	CS		VRR-13	NOTE 5		
V868	F1	1	C	1"	CK	SA	O	O/C	FST	CS		VRR-13	NOTE 5		
V869	E1	1	C	1"	CK	SA	O	O/C	FST	CS		VRR-13	NOTE 5		
V993	D15	2	B		GL	M	C	C	NA				NOTE 3		
FV241	H2	2	B	1"	GL	AO	O	O	NA				NOTE 3		
FV242	G2	2	B	1"	GL	AO	O	O	NA				NOTE 3		
FV243	F2	2	B	1"	GL	AO	O	O	NA				NOTE 3		



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INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

Power
Production
Engineering

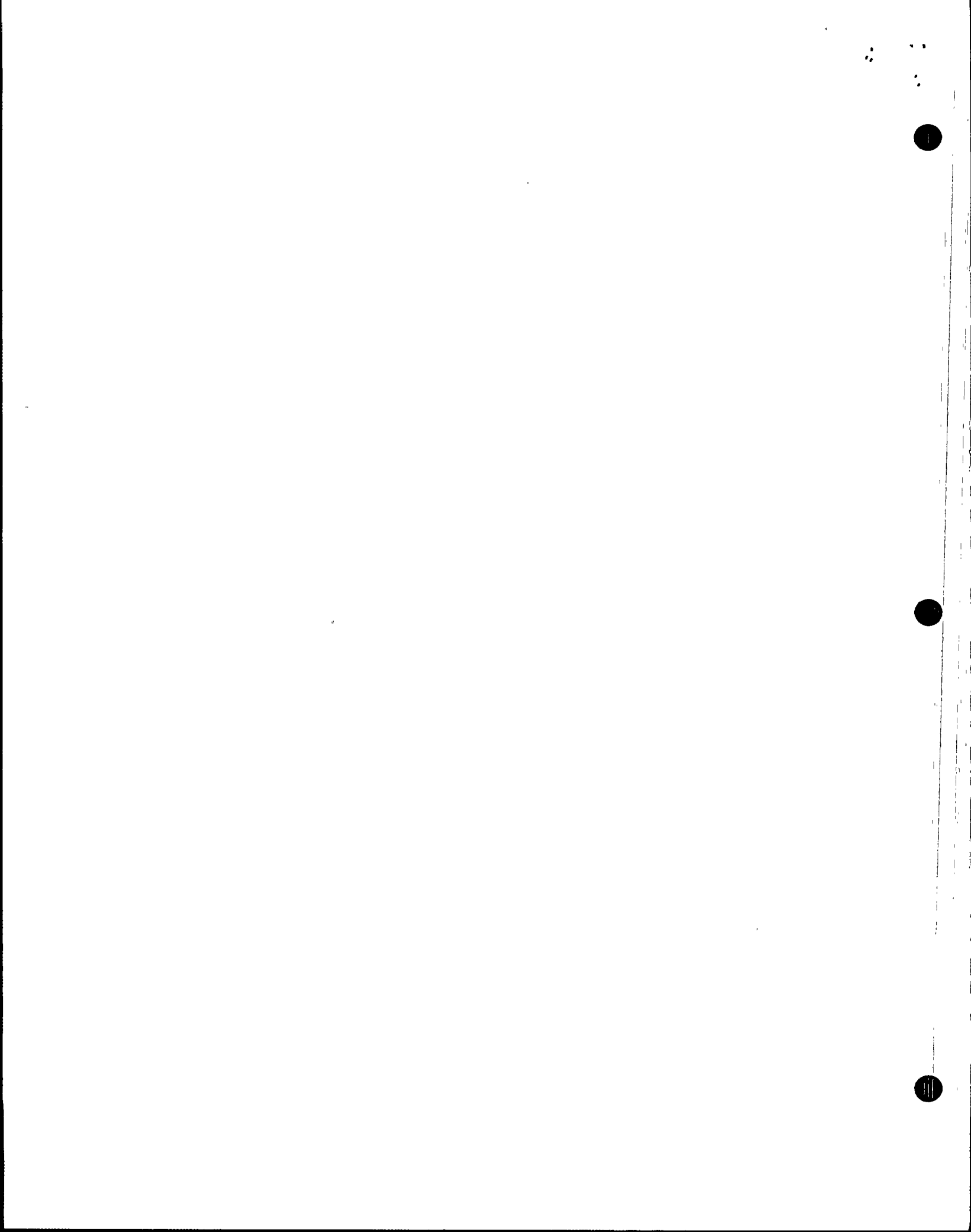
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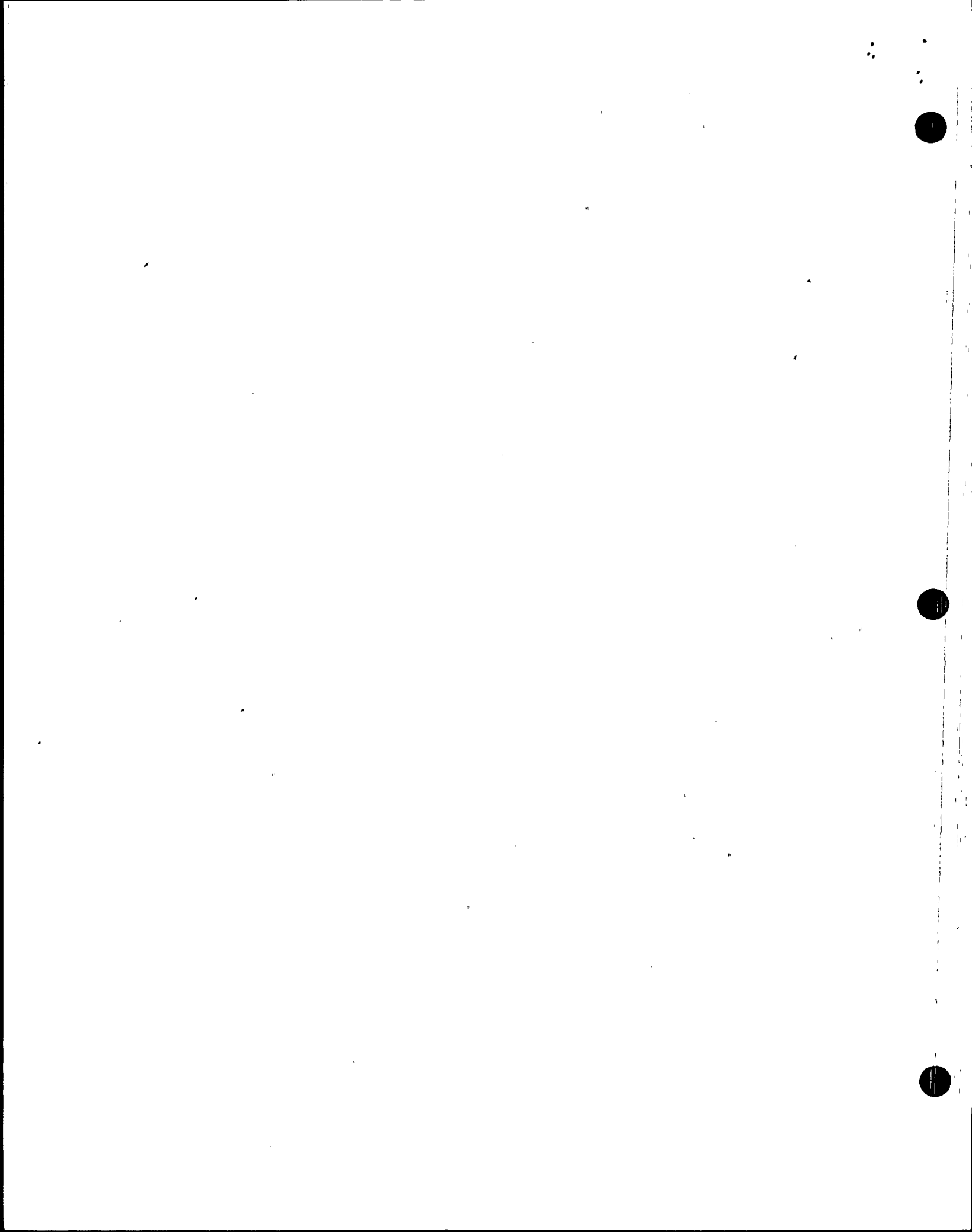
P & ID
CHP-001

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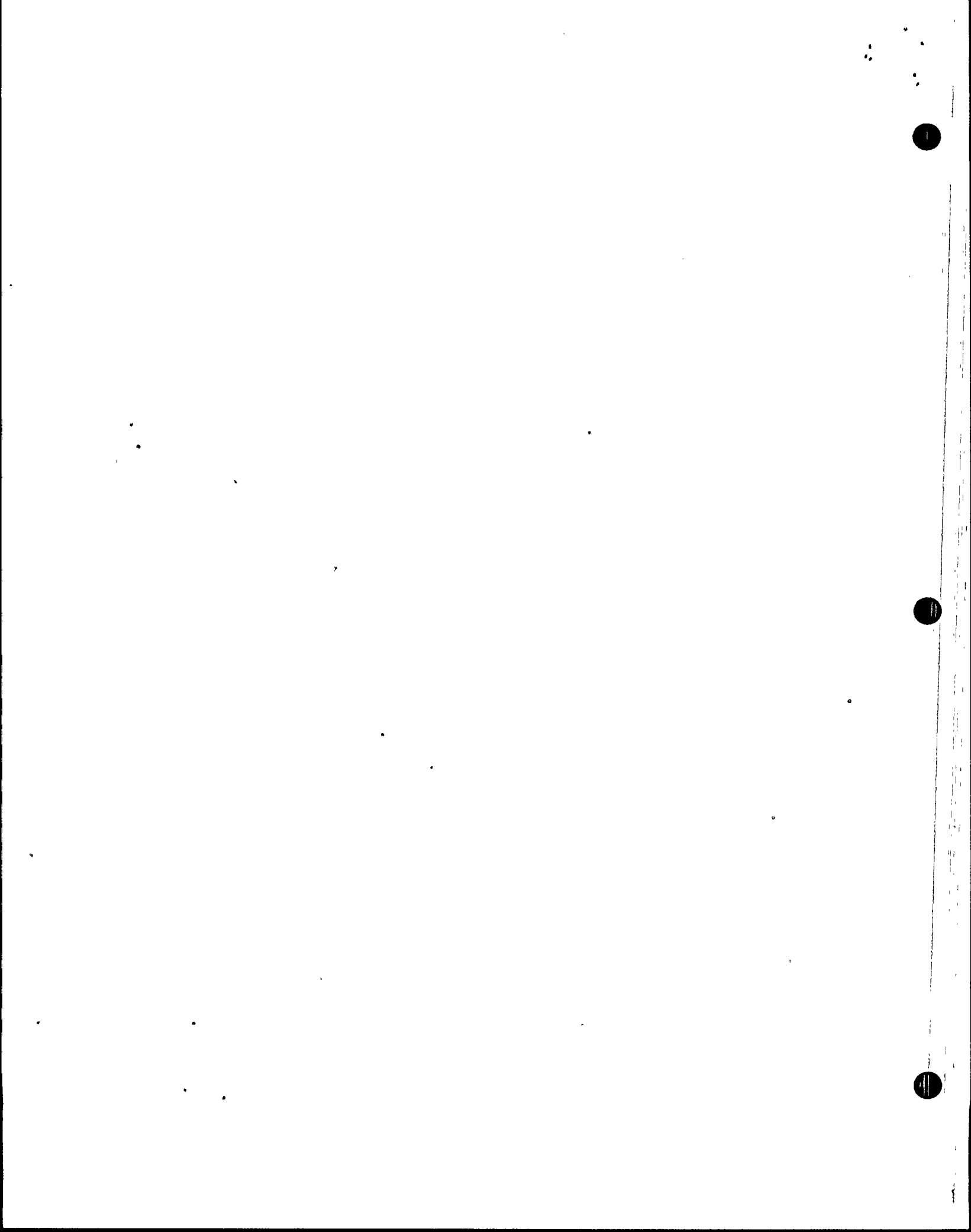
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
FV244	E2	2	B	1"	GL	AO	O	O	NA				NOTE 3
HV203	H12	2	B	2"	GL	SO	C	O/C	FST F T VPI	CS CS RF		VRR-12	NOTE 5
HV205	G12	1	B	2"	GL	SO	C	O/C	FST F T VPI	CS CS RF		VRR-12	NOTE 5
HV255	G4	2	A	1½"	GL	MO	O	O/C	AJLT FST VPI	RF OP RF	5s		NOTES 6, 10
HV524	D16	2	A	2"	GL	MO	O	O/C	AJLT FST VPI	RF CS RF	5s	VRR-14	NOTES 5,6,10
UV231P	G8	2	B	1½"	GL	AO	O	O/C	FST F T VPI	OP OP RF			
UV515	H15	1	B	2"	GL	AO	O	C	FST F T VPI	OP OP RF			
UV516	H15	1	A	2"	GL	AO	O	C	AJLT FST F T VPI	RF OP OP RF	5s		NOTE 10





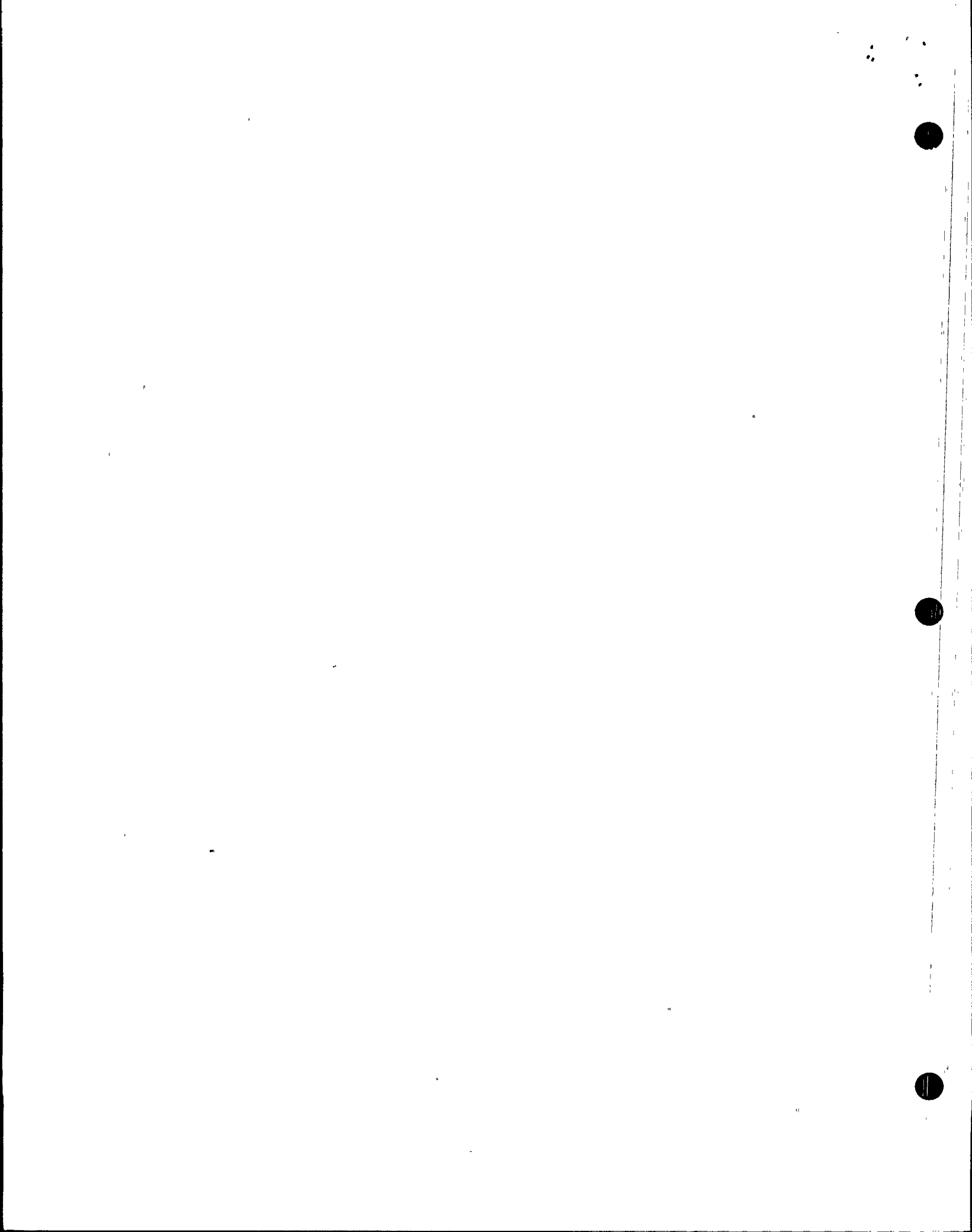
INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

SYSTEM CHEMICAL AND VOLUME CONTROL										P & ID CHP-002		REVISION - DATE 1 2/82		PAGE 12 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS		
V101	F6	2	C	3"	CK	SA	C	C	NA				NOTE 3		
V104	E6	2	B	½"	DIA	M	O	O	NA				NOTE 3		
V112	E6	2	C	1"	CK	SA	C	C	NA				NOTE 3		
V117	C6	2	B	1"	DIA	M	C	C	NA				NOTE 3		
V118	C6	2	C	4"	CK	SA	O	O	NA				NOTE 3		
V124	E14	2	B	3"	DIA	M	C	C	NA				NOTE 3		
V130	C12	3	B	1"	DIA	M	O	O	NA				NOTE 3		



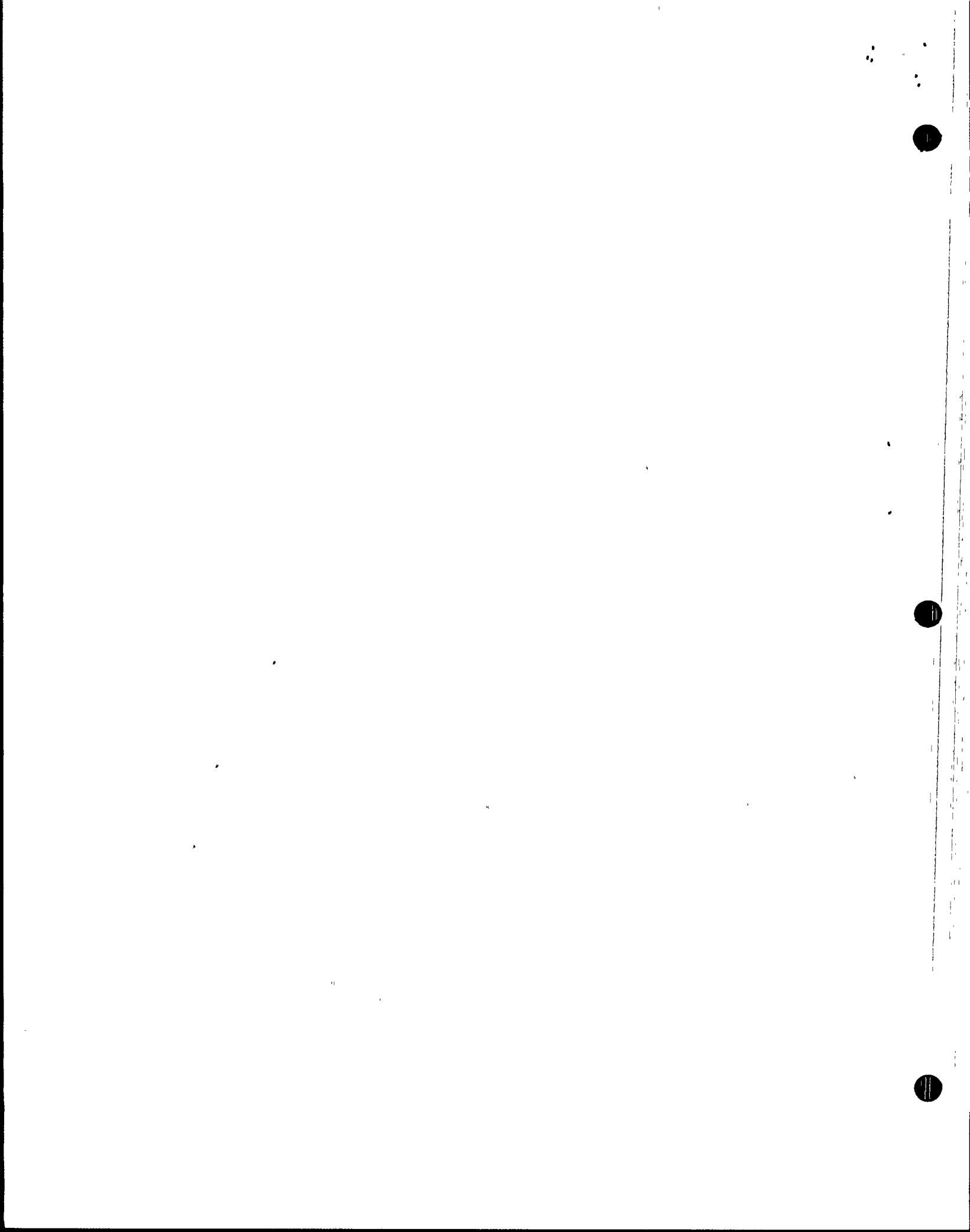
INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

SYSTEM CHEMICAL AND VOLUME CONTROL										P & ID CHP-002	REVISION - DATE 1 2/82	PAGE 13 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
V134	B11	3	B	1"	DIA	M	C	C	NA				NOTE 3
V139	F6	2	C	3"	CK	SA	C	C	NA				NOTE 3
V143	B14	3	B	3"	DIA	M	O	O	NA				NOTE 3
V144	B14	3	B	3"	DIA	M	O	O	NA				NOTE 3
V145	B14	3	B	3"	DIA	M	O	O	NA				NOTE 3
V152	B12	3	B	3"	DIA	M	O	O	NA				NOTE 3
V153	B12	3	B	3"	DIA	M	O	O	NA				NOTE 3
V154	B12	3	C	3"	CK	SA	C	NA	NA				NOTE 7



INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

SYSTEM CHEMICAL AND VOLUME CONTROL										P & ID CHP-002	REVISION - DATE 1 2/82	PAGE 14 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
V156	B12	3	C	3"	CK	SA	C	NA	NA				NOTE 7
V161	B12	3	B	3"	DIA	M	O	O	NA				NOTE 3
V166	B11	3	B	3"	DIA	M	O	O	NA				NOTE 3
V172	B9	3	B	2"	DIA	M	O	O	NA				NOTE 3
V174	B9	3	B	2"	DIA	M	C	C	NA				NOTE 3
V177	B6	2	C	3"	CK	SA	C	NA	NA				NOTE 7
V179	C7	2	C	3"	CK	SA	C	NA	NA				NOTE 7
V184	D8	3	C	3"	CK	SA	C	NA	NA				NOTE 7

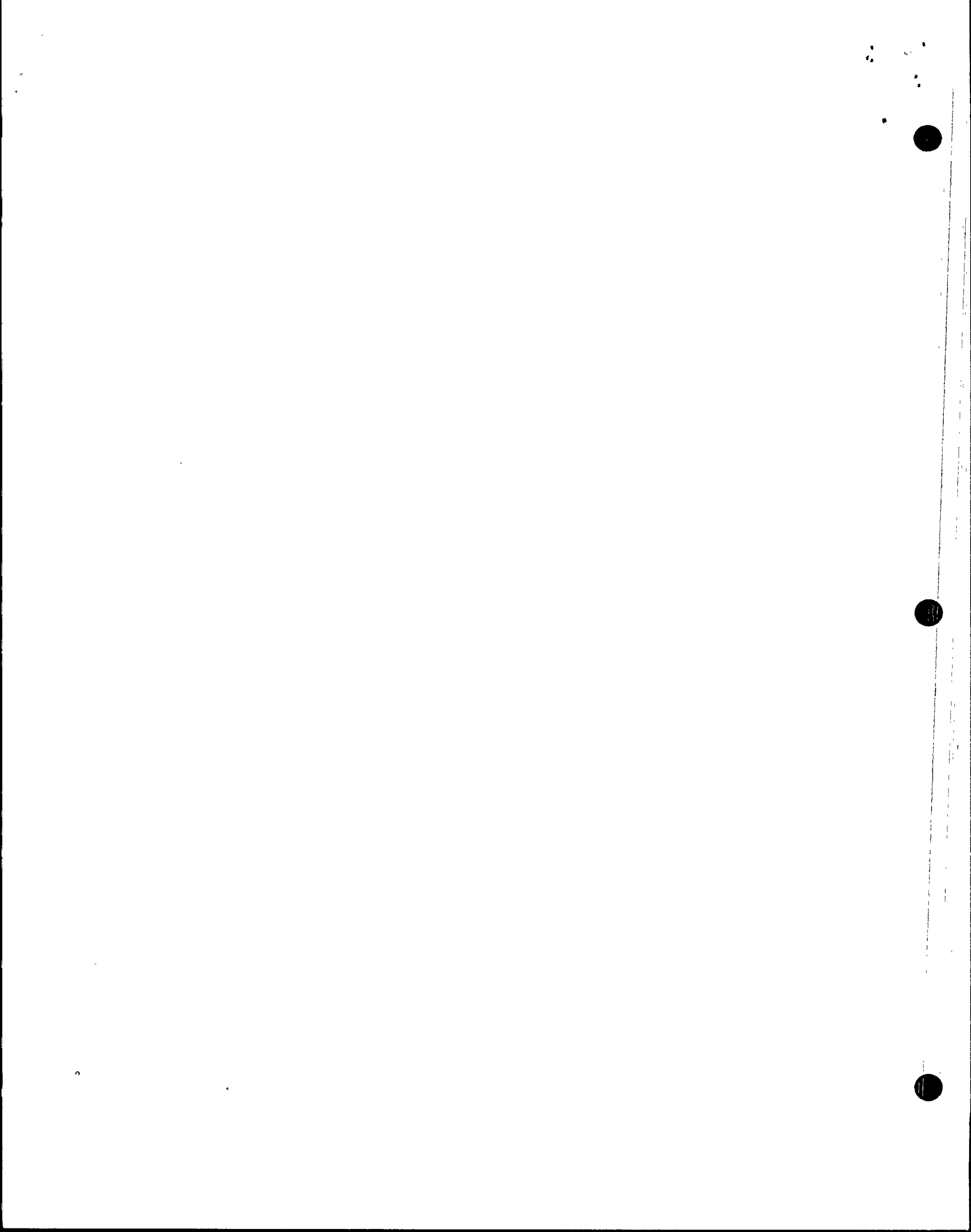


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INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

Power
Production
Engineering

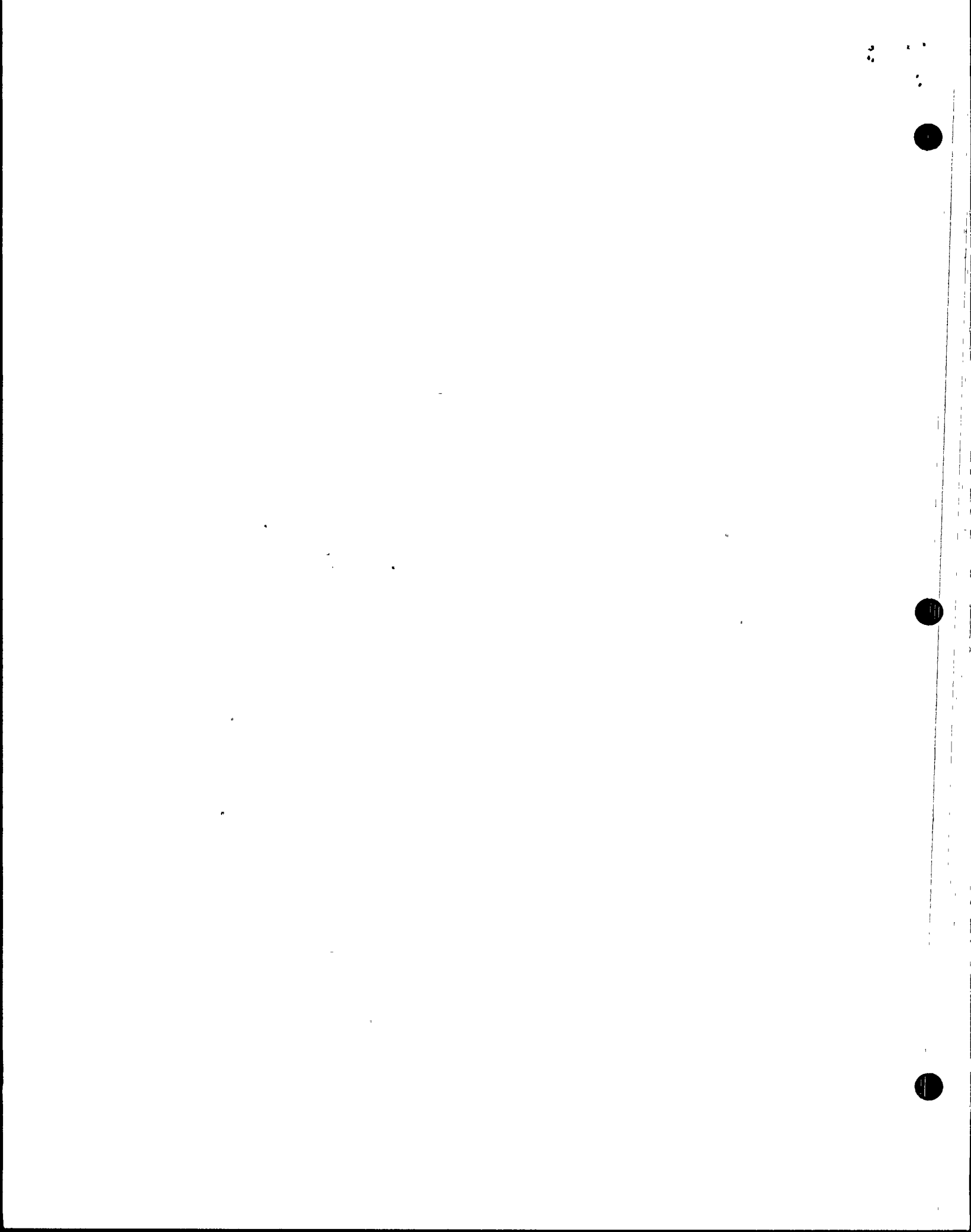
SYSTEM										P & ID		REVISION - DATE		PAGE	
CHEMICAL AND VOLUME CONTROL										CHP-002		1 2/82		15 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS		
V188	D7	2	C	3"	CK	SA	C	NA	NA				NOTE 7		
V190	B5	2	C	3"	CK	SA	C	C	NA				NOTE 3		
V197	F14	2	C	1"	CK	SA	C	C	NA				NOTE 3		
V198	F14	2	B	1"	GL	M	O	O	NA				NOTE 3		
(PC)V215	A11	3	B	3"	DIA	M	C	C	NA				NOTE 3		
V305	B15	2	C	20"	CK	SA	C	O	PST FST	OP RF		VRR-1			
V306	C13	2	C	20"	CK	SA	C	O	PST FST	OP RF		VRR-1			
V316	B4	2	B	4"	DIA	M	O	O	NA				NOTE 3		



INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

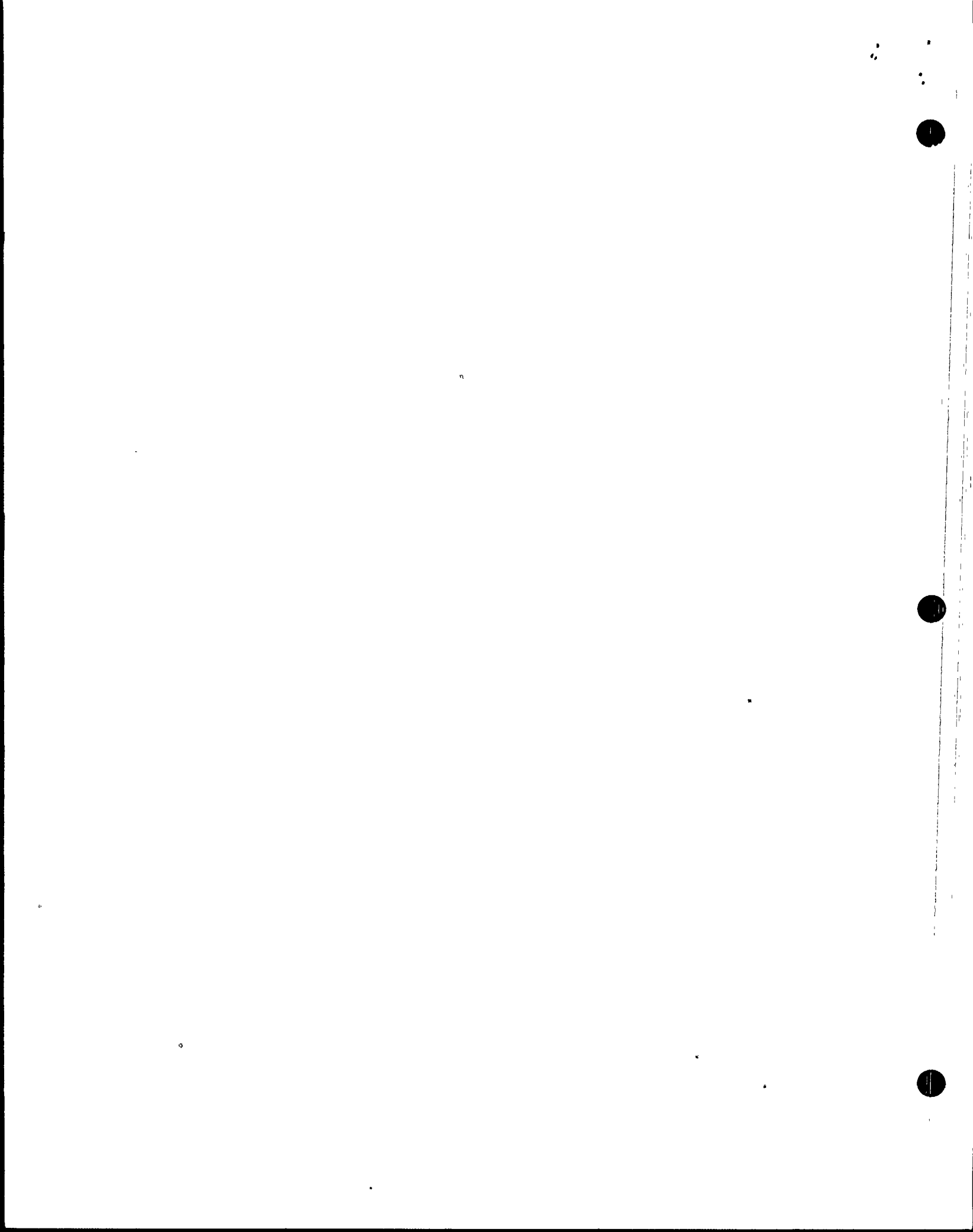
SYSTEM CHEMICAL AND VOLUME CONTROL										P & ID CHP-002	REVISION - DATE 1 2/82	PAGE 16 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
V317	B3	2	B	3/4"	DIA	M	C	C	NA				NOTE 3
V319	D4	2	B	4"	DIA	M	O	O	NA				NOTE 3
V320	D3	2	B	3/4"	GL	M	C	C	NA				NOTE 3
V322	F4	2	B	4"	DIA	M	O	O	NA				NOTE 3
V323	F3	2	B	3/4"	GL	M	C	C	NA				NOTE 3
V327	B4	2	B	3"	GA	M	C	C	NA				NOTE 3
V328	B2	2	C	2"	CK	SA	O	O	NA				NOTE 3
V329	B2	2	B	3/4"	GL	M	C	C	NA				NOTE 3
V331	C-2	2	C	2"	CK	SA	O	O	NA				NOTE 3

(1)



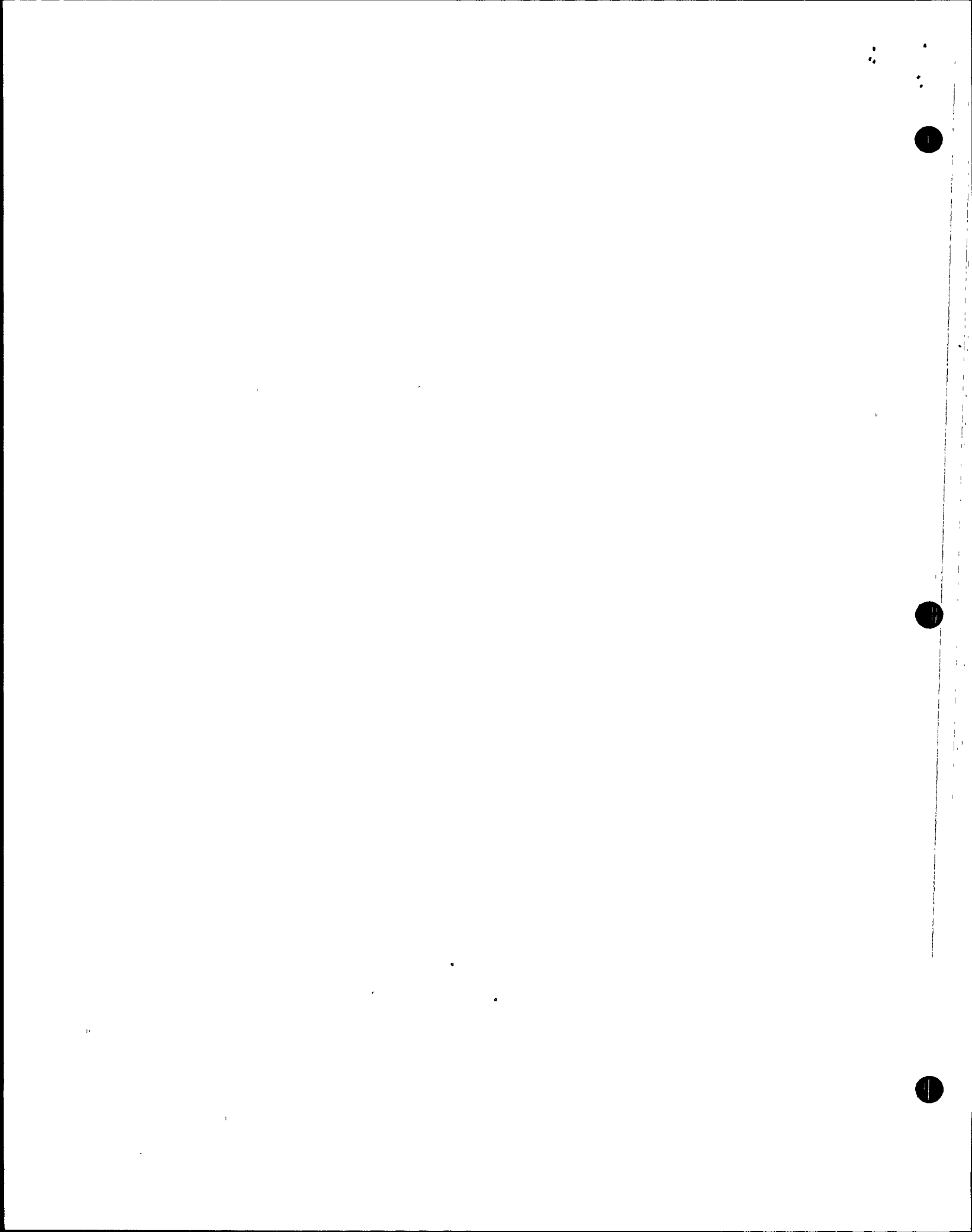
INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

SYSTEM										P & ID		REVISION - DATE		PAGE	
CHEMICAL AND VOLUME CONTROL										CHP-002		1 2/82		17 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS		
(1) V332	D2	2	B	3/4"	GL	M	C	C	NA				NOTE 3		
V334	G2	2	C	2"	CK	SA	O	O	NA				NOTE 3		
V335	G1	2	B	2"	GA	M	O	O	NA				NOTE 3		
1) V336	F2	2	B	3/4"	GL	M	C	C	NA				NOTE 3		
V337	D1	2	B	2"	GA	M	O	O	NA				NOTE 3		
V339	B1	2	B	2"	GA	M	O	O	NA				NOTE 3		
V440	C2	2	C	2"	CK	SA	C	C	NA				NOTE 3		
V645	E6	2	B	1"	DIA	M	O	O	NA				NOTE 3		
V646	F13	2	C	1"	CK	SA	O	NA	NA				NOTE 7		
V647	E14	2	C	3"	CK	SA	C	NA	NA				NOTE 7		



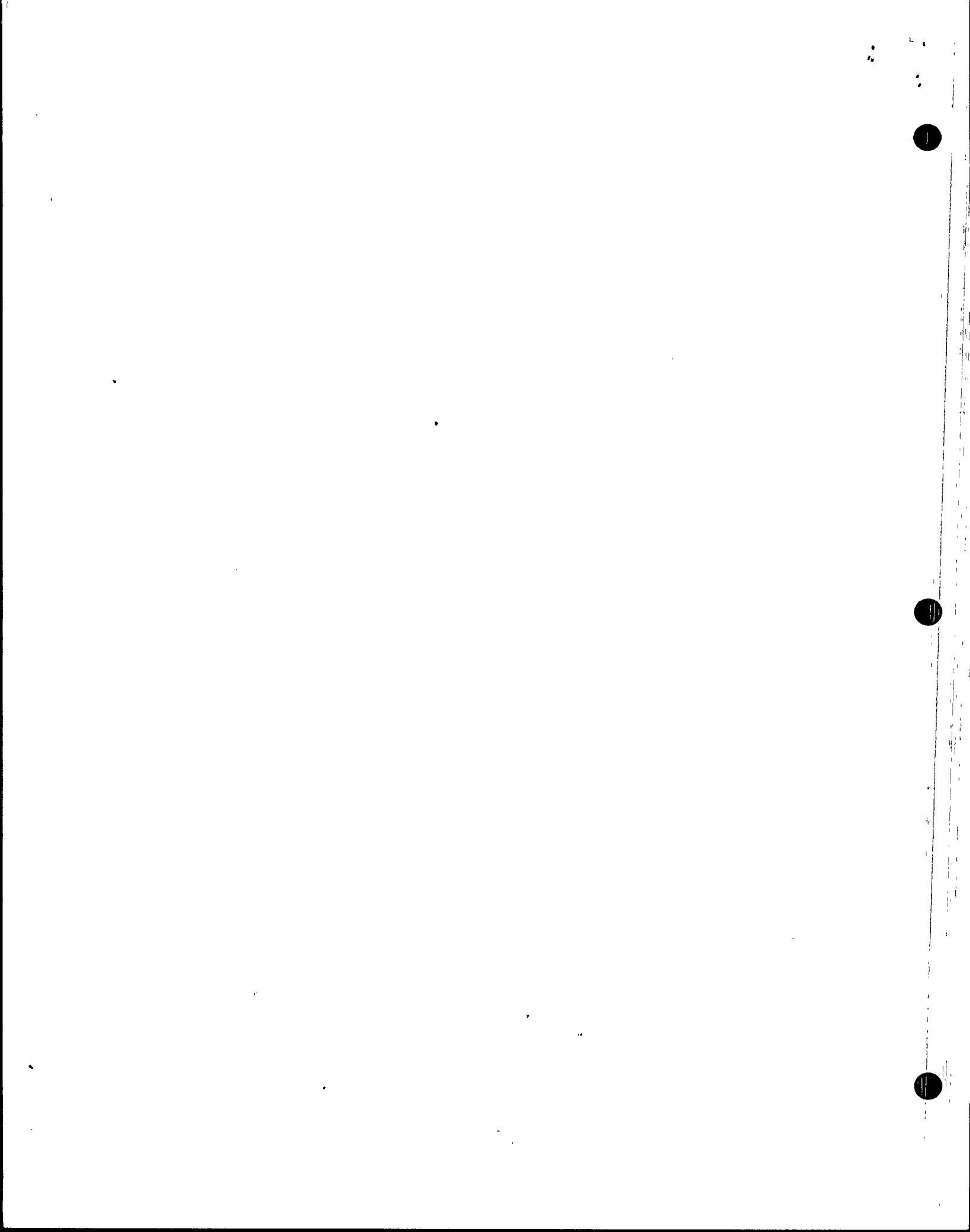
INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

SYSTEM CHEMICAL AND VOLUME CONTROL										P & ID CHP-002	REVISION - DATE 1 2/82	PAGE 18 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
V649	D10	3	B	3"	DIA	M	C	C	NA				NOTE 3
V653	B10	3	B	2"	DIA	M	O	O	NA				NOTE 3
V668	C8	3	C	2"	CK	SA	C	NA	NA				NOTE 7
V753	A12	3	B	3"	DIA	M	C	C	NA				NOTE 3
V755	C4	2	B	3"	DIA	M	C	C	NA				NOTE 3
V756	E4	2	B	3"	DIA	M	C	C	NA				NOTE 3
V757	F4	3	B	3"	DIA	M	C	C	NA				NOTE 3
V795	C2	2	B	2"	GA	M	C	C	NA				NOTE 3



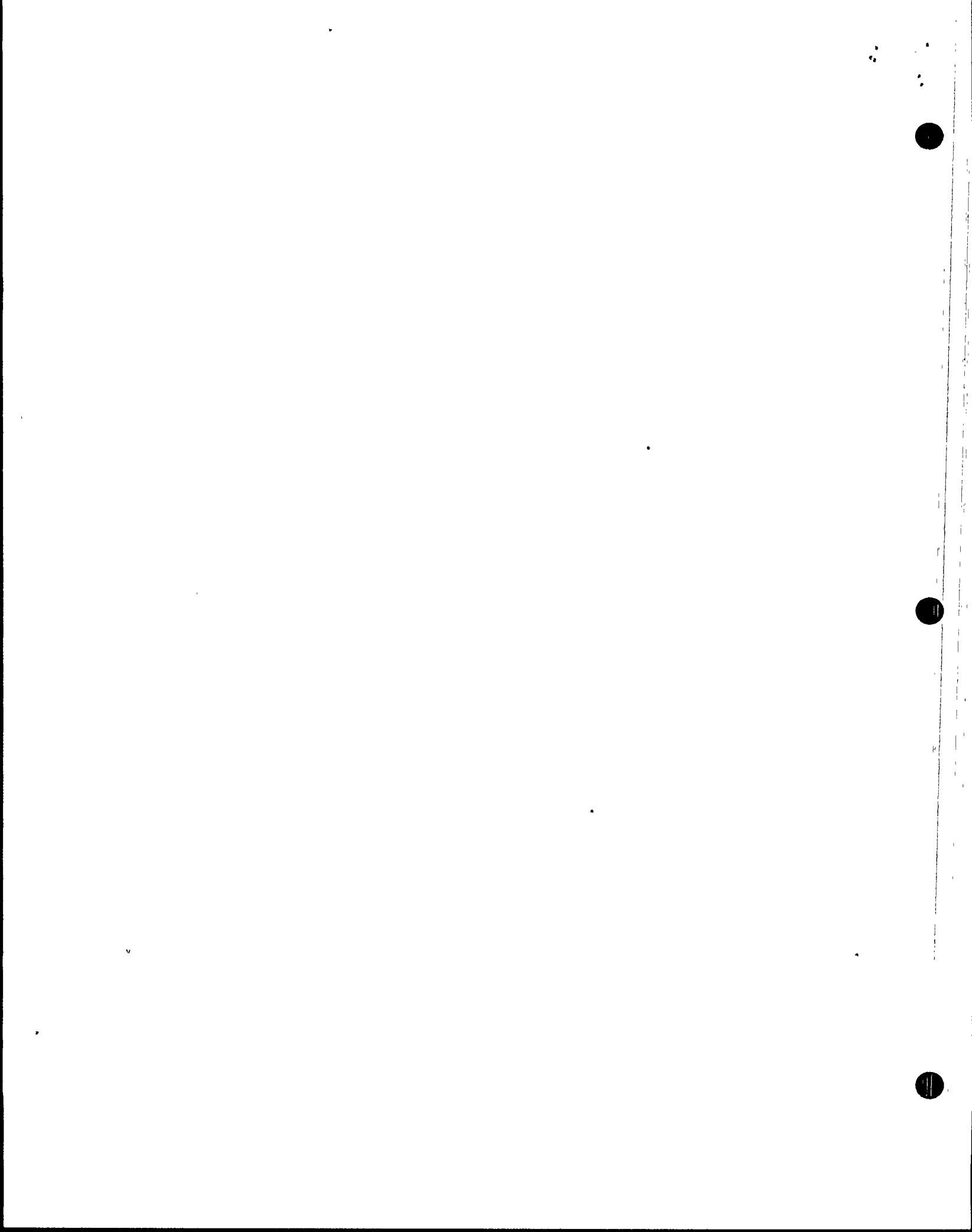
INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

SYSTEM CHEMICAL AND VOLUME CONTROL										P & ID CHP-002	REVISION - DATE 1 2/82	PAGE 19 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
V797	E2	2	B	2"	GA	M	C	C	NA				NOTE 3
V798	F2	2	B	2"	GA	M	C	C	NA				NOTE 3
V946	C12	3	B	1"	GL	M	C	C	NA				NOTE 3
VM43	F15	2	B	1"	GL	M	O	O	NA				NOTE 3
VX47	C15	2	B	3"	GL	M	C	C	NA				NOTE 3
FV210Y	B9	3	B	1½"	PL	AO	O	NA	NA				NOTE 7
HV507	H15	2	B	3/4"	GL	AO	O	O	NA				NOTE 3
HV513	E6	2	B	½"	DIA	AO	C	C	NA				NOTE 3



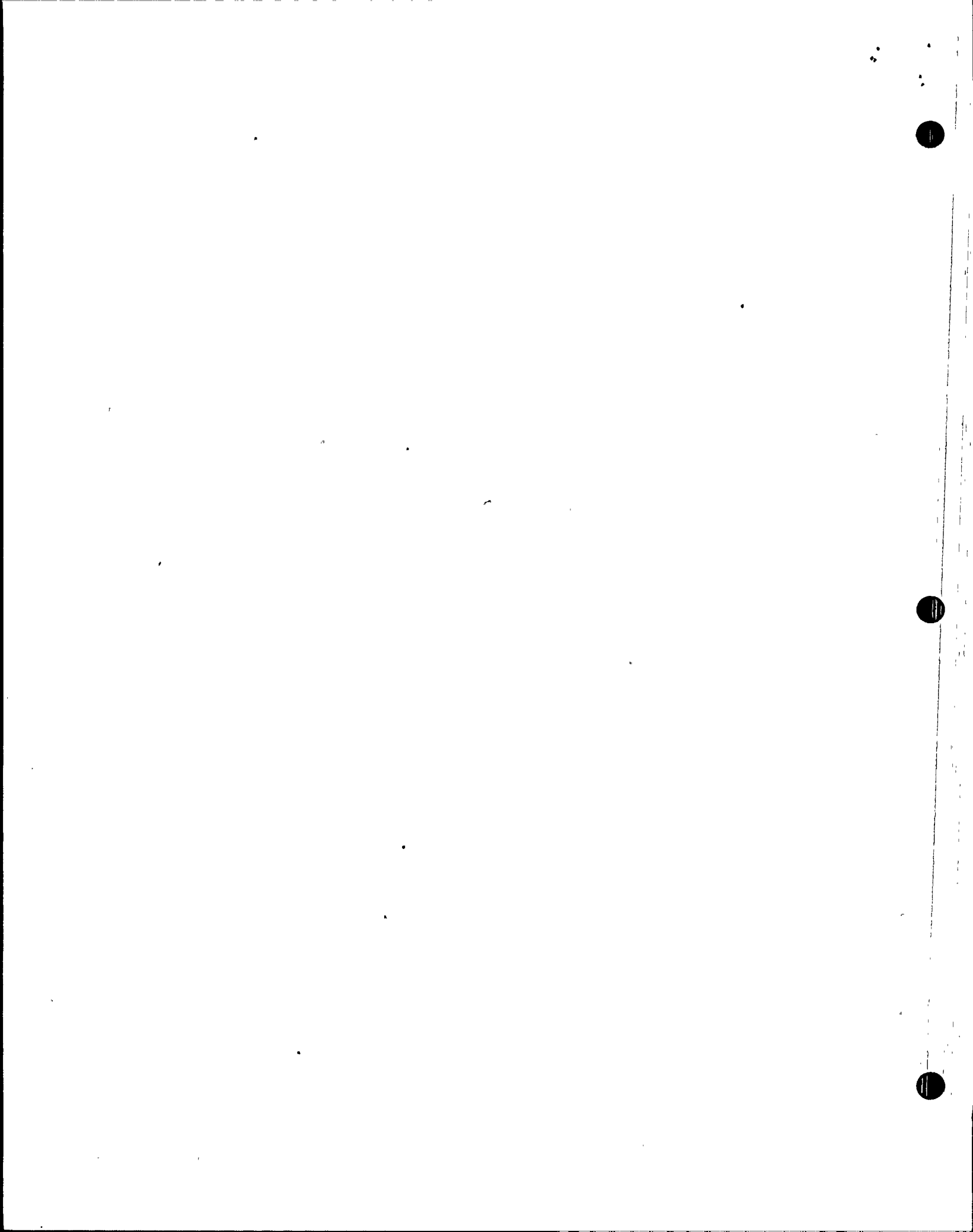
INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

SYSTEM CHEMICAL AND VOLUME CONTROL										P & ID CHP-002	REVISION - DATE 1 2/82		PAGE 20 of 118
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
HV530	B15	2	B	20"	GA	MO	O	O	NA				NOTE 3
HV531	C14	2	B	20"	GA	MO	O	O	NA				NOTE 3
HV532	C15	2	B	3"	GL	AO	O	O	NA				NOTE 3
(1) HV536	B14	3	B	3"	GL	MO	C	C	NA				NOTE 3 (was V141)
UV501	C6	2	B	4"	GA	MO	O	NA	NA				NOTE 7
UV505	F14	2	A	1"	GL	AO	O	C	AJLT FST F-T -VPI	RF OP OP RF	5s		NOTE 10
UV506	F15	2	A	1"	GL	AO	O	C	AJLT FST F-T VPI	RF OP OP RF	5s		NOTE 10
UV510	D12	3	B	3"	DIA	AO	C	C	NA				NOTE 3



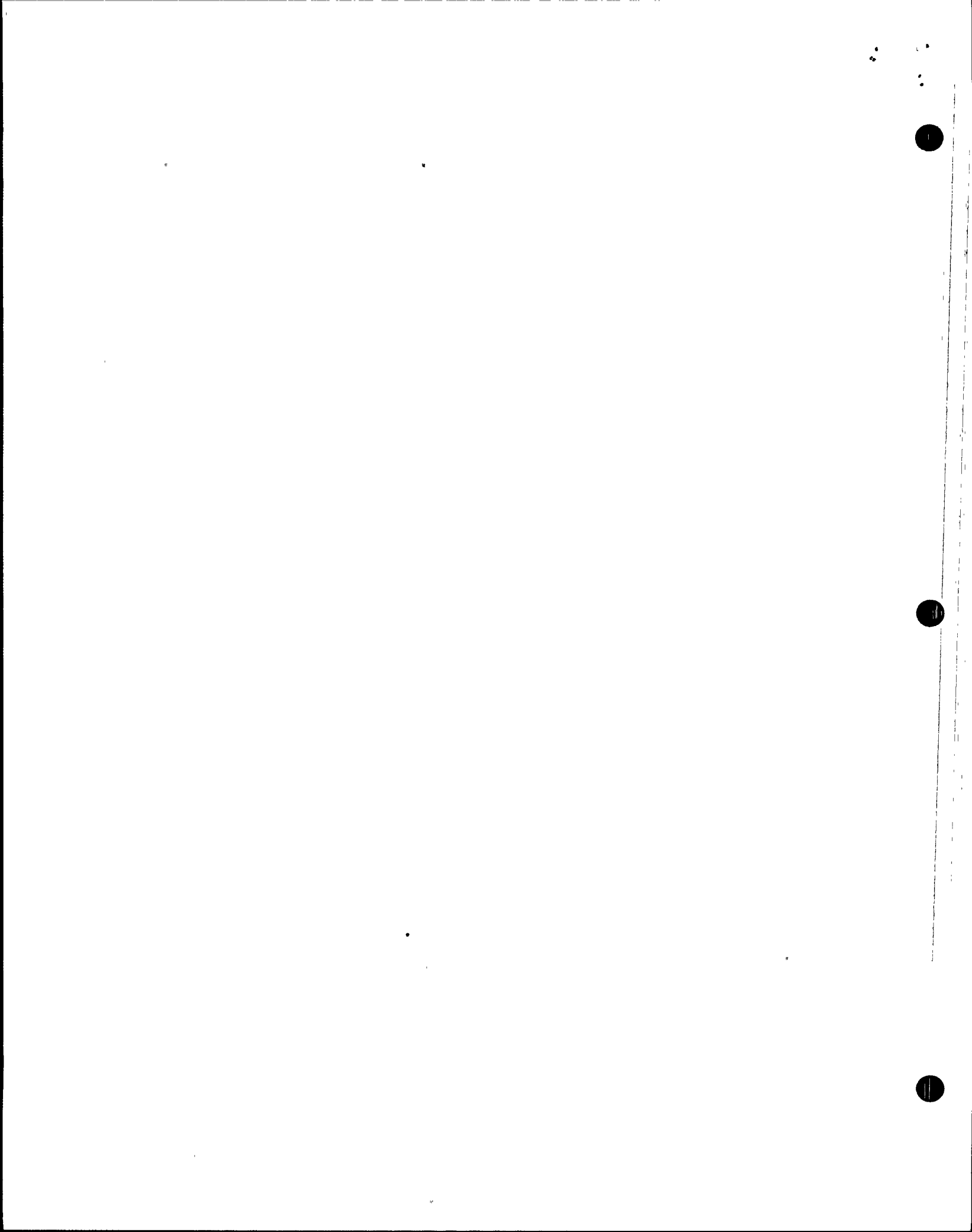
INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

SYSTEM CHEMICAL AND VOLUME CONTROL										P & ID CHP-002	REVISION-DATE 1 2/82	PAGE 21 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
UV512	D7	3	B	3"	DIA	AO	C	NA	NA				NOTE 7
UV514	B10	3	B	3"	GL	MO	C	NA	NA				NOTE 7
UV527	C7	3	B	3"	GA	AO	C	NA	NA				NOTE 7
PSV115	D6	2	C	3"	PSV	SA	C	C	NA				NOTE 3
PSV199	H15	2	C	3/4"	PSV	SA	C	C	NA				NOTE 3
PSV315	C3	2	C	3/4"	PSV	SA	C	C	NA				NOTE 3
PSV318	F3	2	C	3/4"	PSV	SA	C	C	NA				NOTE 3
PSV321	H3	2	C	3/4"	PSV	SA	C	C	NA				NOTE 3



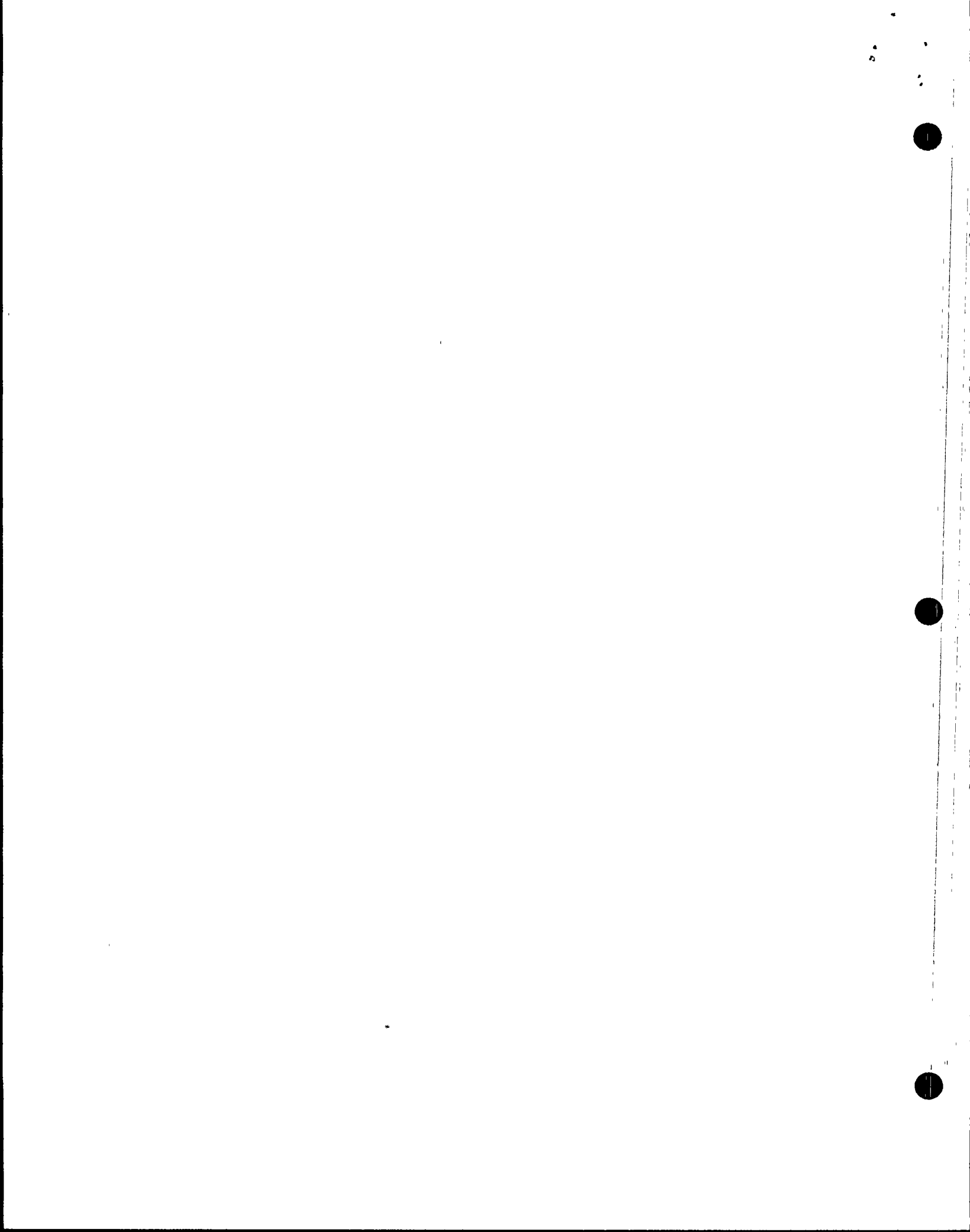
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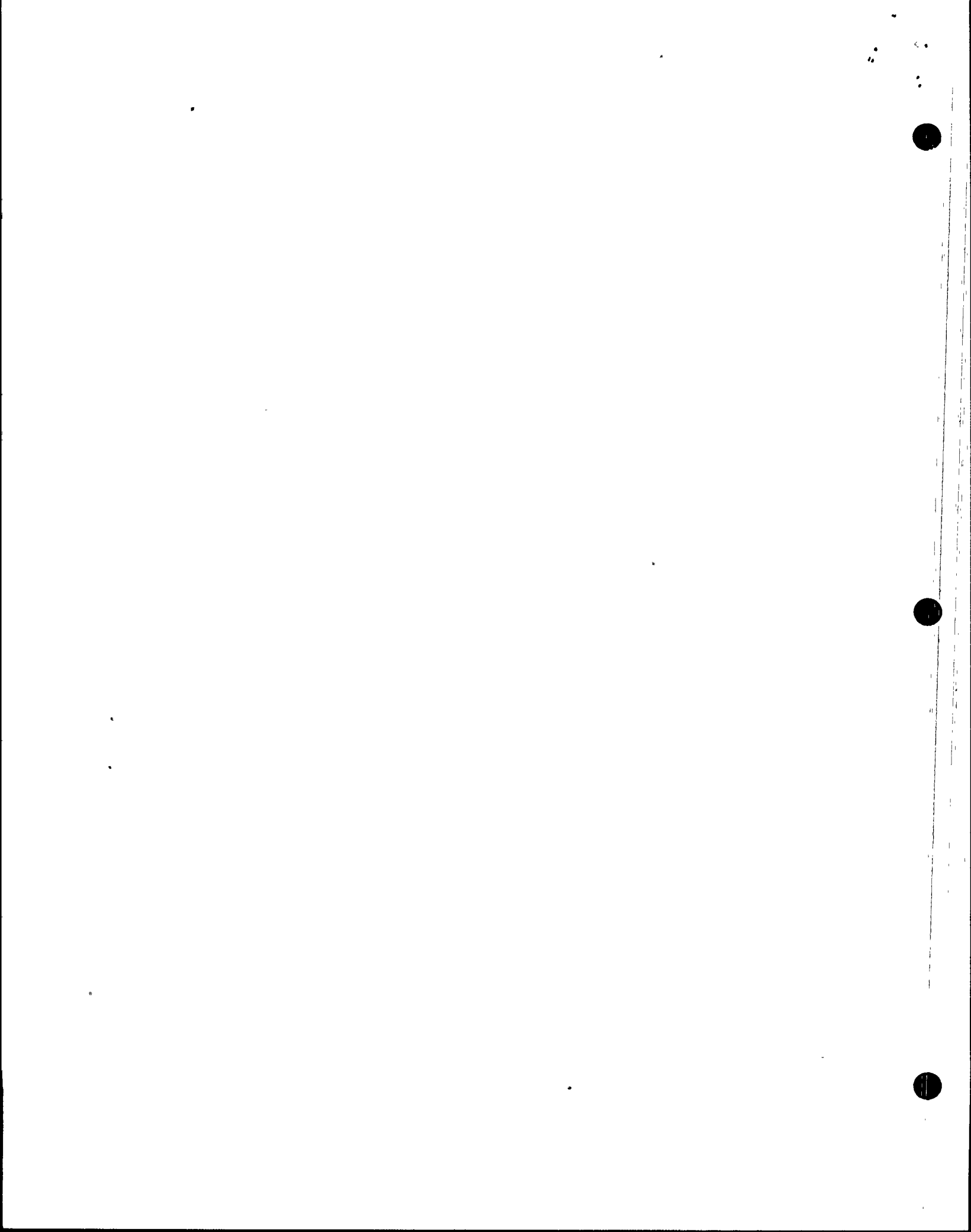
INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

SYSTEM CONTAINMENT PURGE										P & ID CPP-001	REVISION - DATE 1 2/82	PAGE 24 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
UV2A	D6	2	A	42"	BTF	MO	C	C	AJLT	RF			NOTES 1, 9
UV2B	E3	2	A	42"	BTF	MO	C	C	AJLT	RF			NOTES 1, 9
UV3A	D5	2	A	42"	BTF	MO	C	C	AJLT	RF			NOTES 1, 9
UV3B	E2	2	A	42"	BTF	MO	C	C	AJLT	RF			NOTES 1, 9
UV4A	D6	2	A	8"	BTF	MO	C	C	AJLT	RF			NOTES 1, 9
UV4B	D3	2	A	8"	BTF	MO	C	C	AJLT	RF			NOTES 1, 9
UV5A	D5	2	A	8"	BTF	MO	C	C	AJLT	RF			NOTES 1, 9
UV5B	D2	2	A	8"	BTF	MO	C	C	AJLT	RF			NOTES 1, 9



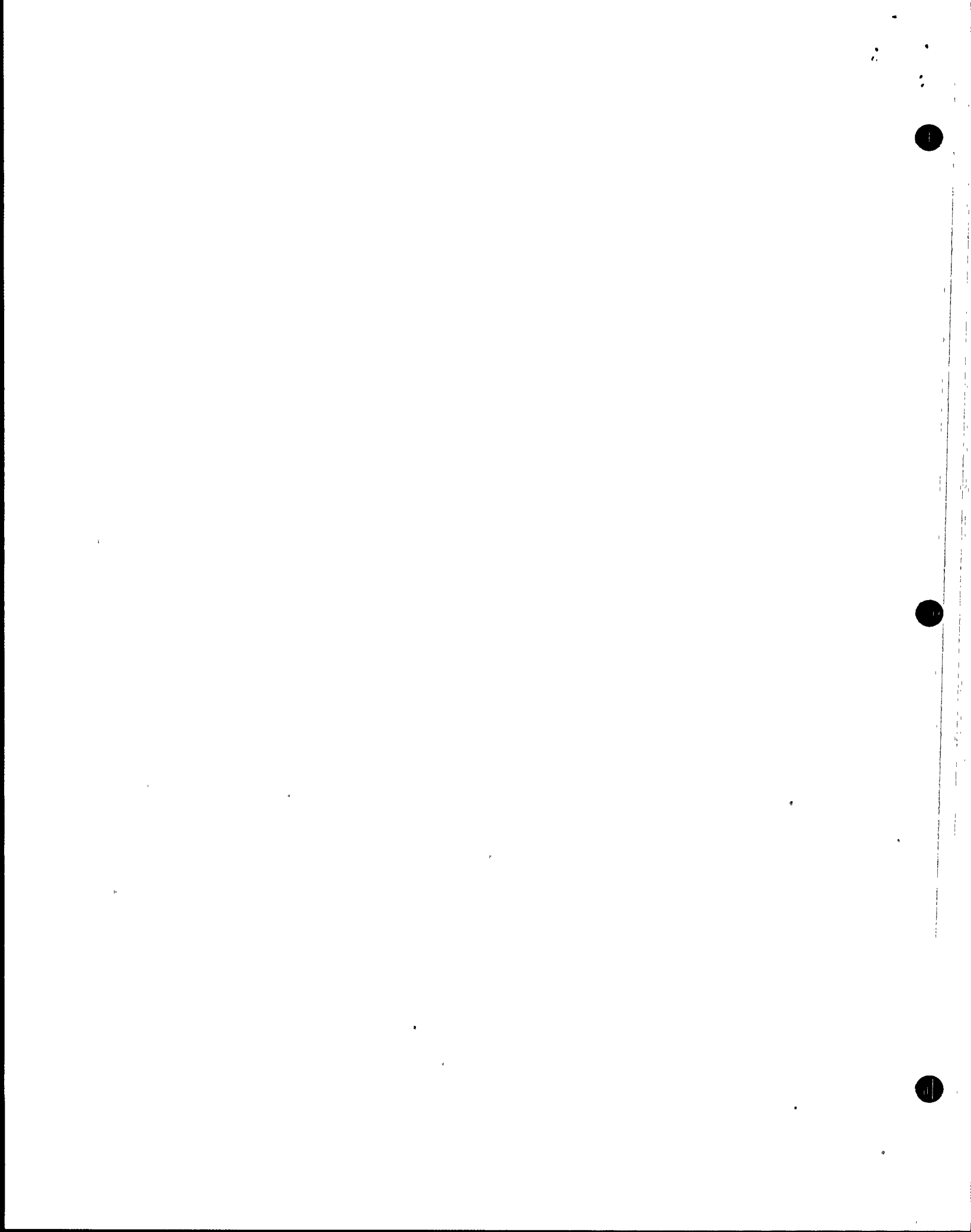
INSERVICE TESTING PROGRAM
 ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

SYSTEM CONDENSATE STORAGE AND TRANSFER										P & ID CTP-001	REVISION - DATE 1 2/82	PAGE 25 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
V009	D-7	3	B	6"	GA	M	C	C	NA				NOTE 3
V014	D-7	3	B	8"	GA	M	O	O	NA				NOTE 3
V015	D-4	3	B	8"	GA	M	O	O	NA				NOTE 3
V016	C-4	3	C	3"	CK	SA	C	O	FST	OP			NOTE 12
V017	C-4	3	B	3"	GA	M	O	O	NA				NOTE 3
V018	C-3	3	B	3"	GA	M	C	C	NA				NOTE 3
V019	B-3	3	B	3"	GA	M	C	C	NA				NOTE 3
V020	A-4	3	C	3"	CK	SA	C	O	FST	OP			NOTE 12



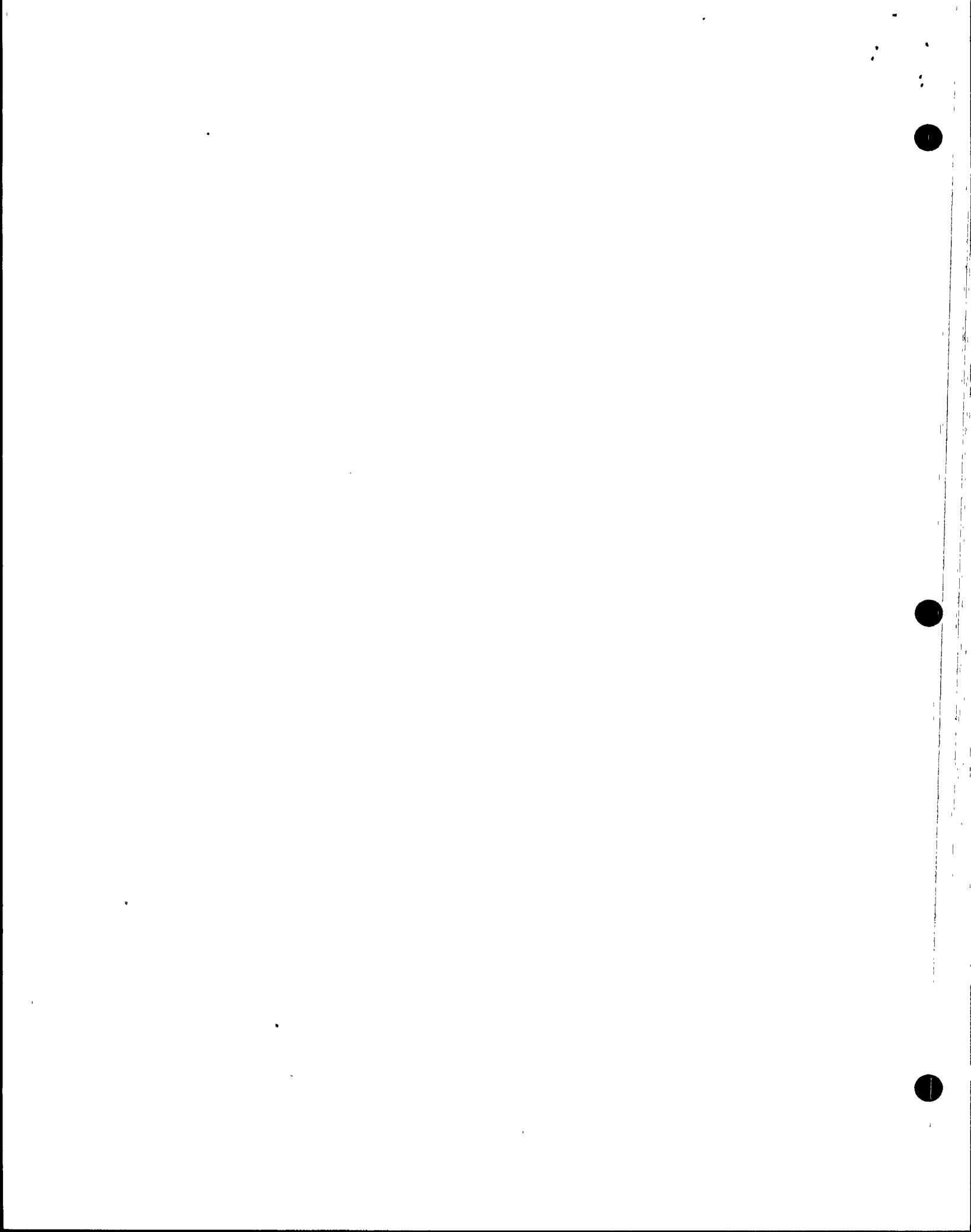
INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

SYSTEM CONDENSATE STORAGE AND TRANSFER										P & ID CTP-001	REVISION - DATE 1 2/82		PAGE 26 of 118
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
V021	A-4	3	B	3"	GA	M	O	O	NA				NOTE 3
V022	A-6	3	B	3"	GA	M	O	O	NA				NOTE 3
V023	C-6	3	B	3"	GA	M	O	O	NA				NOTE 3
V028	C-3	3	B	1"	GA	M	O	O	NA				NOTE 3
V029	B-4	3	B	1"	GA	M	O	O	NA				NOTE 3
V033	C-4	3	B	3"	GL	M	C	C	NA				NOTE 3
V037	C-4	3	C	3"	CK	SA	C	C	NA				NOTE 3
V038	B-4	3	C	3"	CK	SA	C	C	NA				NOTE 3



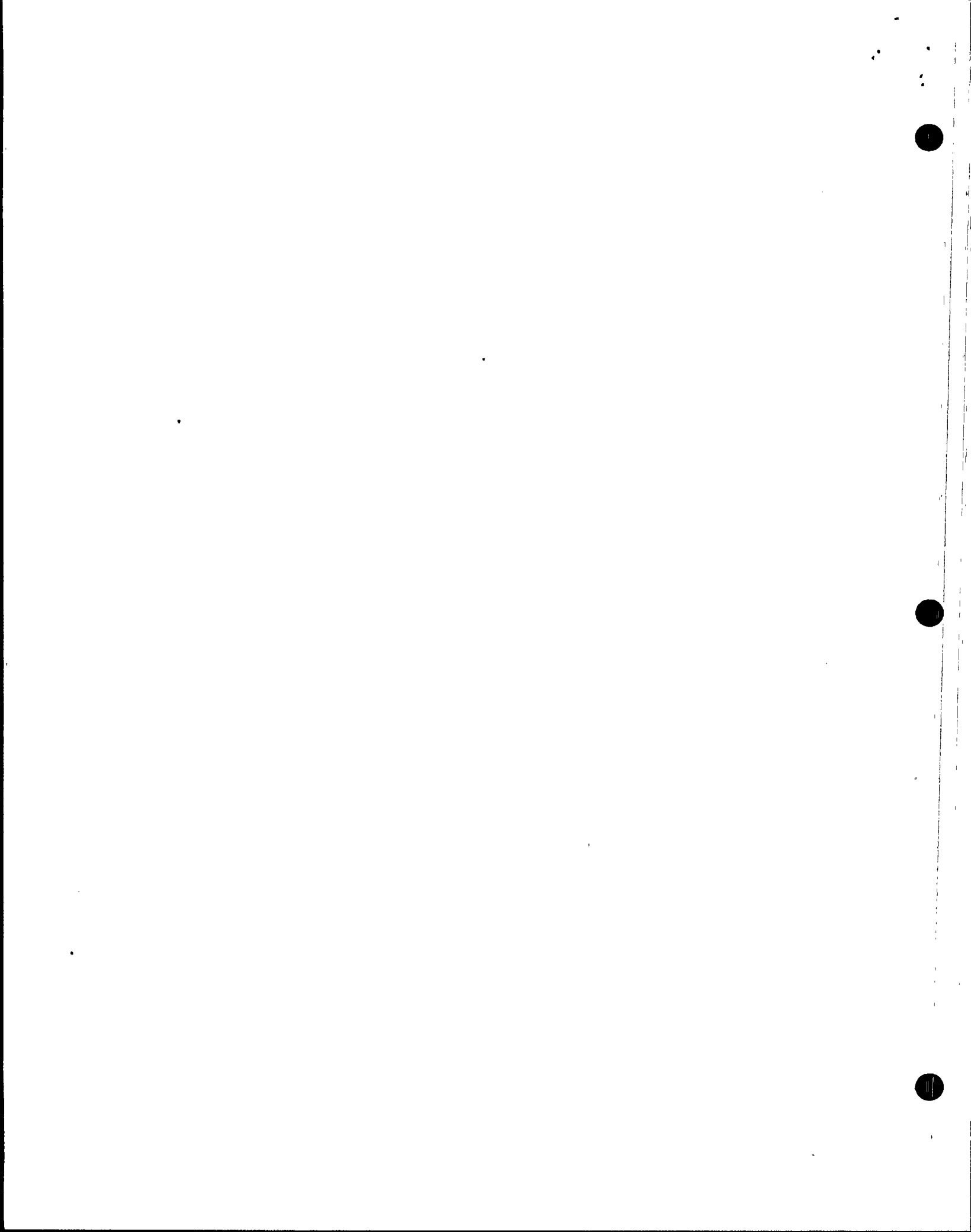
INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

SYSTEM CONDENSATE STORAGE AND TRANSFER										P & ID CTP-001		REVISION - DATE 1 2/82		PAGE 27 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS.		
V042	B-4	3	B	3"	GL	M	C	C	NA				NOTE 3		
V055	D-7	3	B	6"	GA	M	C	C	NA				NOTE 3		
(AF) V077	F-3	3	B	6"	GA	M	O	O	NA				NOTE 3		
(AF) V078	F-3	3	B	6"	GA	M	O	O	NA				NOTE 3		
HV 1	D-2	3	B	10"	BTF	MO	C	C	NA				NOTE 3		
HV 4	D-2	3	B	10"	BTF	MO	C	C	NA				NOTE 3		
PSV 8	G-6	3	C	10"	RV	SA	C	C	NA				NOTE 3		
PSV 23	G-5	3	C	10"	RV	SA	C	C	NA				NOTE 3		



INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

SYSTEM DIESEL FUEL OIL AND TRANSFER										P & ID DFP-001	REVISION - DATE 1 2/82	PAGE 28 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
V003	H6	3	B	2"	GA	M	O	O	NA				NOTE 3
V007	G7	3	B	2"	GA	M	O	O	NA				NOTE 3
V008	G7	3	B	2"	GA	M	O	O	NA				NOTE 3
V012	D6	3	C	2"	CK	SA	C	O	FST OP				
V013	D6	3	B	2"	GL	M	O	O	NA				NOTE 3
V014	D6	3	B	2"	GA	M	C	C	NA				NOTE 3
V015	D5	3	B	2"	GA	M	C	C	NA				NOTE 3
V018	D2	3	B	2"	GL	M	O	O	NA				NOTE 3



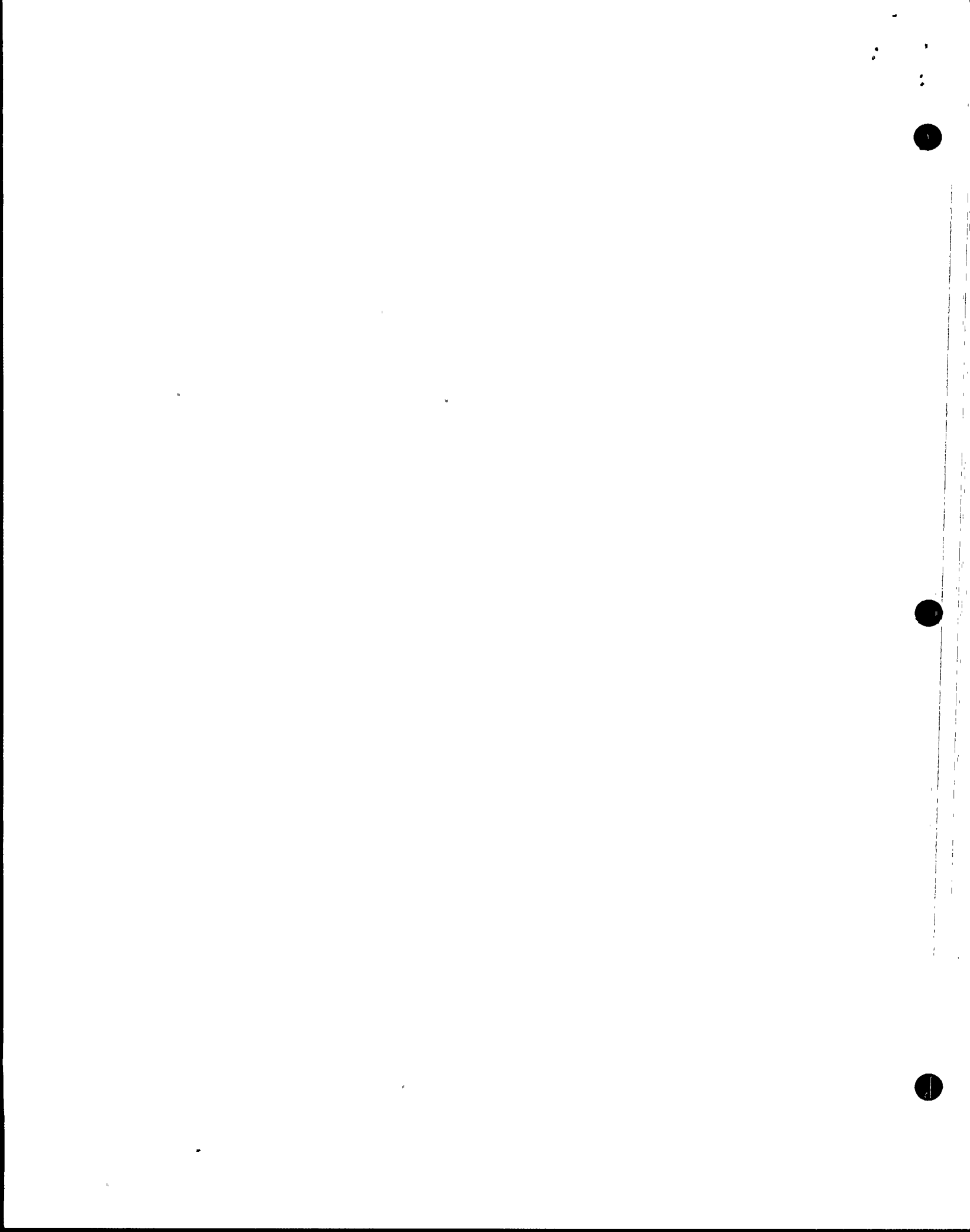
INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

SYSTEM DIESEL FUEL OIL AND TRANSFER										P & ID DFP-001	REVISION - DATE 1 2/82	PAGE 29 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
V019	D2	3	C	2"	CK	SA	C	O	FST	OP			
V020	D2	3	B	2"	GA	M	C	C	NA				NOTE 3
V021	D2	3	B	2"	GA	M	C	C	NA				NOTE 3
V028	G4	3	B	2"	GA	M	O	O	NA				NOTE 3
V030	G4	3	B	2"	GA	M	O	O	NA				NOTE 3
V032	H3	3	B	2"	GA	M	O	O	NA				NOTE 3
V078	C5	3	B	2½"	GA	M	O	O	NA				NOTE 3
V079	C1	3	B	2½"	GA	M	O	O	NA				NOTE 3



INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

SYSTEM DIESEL GENERATOR										P & ID DGP-001	REVISION - DATE 1 2/82		PAGE 30 of 118
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
V001	F-6	3	B	1"	GA	M	O	O	NA				NOTE 3
V003	F-7	3	C	2"	CK	SA	C	C	NA				NOTE 3
(1) V004	F-7	3	B	2"	GL	M	O	O	NA				NOTE 3
V006	E-7	3	C	2"	CK	SA	C	O	FST	OP			NOTE 12
V010	F-3	3	B	1"	GA	M	O	O	NA				NOTE 3
V012	F-4	3	C	2"	CK	SA	C	C	NA				NOTE 3
(1) V013	F-3	3	B	2"	GL	M	O	O	NA				NOTE 3
V015	E-4	3	C	2"	CK	SA	C	O	FST	OP			NOTE 12

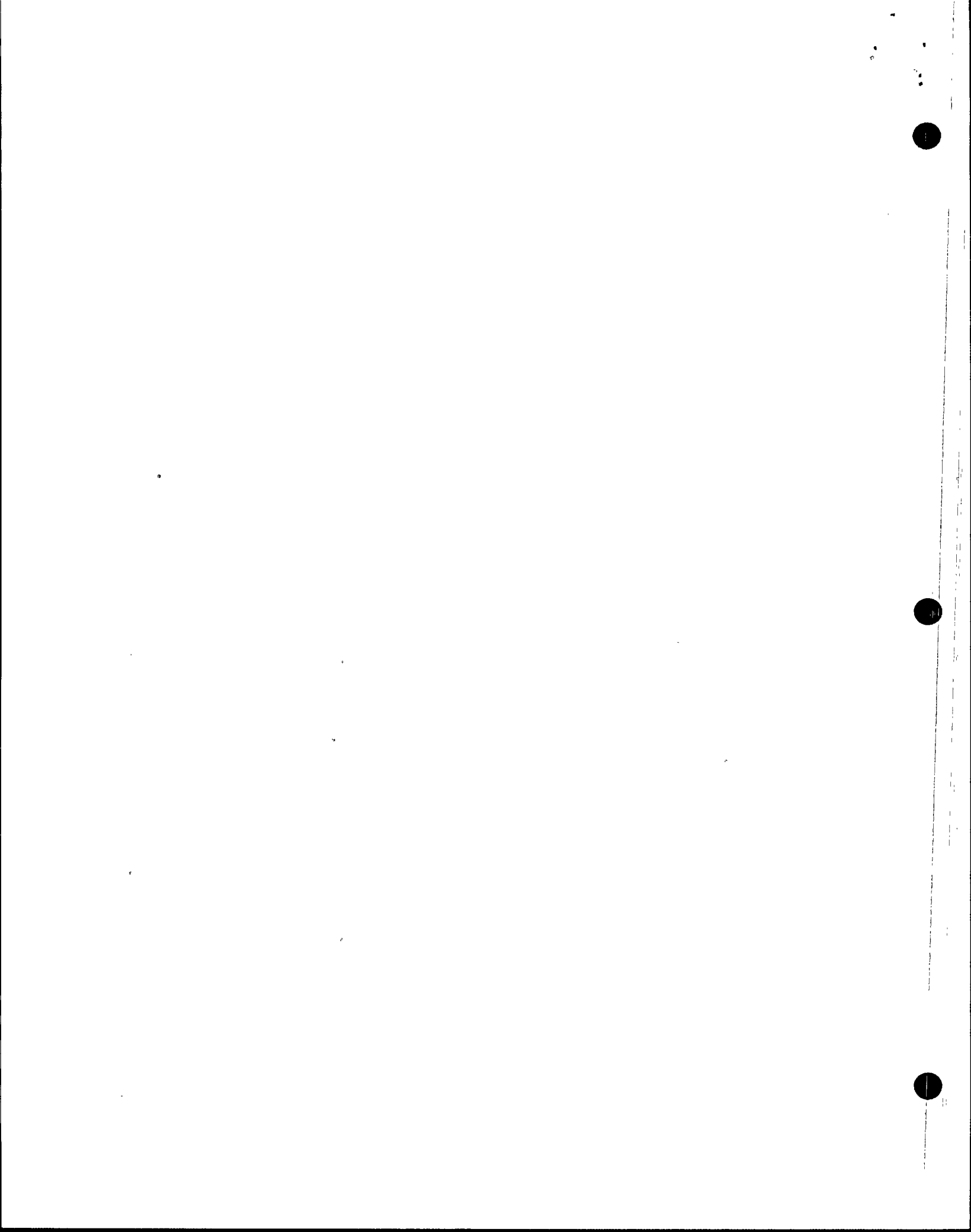


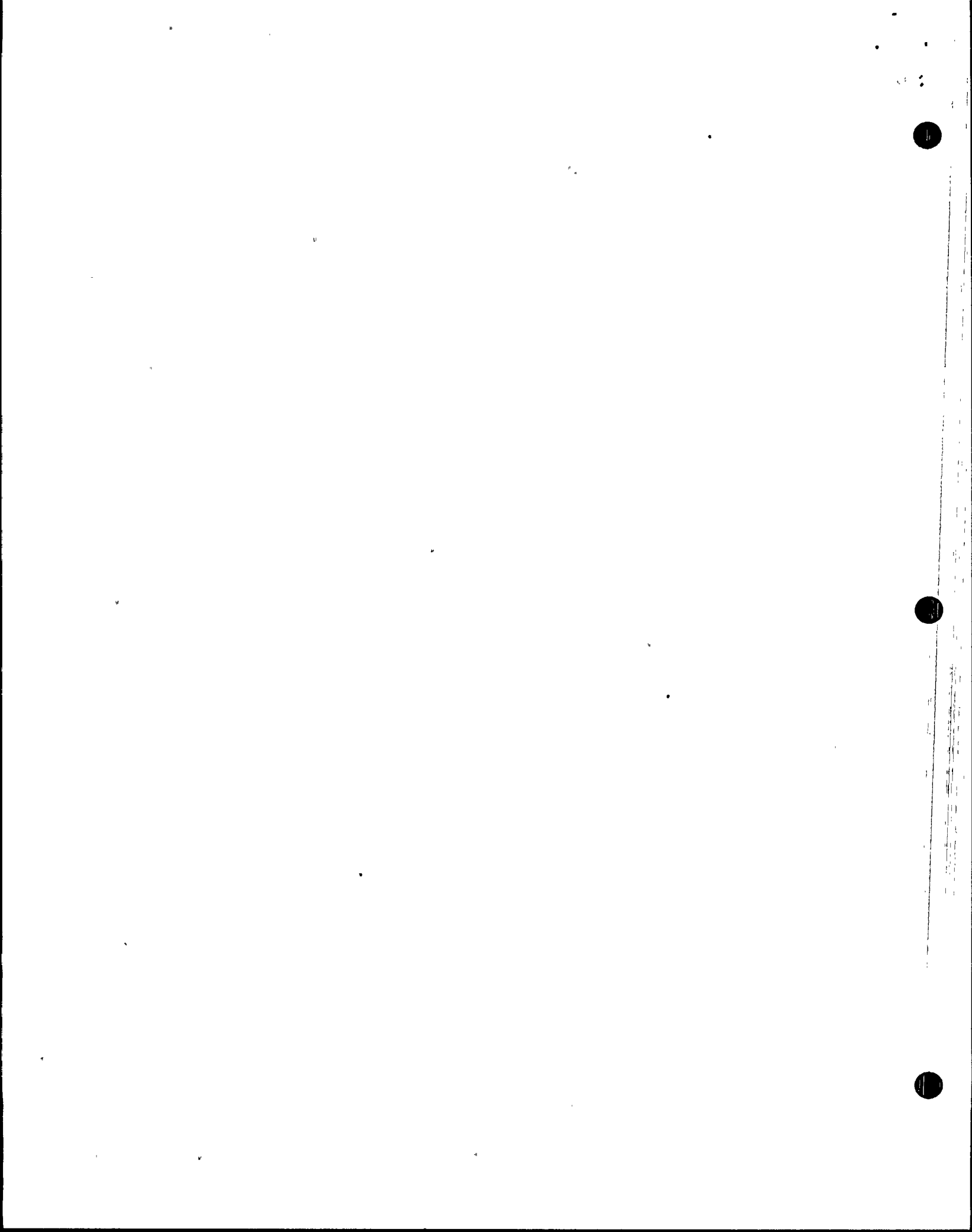
Arizona
Public
Service

INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

Power
Production
Engineering

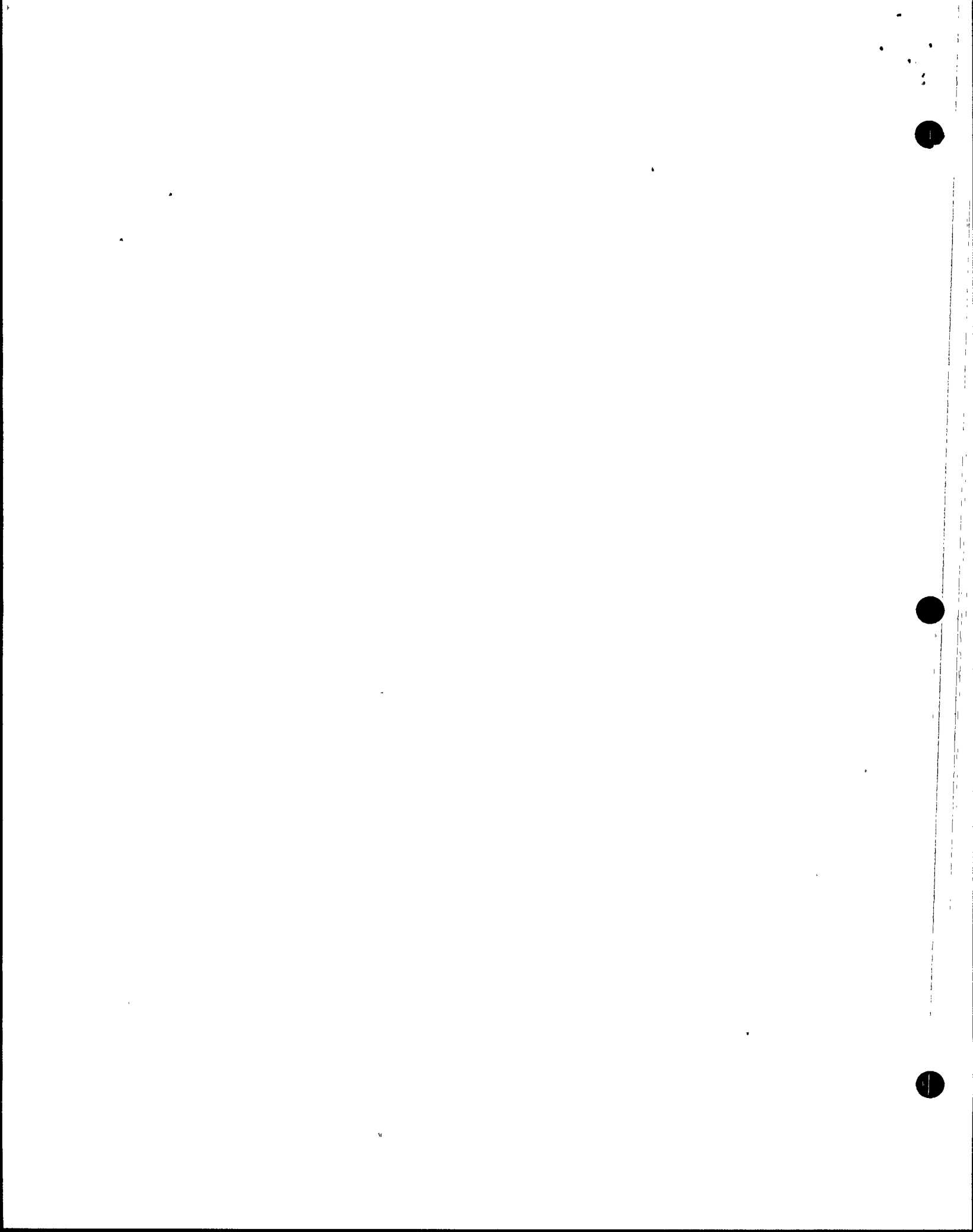
SYSTEM DIESEL GENERATOR										P & ID DGP-001	REVISION - DATE 1 2/82		PAGE 31 of 118
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
V024	E-7	3	B	2"	GA	M	O	O	NA				NOTE 3
V025	E-4	3	B	2"	GA	M	O	O	NA				NOTE 3
V046	F-7	3	B	1½"	GA	M	C	C	NA				NOTE 3
V047	F-4	3	B	1½"	GA	M	C	C	NA				NOTE 3
V063	E-6	3	B	1"	GL	M	C	C	NA				NOTE 3
V064	E-2	3	B	1"	GL	M	C	C	NA				NOTE 3
UV1	F-6	3	B	2"	GA	SO	C	O.	FST F T	OP OP			
UV2	F-2	3	B	2"	GA	SO	C	O	FST F T	OP OP			





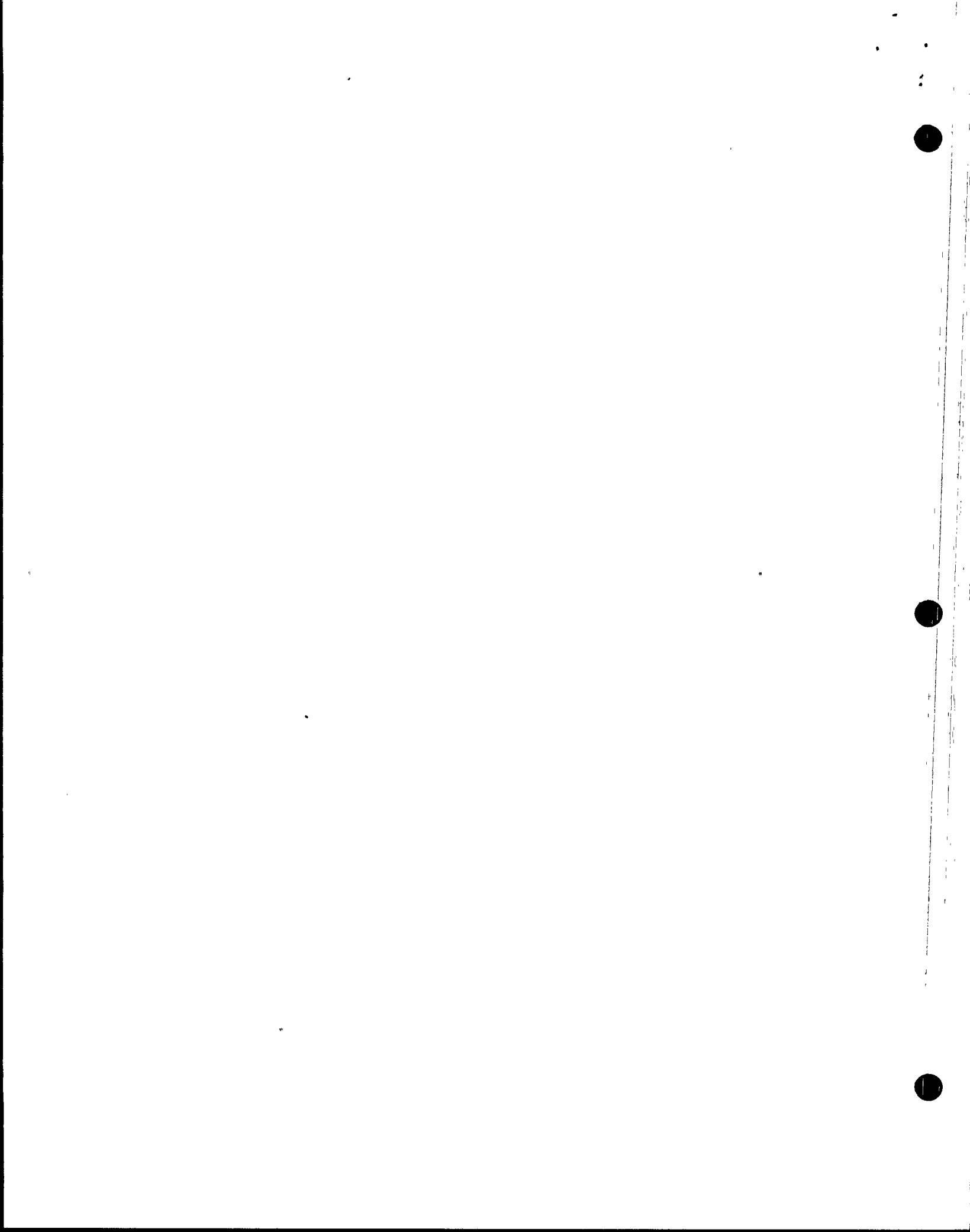
INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

SYSTEM ESSENTIAL CHILLED WATER										P & ID ECP-001	REVISION - DATE 1 2/82	PAGE 33 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
V001	F-7	3	B	1½"	GA	M	O	O	NA				NOTE. 3
V002	B-8	3	B	6"	GA	M	O	O	NA				NOTE 3
V004	F-6	3	B	2"	GA	M	O	O	NA				NOTE 3
V005	H-7	3	B	2"	GA	M	O	O	NA				NOTE 3
V006	H-6	3	B	2"	GA	M	O	O	NA				NOTE 3
V007	H-5	3	B	1½"	GA	M	O	O	NA				NOTE 3
V008	E-7	3	B	4"	GA	M	O	O	NA				NOTE 3
V009	E-5	3	B	2"	GA	M	O	O	NA				NOTE 3



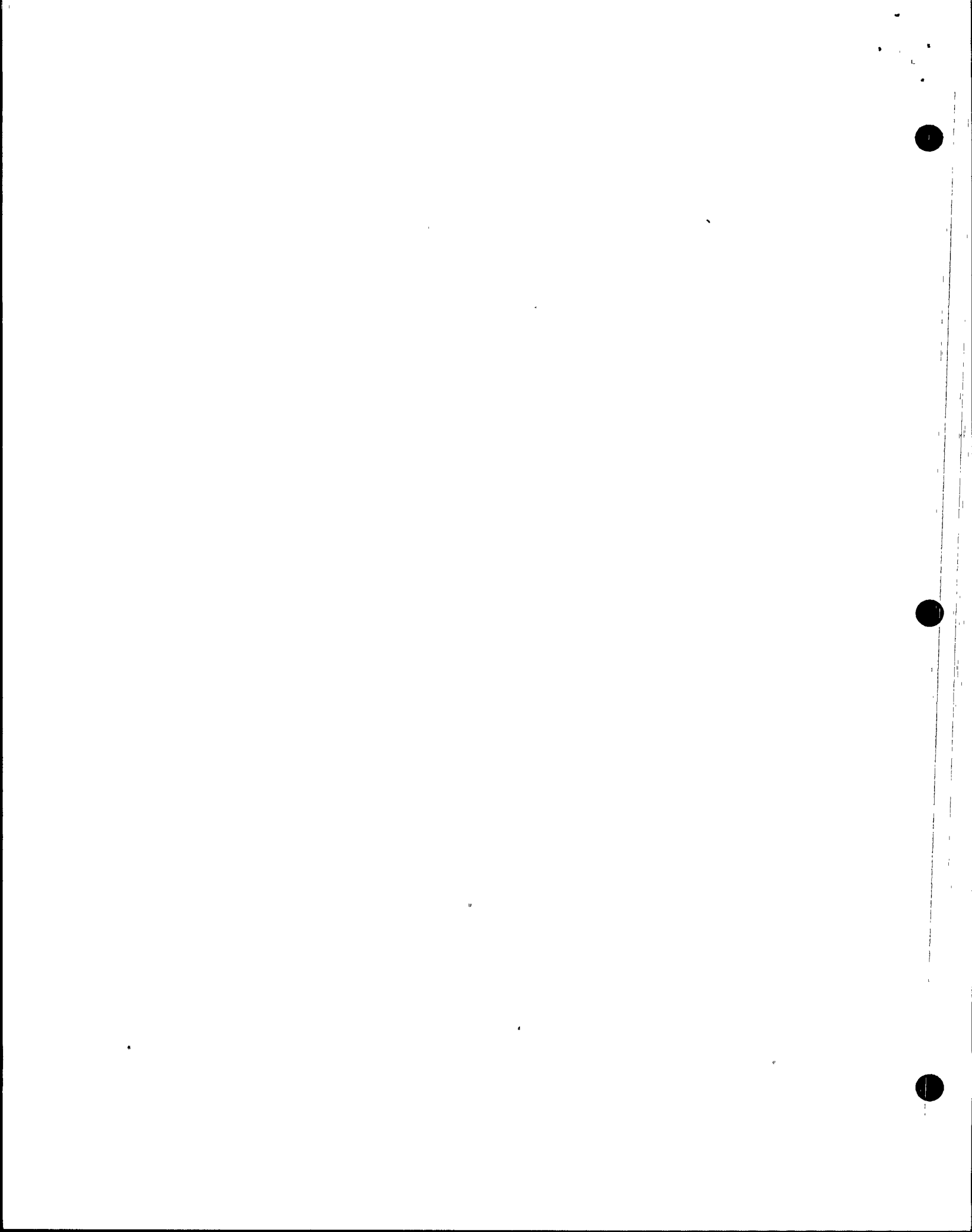
INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

SYSTEM										P & ID	REVISION	DATE	PAGE
ESSENTIAL CHILLED WATER										ECP-001	1	2/82	34 of 118
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
V011	B-5	3	B	6"	GA	M	O	O	NA				NOTE 3
V013	F-7	3	B	1½"	GA	M	O	O	NA				NOTE 3
V015	F-6	3	B	2"	GA	M	O	O	NA				NOTE 3
V016	H-7	3	B	2"	GA	M	O	O	NA				NOTE 3
V017	H-6	3	B	2"	GA	M	O	O	NA				NOTE 3
V018	H-5	3	B	1½"	GA	M	O	O	NA				NOTE 3
V019	E-7	3	B	4"	GA	M	O	O	NA				NOTE 3
V020	E-5	3	B	2"	GA	M	O	O	NA				NOTE 3



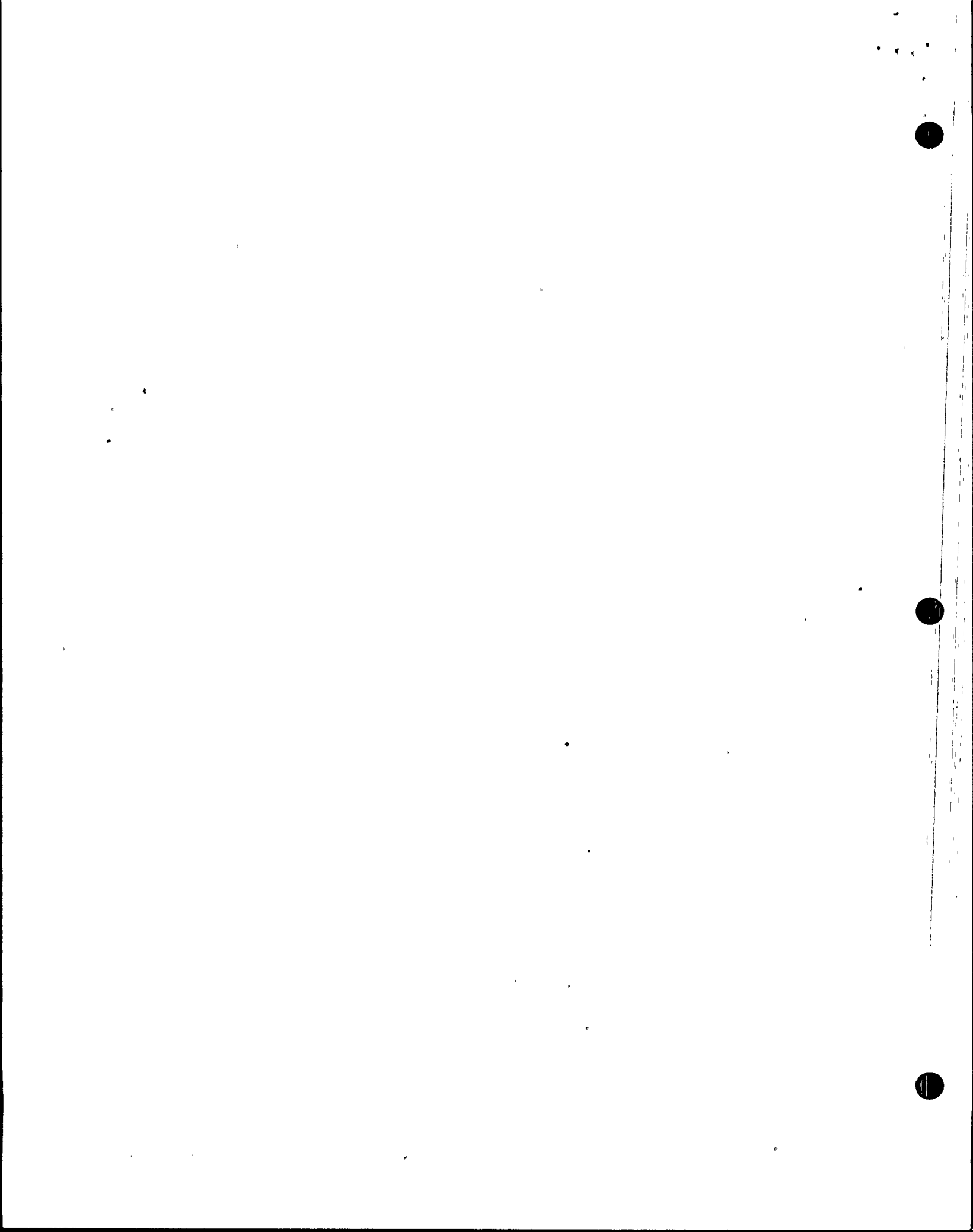
INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

SYSTEM ESSENTIAL CHILLED WATER										P & ID ECP-001		REVISION - DATE 1 2/82		PAGE 35 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS		
V031	C-7	3	B	1"	GA	M	O	O	NA				NOTE 3		
V032	C-3	3	B	1"	GA	M	O	O	NA				NOTE 3		
V038	D-8	3	C	1½"	CK	SA	C	C	NA				NOTE 3		
V039	D-7	3	B	1½"	GL	M	O	O	NA				NOTE 3		
V040	D-7	3	B	1½"	GL	M	O	O	NA				NOTE 3		
V041	C-8	3	C	1½"	CK	SA	C	O	FST	OP			NOTE 12		
V043	C-7	3	C	1"	CK	SA	C	C	NA				NOTE 3		
V045	F-3	3	B	2½"	GA	M	O	O	NA				NOTE 3		



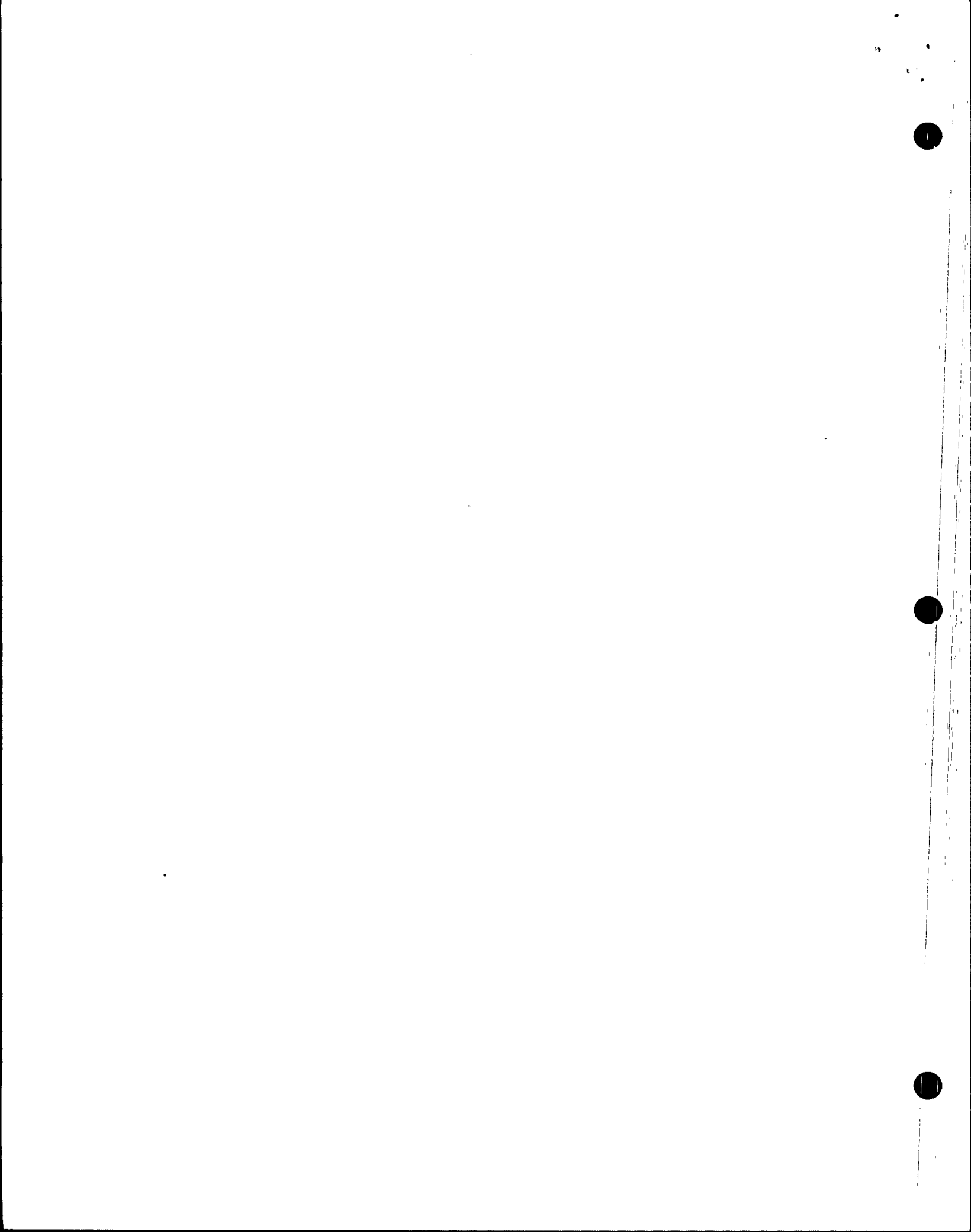
INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

SYSTEM ESSENTIAL CHILLED WATER										P & ID ECP-001	REVISION - DATE 1 2/82	PAGE 36 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
V046	F-3	3	B	2½"	GA	M	O	O	NA				NOTE 3
V047	F-2	3	B	1½"	GA	M	O	O	NA				NOTE 3
V048	H-3	3	B	2"	GA	M	O	O	NA				NOTE 3
V049	H-3	3	B	2"	GA	M	O	O	NA				NOTE 3
V050	F-2	3	B	1½"	GA	M	O	O	NA				NOTE 3
V051	H-2	3	B	2"	GA	M	O	O	NA				NOTE 3
V052	H-2	3	B	2"	GA	M	O	O	NA				NOTE 3
V053	H-1	3	B	1½"	GA	M	O	O	NA				NOTE 3



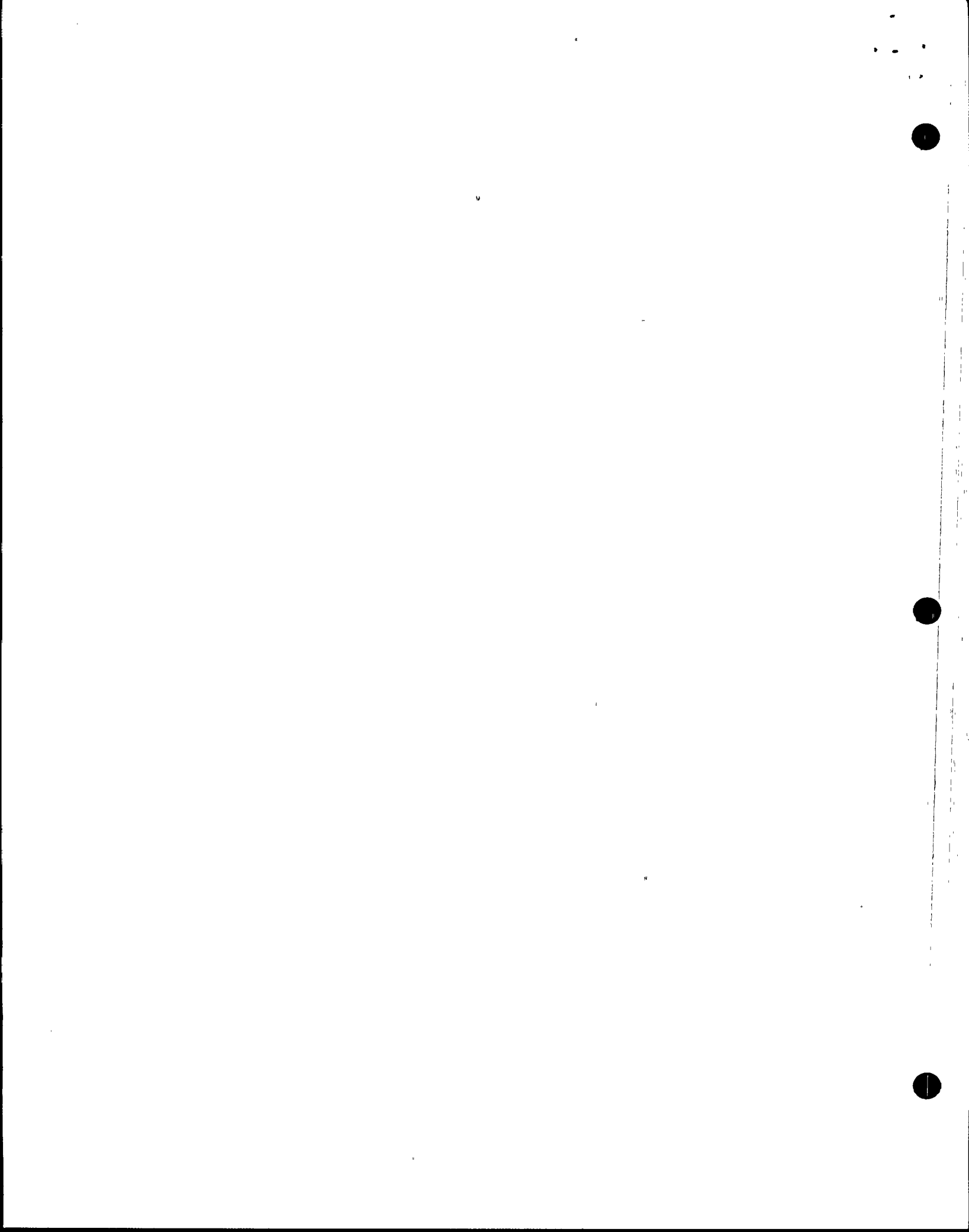
INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

SYSTEM ESSENTIAL CHILLED WATER										P & ID ECP-001		REVISION - DATE 1 2/82		PAGE 37 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS		
V054	H-1	3	B	1½"	GA	M	O	O	NA				NOTE 3		
V055	F-1	3	B	2"	GA	M	O	O	NA				NOTE 3		
V056	F-1	3	B	2"	GA	M	O	O	NA				NOTE 3		
(CT) V056	C-8	3	B	1½"	GL	M	O	O	NA				NOTE 3		
V057	E-3	3	B	4"	GA	M	O	O	NA				NOTE 3		
(CT) V057	C-4	3	B	1½"	GL	M	O	O	NA				NOTE 3		
V058	E-3	3	B	4"	GA	M	O	O	NA				NOTE 3		
V060	D-4	3	B	1½"	CK	M	C	C	NA				NOTE 3		



INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

SYSTEM ESSENTIAL CHILLED WATER										P & ID ECP-001		REVISION - DATE 1 2/82		PAGE 38 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS		
V061	D-4	3	B	1½"	GL	M	O	O	NA				NOTE 3		
V062	D-4	3	B	1½"	GL	M	O	O	NA				NOTE 3		
V064	C-3	3	C	1"	CK	SA	C	C	NA				NOTE 3		
V065	B-4	3	B	6"	GA	M	O	O	NA				NOTE 3		
V068	B-1	3	B	6"	GA	M	O	O	NA				NOTE 3		
V070	E-1	3	B	2"	GA	M	O	O	NA				NOTE 3		
V071	E-1	3	B	2"	GA	M	O	O	NA				NOTE 3		
V072	C-4	3	C	1½"	CK	SA	C	O	FST	OP			NOTE 12		



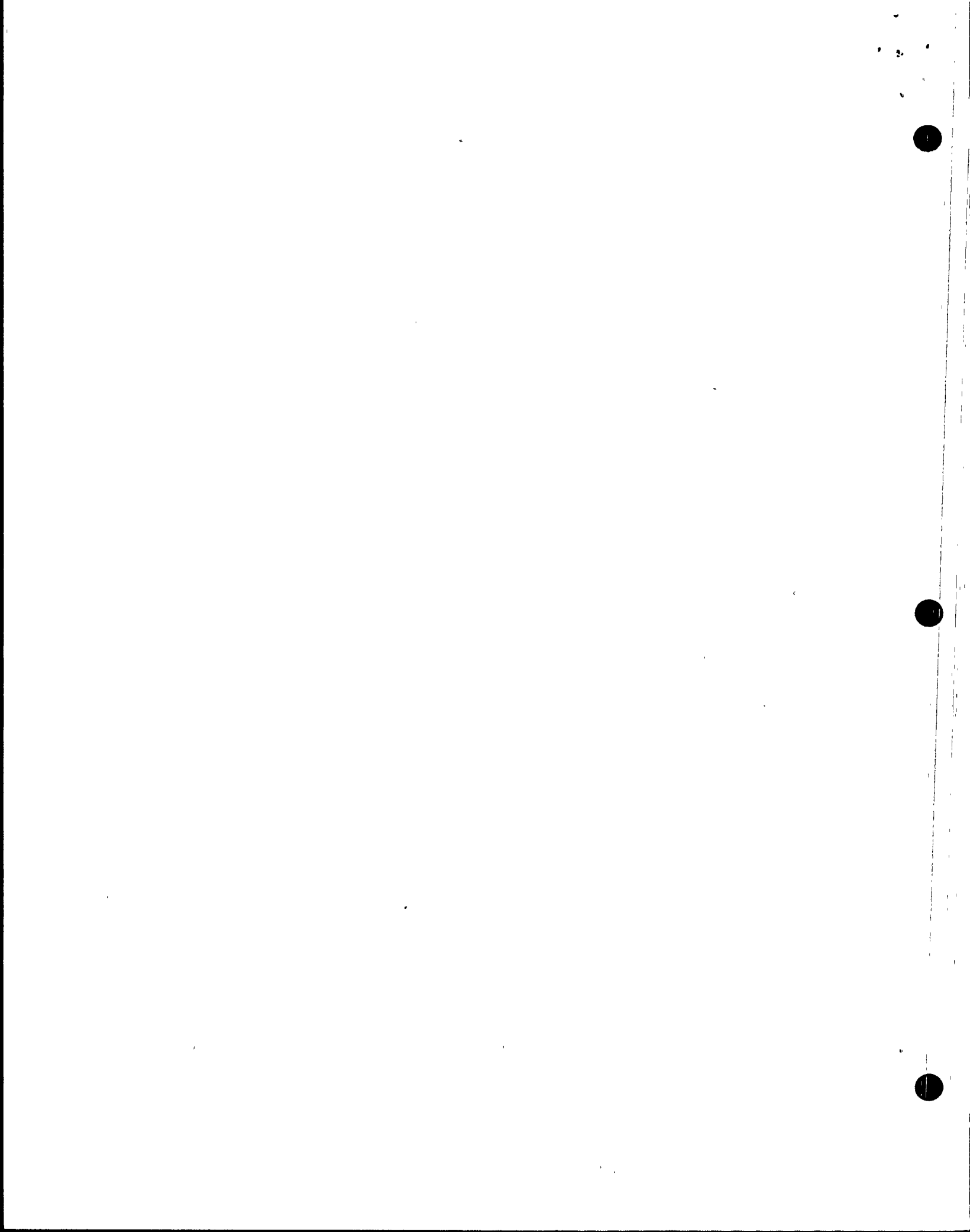
INSERVICE TESTING PROGRAM
 ISI CLASS 1, 2 & 3 VALVES
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SYSTEM ESSENTIAL CHILLED WATER										P & ID ECP-001	REVISION - DATE 1 2/82	PAGE 39 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
V098	B-7	3	B	1"	GA	M	O	O	NA				NOTE 3
V099	B-6	3	B	6"	GA	M	O	O	NA				NOTE 3
V101	B-3	3	B	1"	GA	M	O	O	NA				NOTE 3
V102	B-2	3	B	1"	GA	M	O	O	NA				NOTE 3
V201	F-5	3	B	3"	GA	M	O	O	NA				NOTE 3
V202	F-5	3	B	3"	GA	M	O	O	NA				NOTE 3
V209	E-5	3	B	2"	GA	M	O	O	NA				NOTE 3
V210	E-6	3	B	2"	GA	M	O	O	NA				NOTE 3



INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
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SYSTEM ESSENTIAL CHILLED WATER										P & ID ECP-001		REVISION - DATE 1 2/82		PAGE 40 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS		
V213	E-1	3	B	2"	GA	M	O	O	NA				NOTE 3		
V214	E-2	3	B	2"	GA	M	O	O	NA				NOTE 3		
V220	B-6	3	B	1"	GL	M	O	O	NA				NOTE 3		
V222	B-2	3	B	1"	GL	M	O	O	NA				NOTE 3		
V228	E-1	3	B	2"	GL	M	O	O	NA				NOTE 3		
V229	E-2	3	B	2"	GL	M	O	O	NA				NOTE 3		
V230	E-5	3	B	2"	GL	M	O	O	NA				NOTE 3		
V231	E-5	3	B	2"	GL	M	O	O	NA				NOTE 3		
LV15	D-7	3	B	1½"	GL	SO	O/C	C	FST F T	OP OP			NOTE 12		
LV16	D-3	3	B	1"	GL	SO	O/C	C	FST F T	OP OP			NOTE 12		
TV29	D-7	3	B	4"	TW	HY	O/C	O	FST	OP			NOTE 12		
TV30	D-3	3	B	4"	TW	HY	O/C	O	FST	OP			NOTE 12		



INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

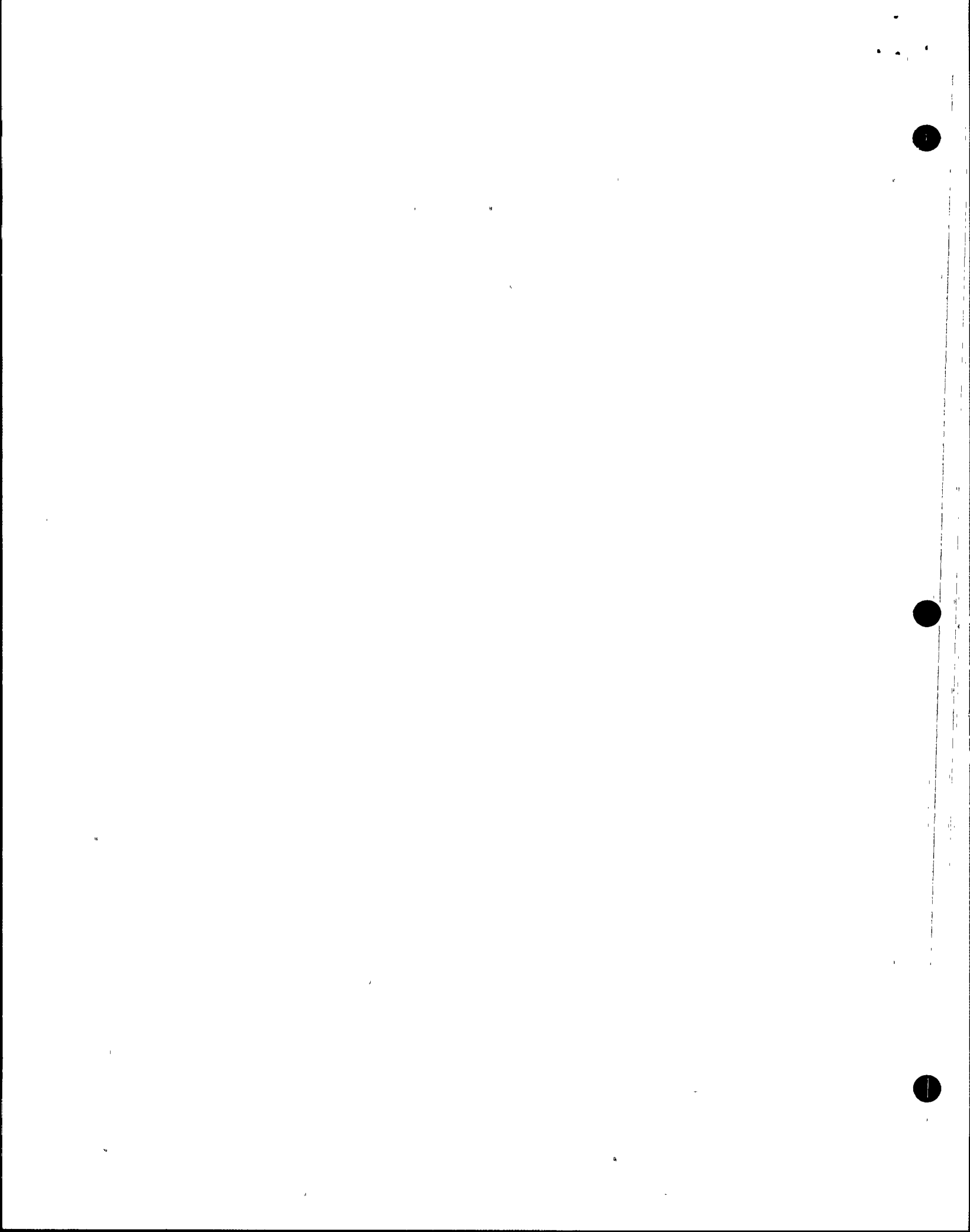
SYSTEM ESSENTIAL CHILLED WATER										P & ID ECP-001		REVISION - DATE 1 2/82		PAGE 41 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS		
HCV35	D-5	3	B	1	TW	M	O	O	NA				NOTE 3		
HCV36	D-1	3	B	1	TW	M	O	O	NA				NOTE 3		
HCV41	F-7	3	B	1½"	TW	M	O	O	NA				NOTE 3		
HCV42	F-2	3	B	1	TW	M	O	O	NA				NOTE 3		
HCV48	F-3	3	B	2	TW	M	O	O	NA				NOTE 3		
HCV53	F-6	3	B	1.5	TW	M	O	O	NA				NOTE 3		
HCV54	F-1	3	B	1.5	TW	M	O	O	NA				NOTE 3		
HCV59	H-5	3	B	1.5	TW	M	O	O	NA				NOTE 3		



INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES

PALO VERDE NUCLEAR GENERATING STATION

SYSTEM										P & ID	REVISION - DATE		PAGE
ESSENTIAL CHILLED WATER										ECP-001	1	2/82	42 of 118
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
HCV60	G-1	3	B	1.5	TW	M	O	O	NA				NOTE 3
HCV65	G-6	3	B	1	TW	M	O	O	NA				NOTE 3
HCV66	G-2	3	B	1	TW	M	O	O	NA				NOTE 3
HCV71	G-7	3	B	2	TW	M	O	O	NA				NOTE 3
HCV72	G-3	3	B	1.5	TW	M	O	O	NA				NOTE 3
HCV115	F-5	3	B	1	TW	M	O	O	NA				NOTE 3
HCV118	D-2	3	B	1	TW	M	O	O	NA				NOTE 3
HCV119	D-6	3	B	1	TW	M	O	O	NA				NOTE 3



Arizona
Public
Service

INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

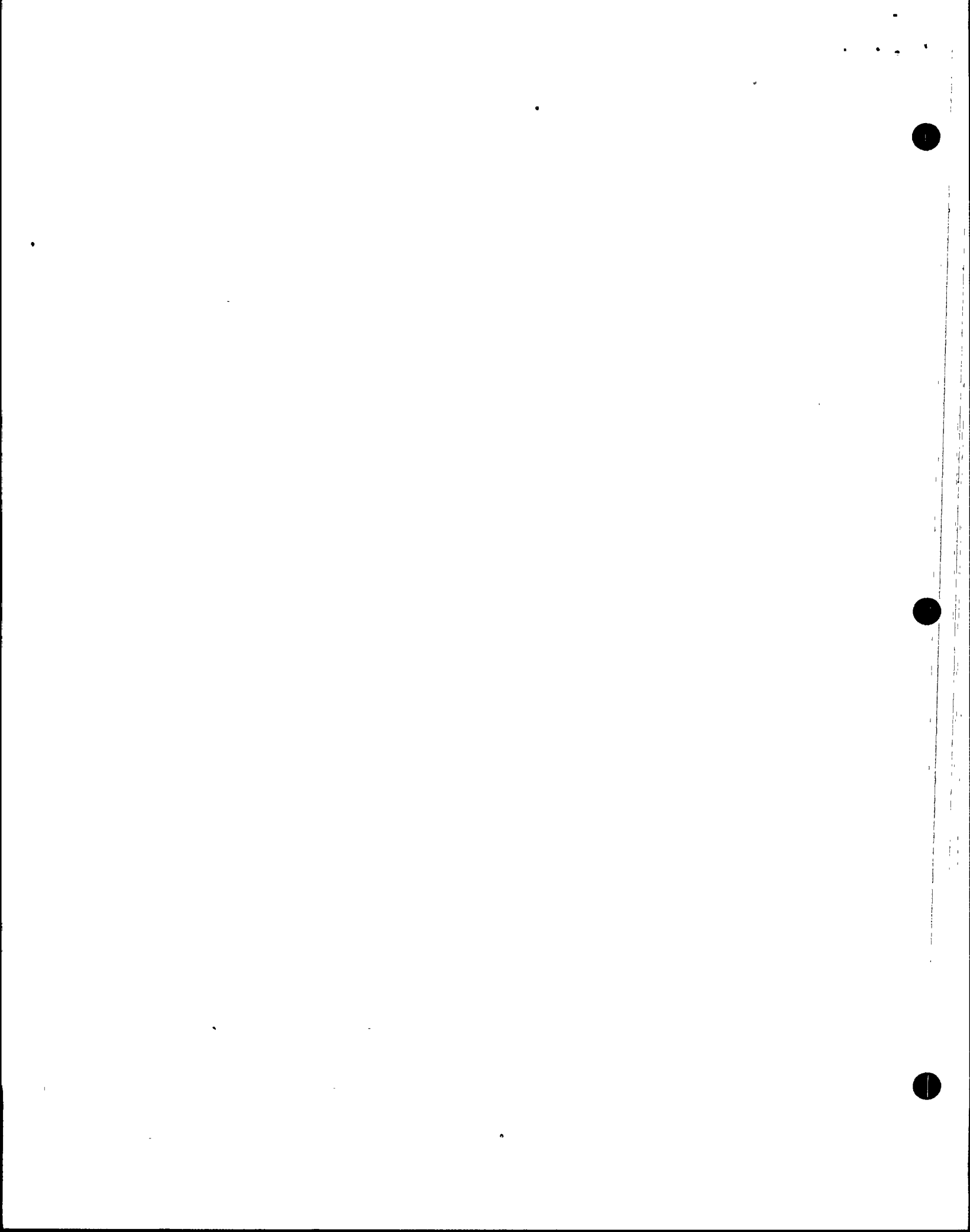
Power
Production
Engineering

SYSTEM ESSENTIAL CHILLED WATER										P & ID ECP-001	REVISION - DATE 1 2/82		PAGE 43 of 118
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
PSV75		3	C	1"	PSV	SA	C	C	NA				NOTE 3
PSV76	D-3	3	C	1½"	PSV	SA	C	C	NA				NOTE 3
PSV95	E-5	3	C	1"	PSV	SA	C	C	NA				NOTE 3
PSV96	E-1	3	C	1"	PSV	SA	C	C	NA				NOTE 3
PSV97	E-7	3	C	1"	PSV	SA	C	C	NA				NOTE 3
PSV98	E-3	3	C	1"	PSV	SA	C	C	NA				NOTE 3
PSV99	F-7	3	C	1"	PSV	SA	C	C	NA				NOTE 3
PSV100	F-2	3	C	1"	PSV	SA	C	C	NA				NOTE 3



INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

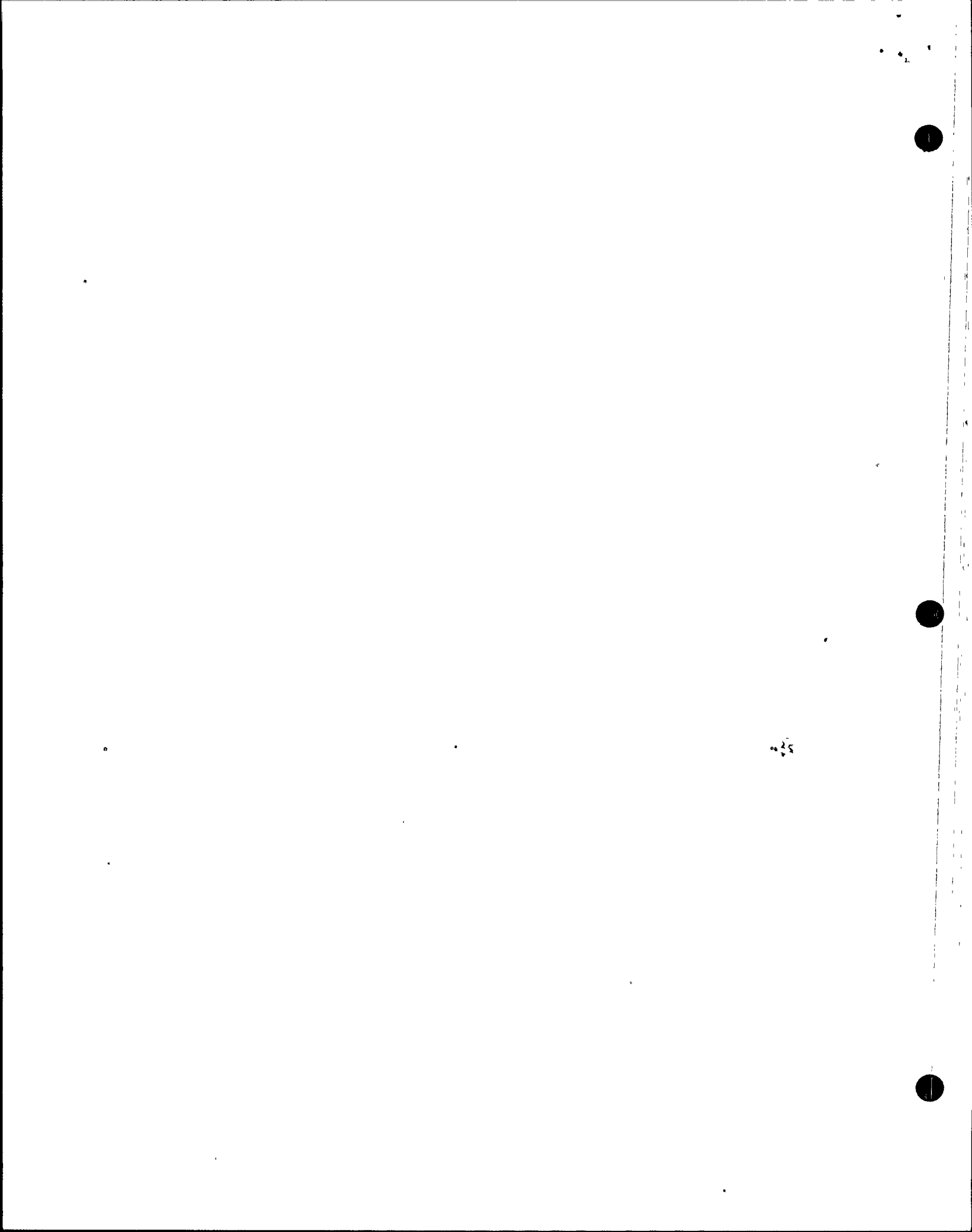
SYSTEM ESSENTIAL CHILLED WATER										P & ID ECP-001	REVISION - DATE 1 2/82	PAGE 44 of 116	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
PSV101	F-6	3	C	1"	PSV	SA	C	C	NA				NOTE 3
PSV102	F-1	3	C	1"	PSV	SA	C	C	NA				NOTE 3
PSV103	H-7	3	C	1"	PSV	SA	C	C	NA				NOTE 3
PSV104	H-4	3	C	1"	PSV	SA	C	C	NA				NOTE 3
PSV105	H-6	3	C	1"	PSV	SA	C	C	NA				NOTE 3
PSV106	H-2	3	C	1"	PSV	SA	C	C	NA				NOTE 3
PSV107	H-5	3	C	1"	PSV	SA	C	C	NA				NOTE 3
PSV108	H-1	3	C	1"	PSV	SA	C	C	NA				NOTE 3





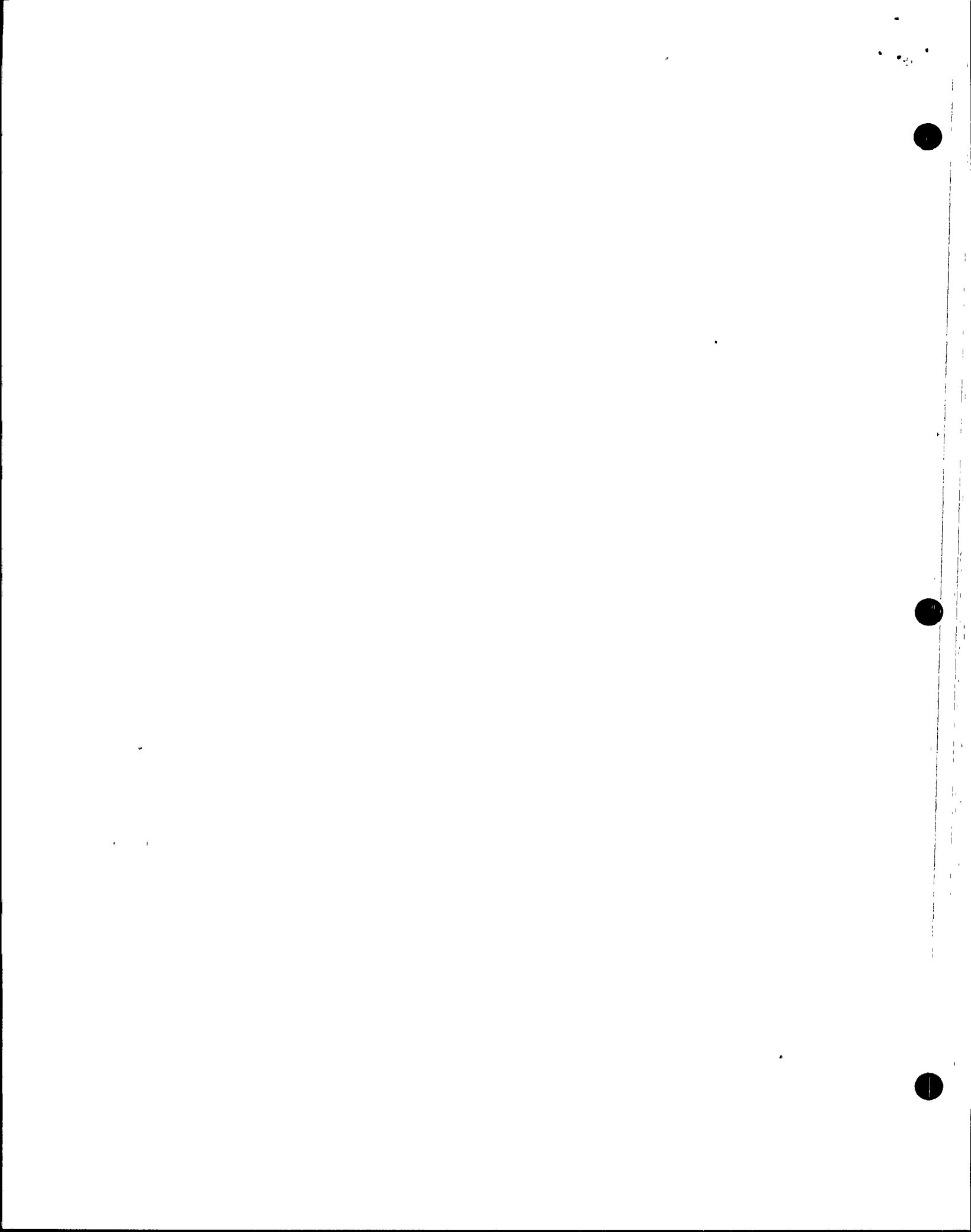
INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

SYSTEM ESSENTIAL COOLING WATER										P & ID EWP-001		REVISION - DATE 1 2/82		PAGE 47 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS		
V051	F-6	3	B	1"	GL	M	C	C	NA				NOTE 3		
V079	G-7	3	C	2"	CK	SA	C	O	FST	OP			NOTE 12		
V080	H-3	3	C	2"	CK	SA	C	O	FST	OP			NOTE 12		
V095	G-7	3	B	1"	GL	M	O	O	NA				NOTE 3		
V096	G-2	3	B	1"	GL	M	O	O	NA				NOTE 3		
(1) V103	H-7	3	C	2"	CK	SA	O/C	C	FST	OP			NOTE 11		
V104	H-7	3	B	2"	GL	M	O	O	NA				NOTE 3		
V105	H-6	3	B	2"	GL	M	O	O	NA				NOTE 3		



INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

SYSTEM ESSENTIAL COOLING WATER										P & ID EWP-001	REVISION - DATE 1 2/82	PAGE 48 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
V108	H-3	3	B	2"	GL	M	O	O	NA				NOTE 3
V109	H-3	3	B	2"	GL	M	O	O	NA				NOTE 3
V115	H-7	3	B	2"	GL	M	C	C	NA				NOTE 3
V116	H-3	3	B	2"	GL	M	C	C	NA				NOTE 3
V150	G-7	3	B	2"	GL	M	O	O	NA				NOTE 3
V152	G-4	3	B	2"	GL	M	O	O	NA				NOTE 3
LV91	H-7	3	B	2"	GL	M	C	O/C	FST F T	OP OP			NOTE 12
LV92	H-3	3	B	2"	GL	M	C	O/C	FST F T	OP OP			NOTE 12



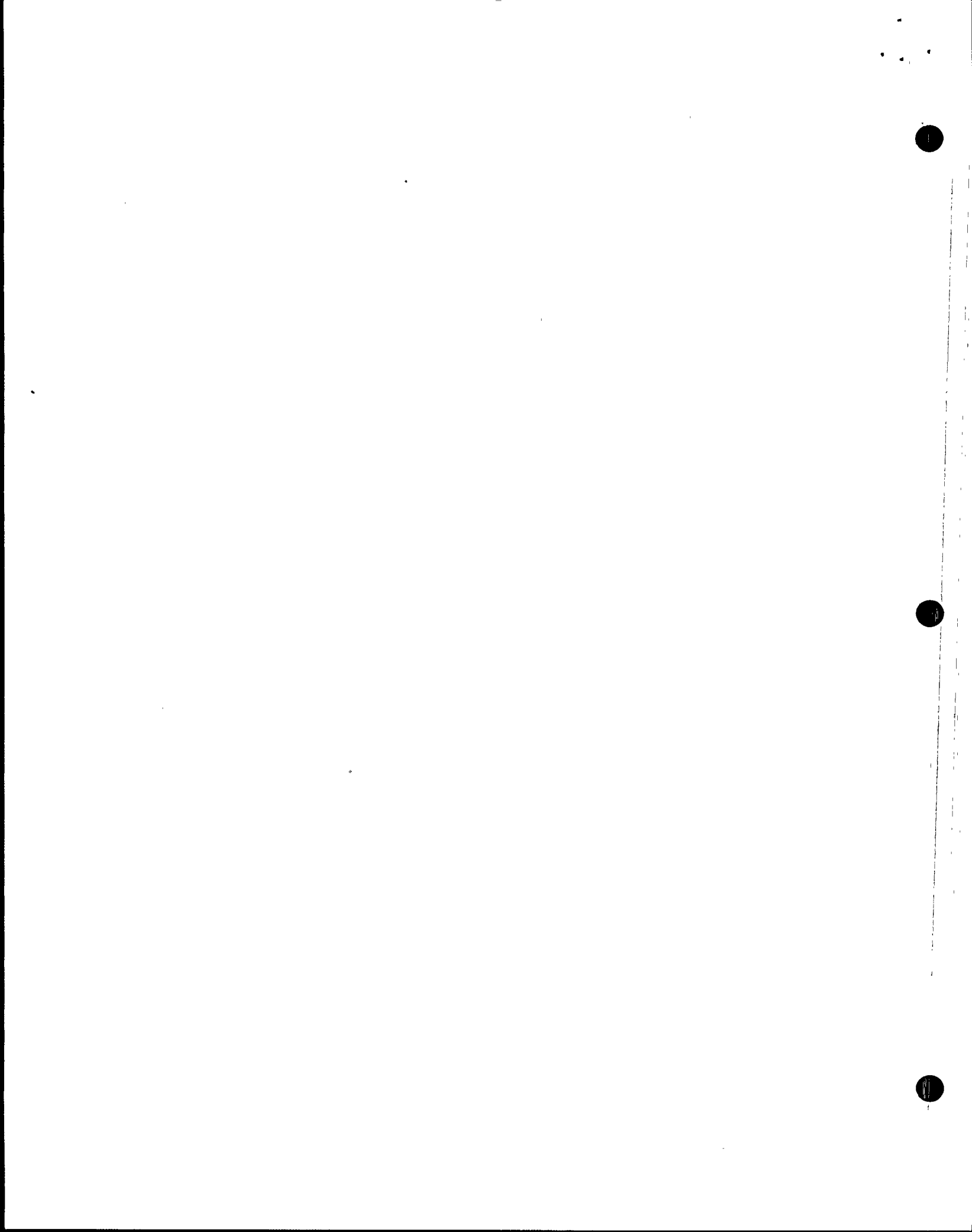
INSERVICE TESTING PROGRAM
ISI CLASS 1,2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

SYSTEM ESSENTIAL COOLING WATER									P & ID EWP-001	REVISION - DATE 1 2/82		PAGE 49 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
UV65	C-8	3	B	14"	BTF	MO	C	O/C	FST VPI	RF RF		VRR-2	NOTE 6
UV145	C-4	3	B	14"	BTF	MO	C	O/C	FST VPI	RF RF		VRR-2	NOTE 6
HCV5	D-6	3	B	20"	BTF	M	O	O	NA				NOTE 3
HCV6	D-2	3	B	20"	BTF	M	O	O	NA				NOTE 3
HCV41	B-6	3	B	20"	BTF	M	O	O	NA				NOTE 3
HCV42	B-2	3	B	20"	BTF	M	O	O	NA				NOTE 3
HCV53	B-7	3	B	20"	BTF	M	O	O	NA				NOTE 3
HCV54	B-3	3	B	20"	BTF	M	O	O	NA				NOTE 3



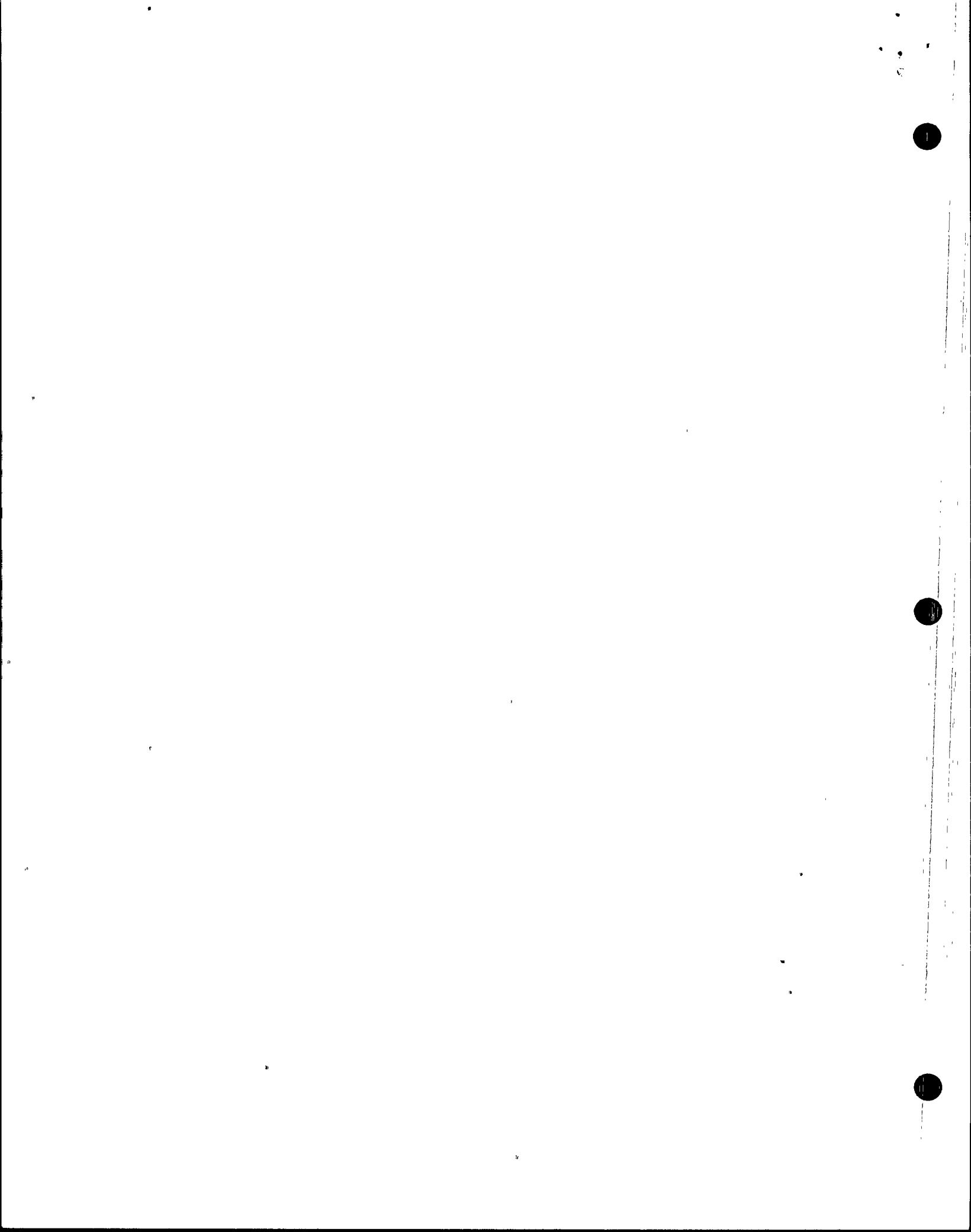
INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

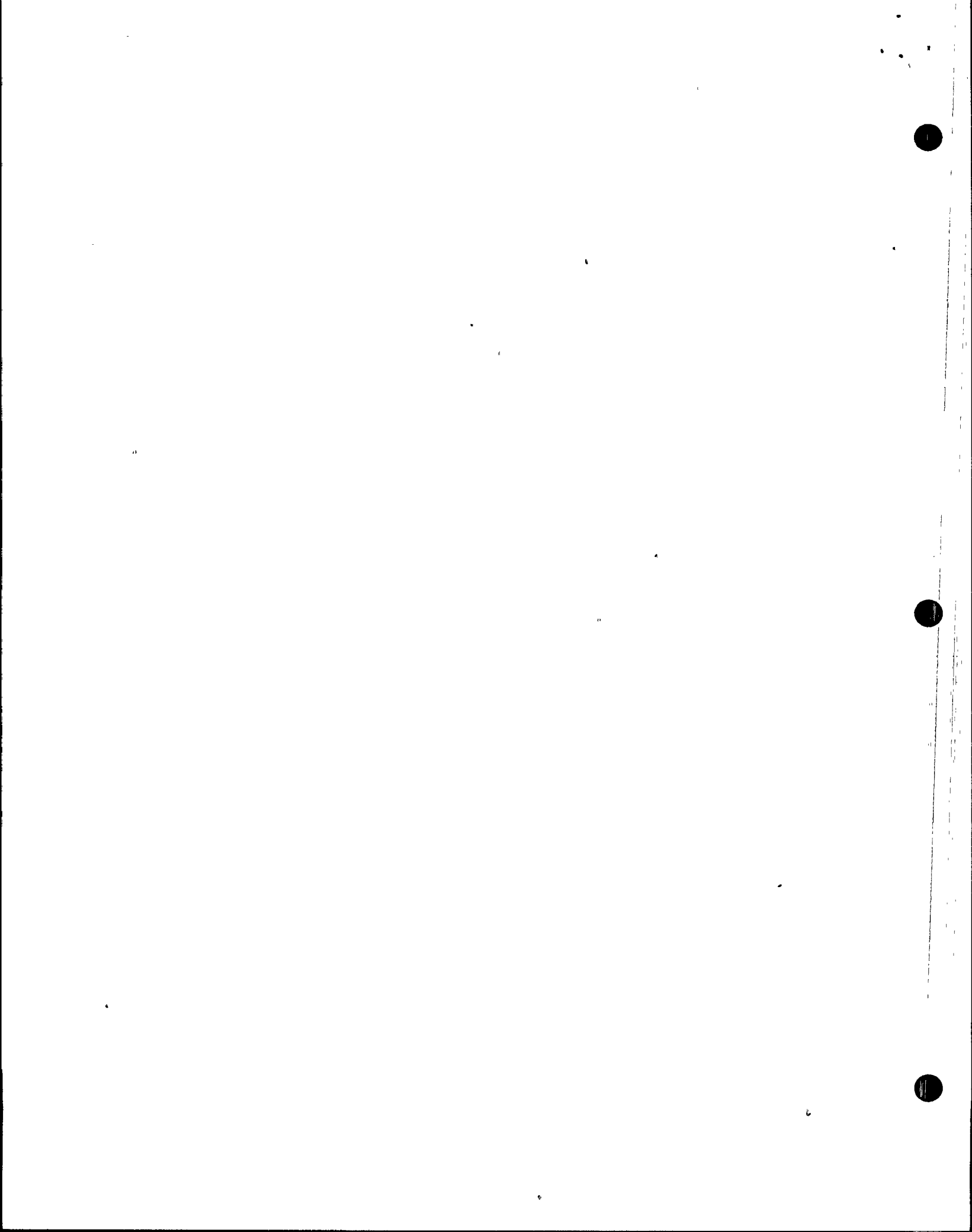
SYSTEM ESSENTIAL COOLING WATER										P & ID EWP-001	REVISION - DATE 1 2/82	PAGE 50 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
HCV66	C-6	3	B	14"	BTF	M	C	C	NA				NOTE 3
HCV67	D-7	3	B	10"	BTF	M	C	C	NA				NOTE 3
HCV68	D-8	3	B	10"	BTF	M	C	C	NA				NOTE 3
HCV71	E-7	3	B	20"	BTF	M	O	O	NA				NOTE 3
HCV72	E-3	3	B	20"	BTF	M	O	O	NA				NOTE 3
HCV133	C-6	3	B	10"	BTF	M	C	C	NA				NOTE 3
HCV134	C-2	3	B	10"	BTF	M	C	C	NA				NOTE 3
HCV135	D-5	3	B	20"	BTF	M	O	O	NA				NOTE 3

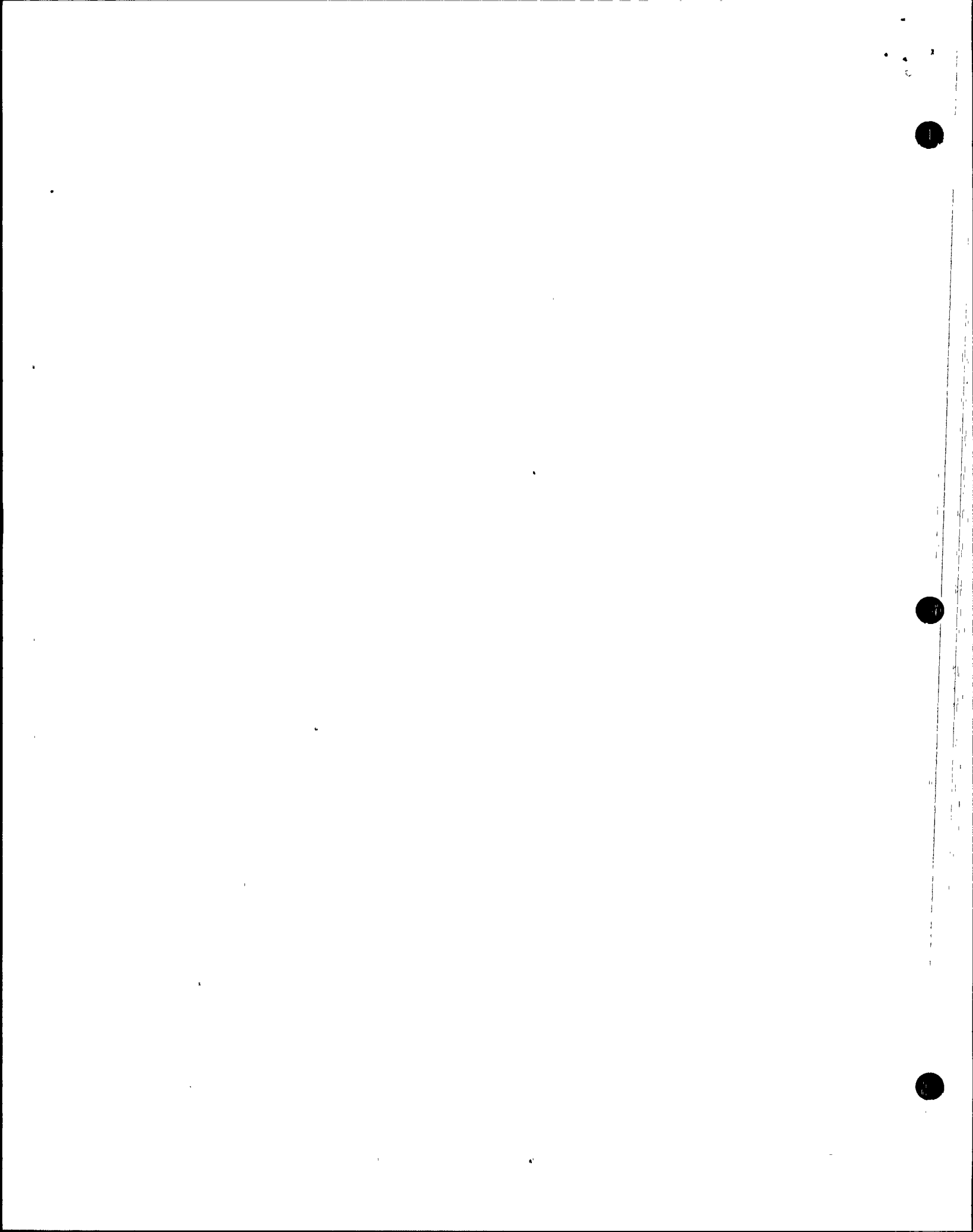


INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

SYSTEM ESSENTIAL COOLING WATER										P & ID EWP-001	REVISION - DATE 1 2/82	PAGE 51 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
HCV136	D-1	3	B	20"	BTF	M	O	O	NA				NOTE 3
HCV146	C-2	3	B	14"	BTF	M	C	C	NA				NOTE 3.
PSV47	B-6	3	C	1"	PSV	SA	C	C	NA				NOTE 3
PSV48	B-2	3	C	1"	PSV	SA	C	C	NA				NOTE 3
PSV61	D-7	3	C		PSV	SA	C	C	NA				NOTE 3
PSV62	D-3	3	C		PSV	SA	C	C	NA				NOTE 3
PSV79	E-7	3	C		PSV	SA	C	C	NA				NOTE 3
PSV80	E-3	3	C		PSV	SA	C	C	NA				NOTE 3





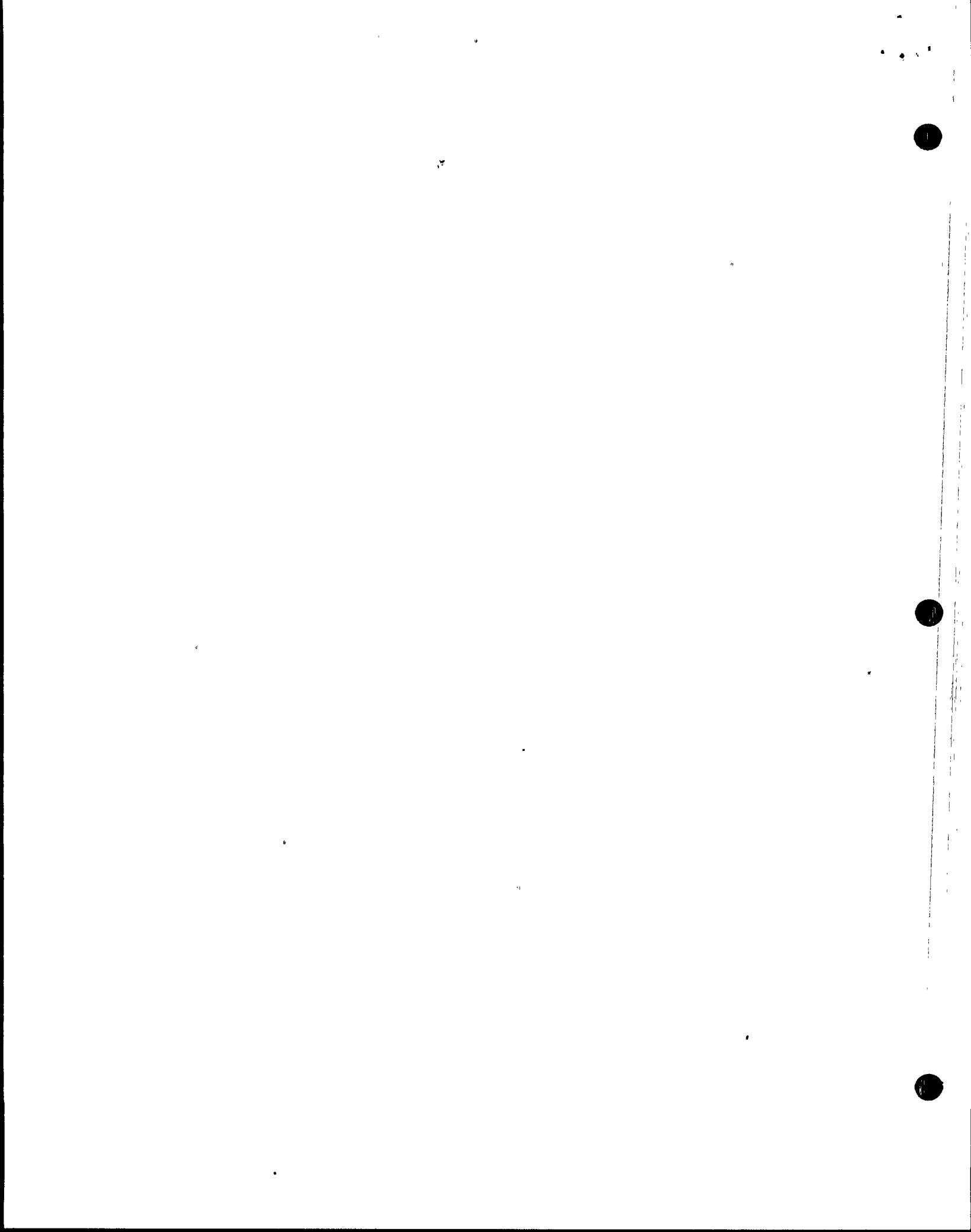


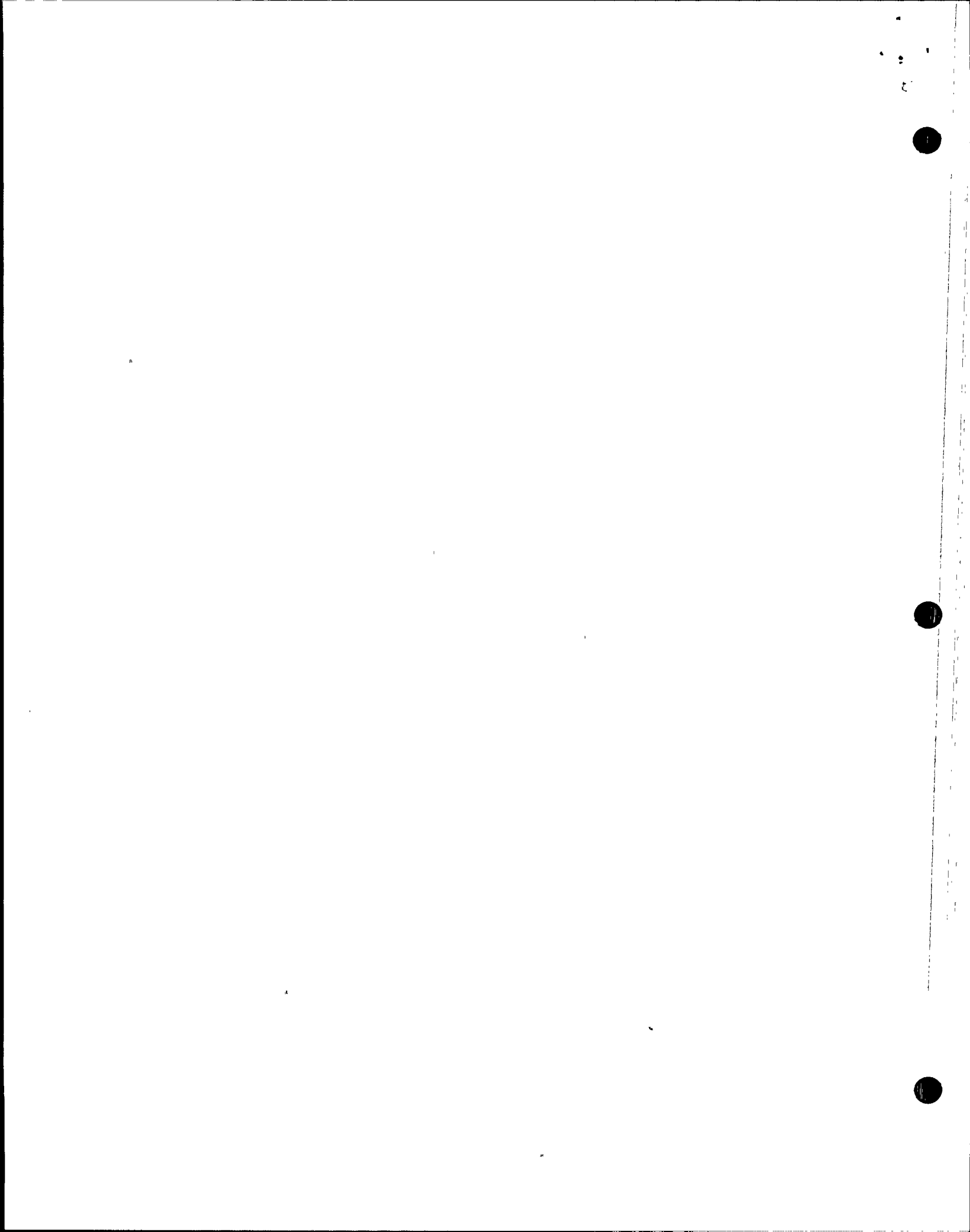
INSERVICE TESTING PROGRAM

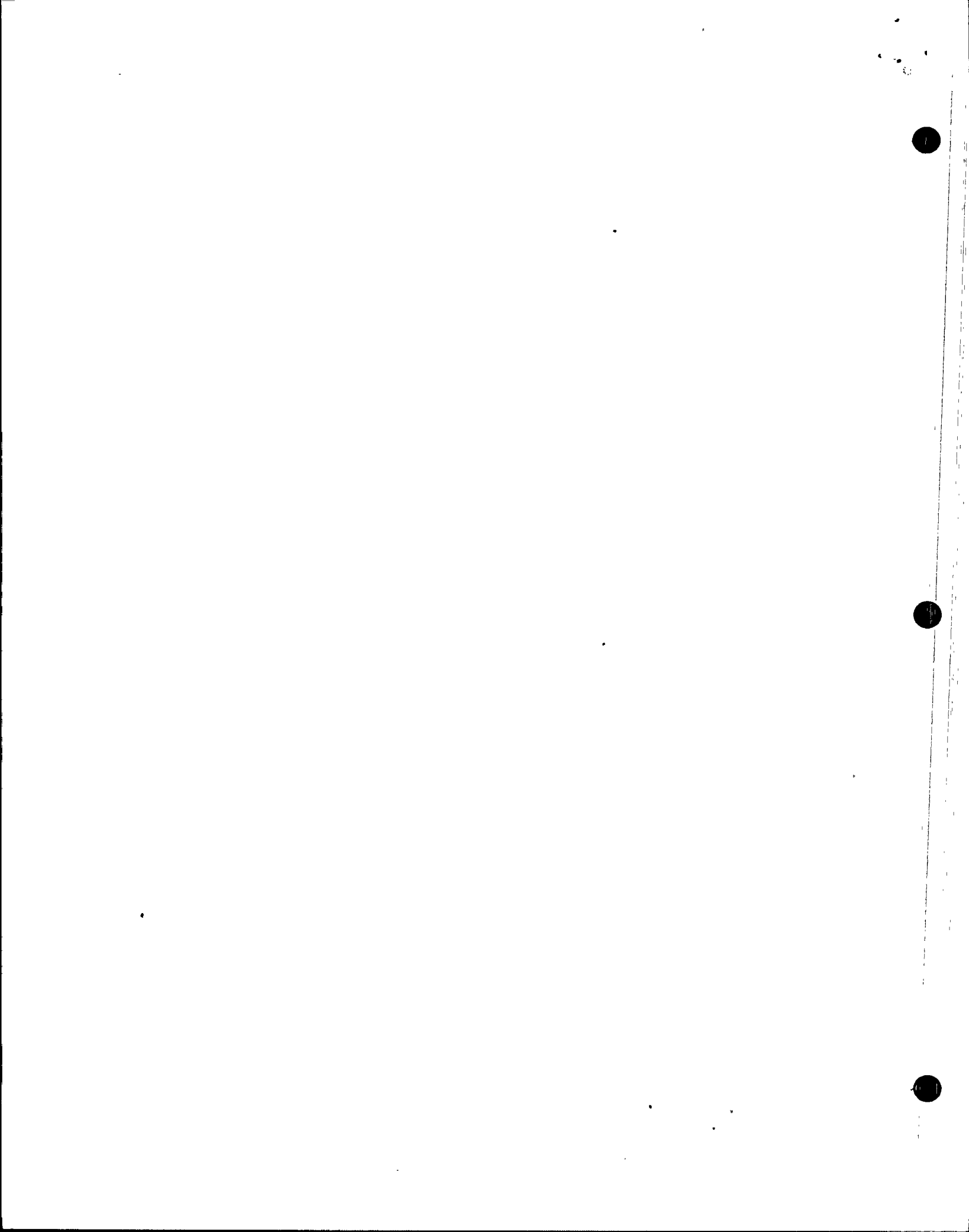
ISI CLASS 1, 2 & 3 VALVES

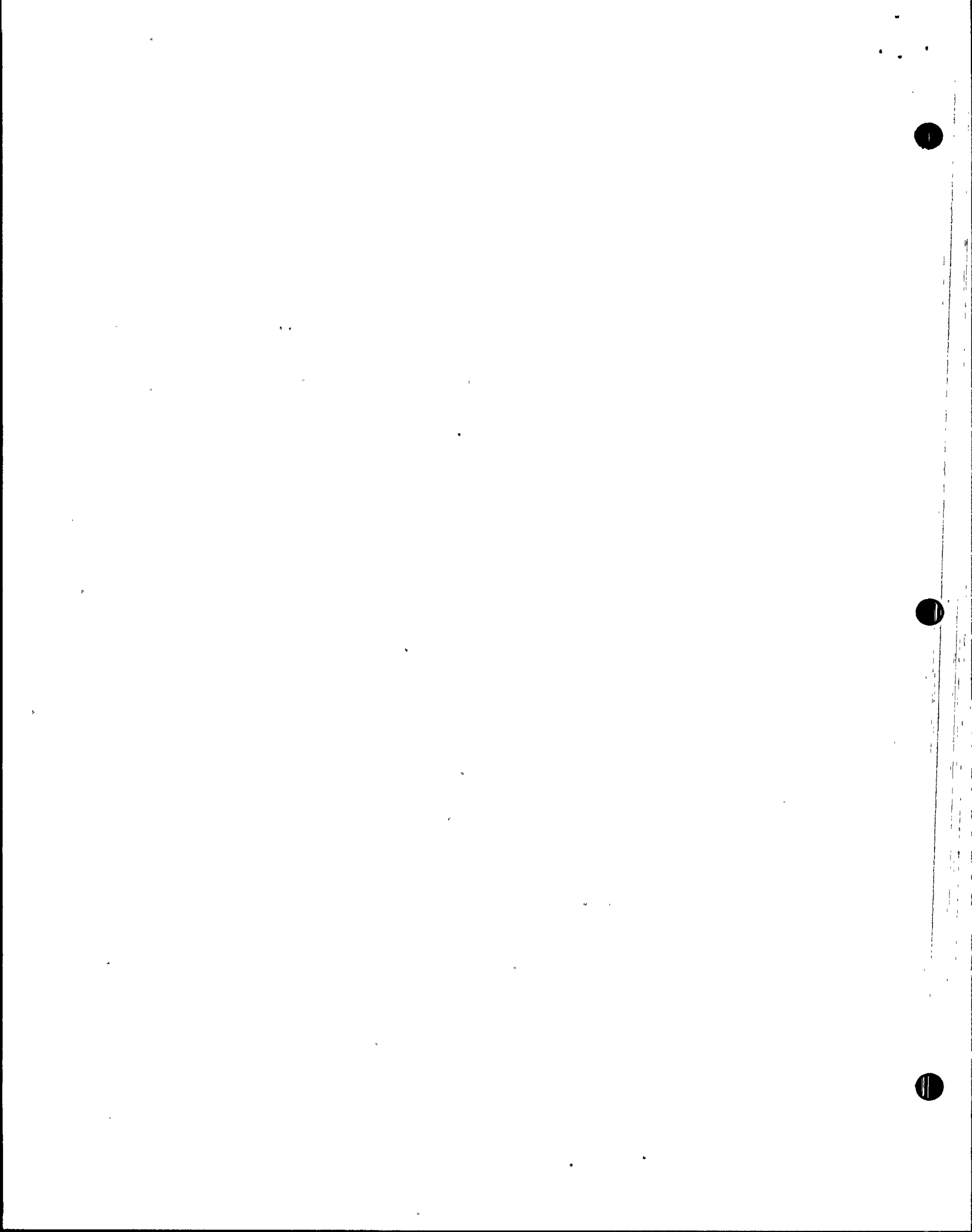
PALO VERDE NUCLEAR GENERATING STATION

SYSTEM										P & ID		REVISION - DATE		PAGE	
ESSENTIAL COOLING WATER										EWP-001		1 2/82		46 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS		
V005	F-5	3	B	1"	GL	M	C	C	NA				NOTE 3		
V021	C-6	3	B	6"	GA	M	O	O	NA				NOTE 3		
V022	C-7	3	B	6"	GA	M	O	O	NA				NOTE 3		
(1) V029	H-3	3	C	2"	CK	SA	O/C	C	FST	OP			NOTE 11		
V031	F-2	3	B	1"	GL	M	C	C	NA				NOTE 3		
V039	F-1	3	B	1"	GL	M	C	C	NA				NOTE 3		
V043	C-1	3	B	6"	GA	M	O	O	NA				NOTE 3		
V044	C-3	3	B	6"	GA	M	O	O	NA				NOTE 3		



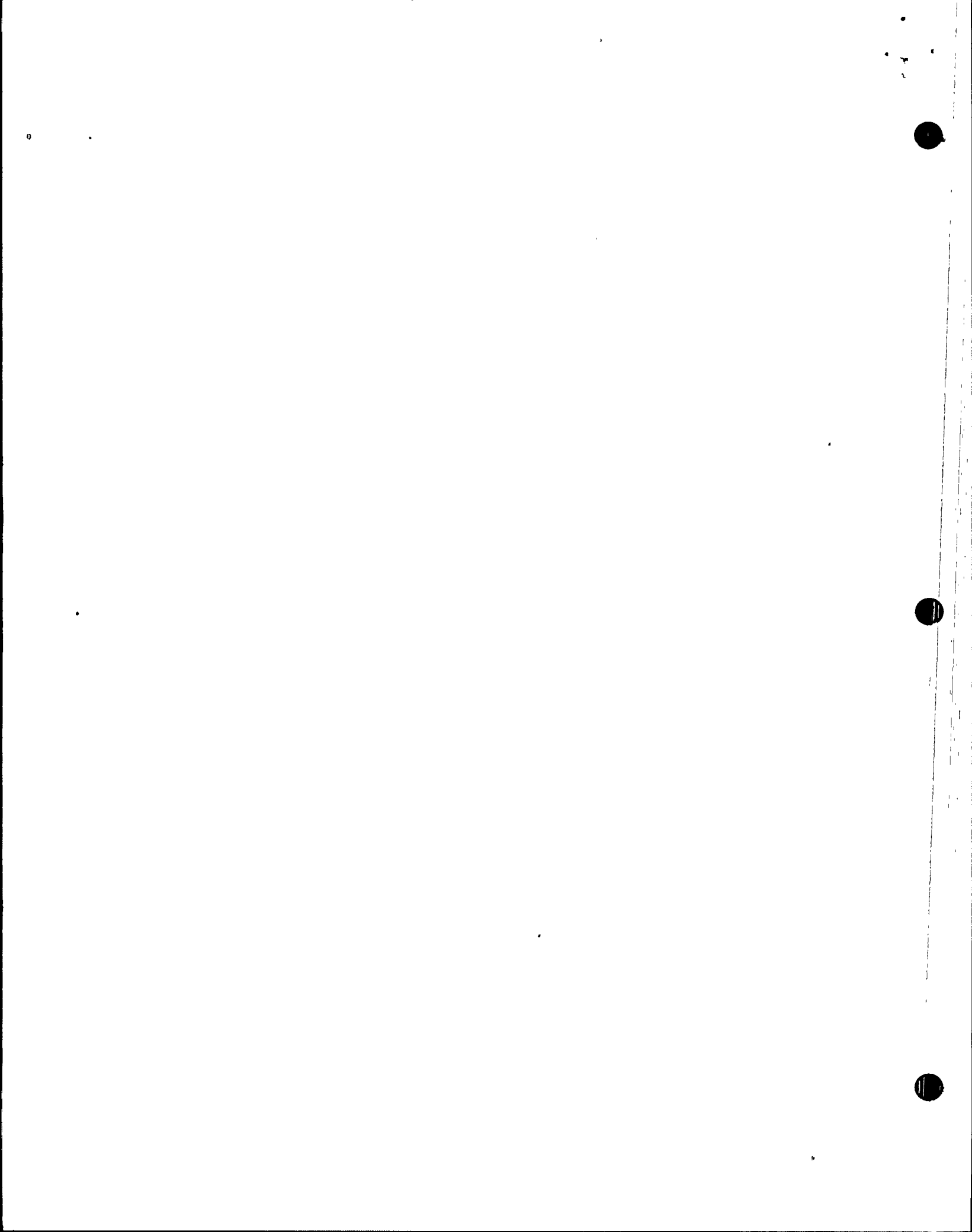


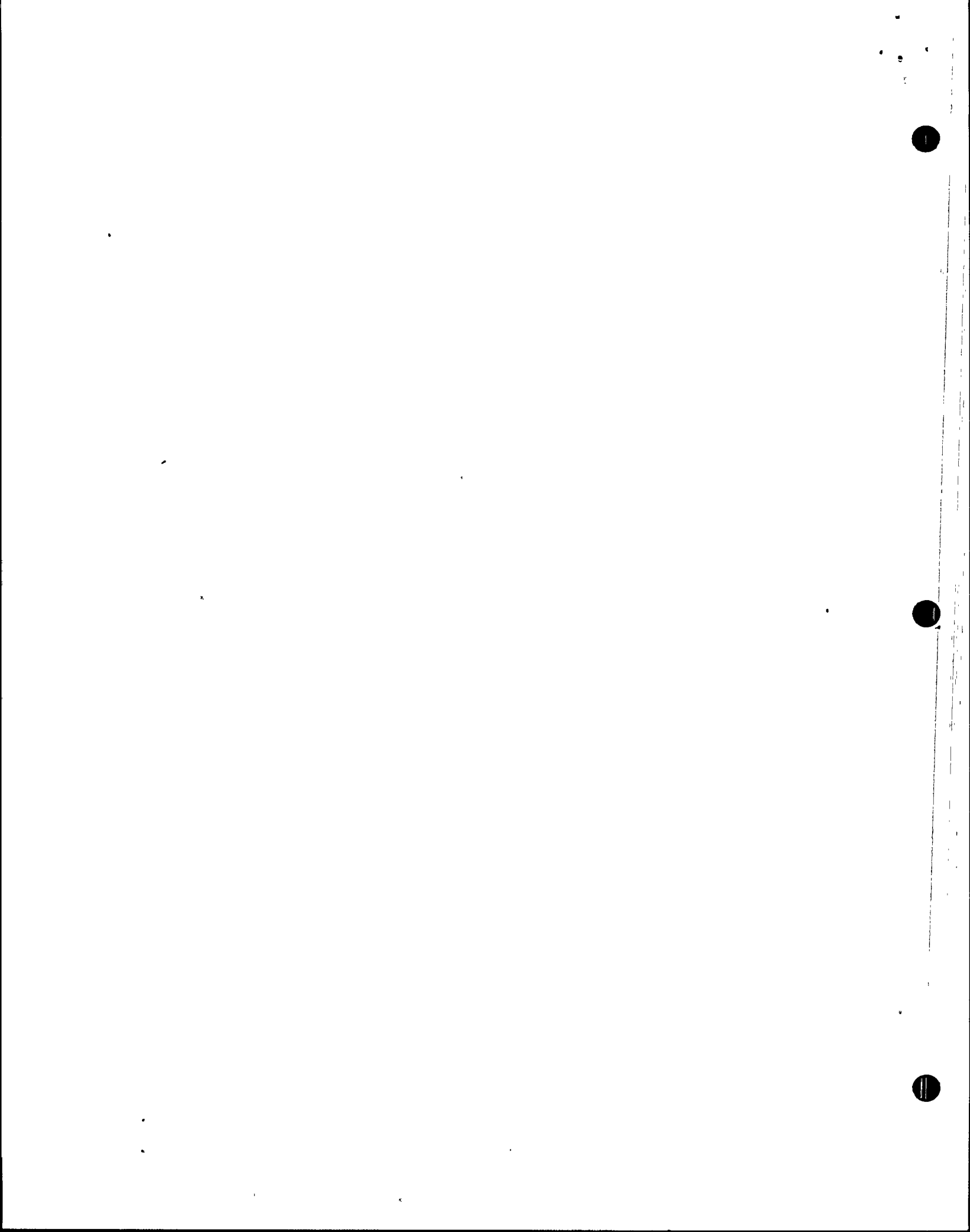




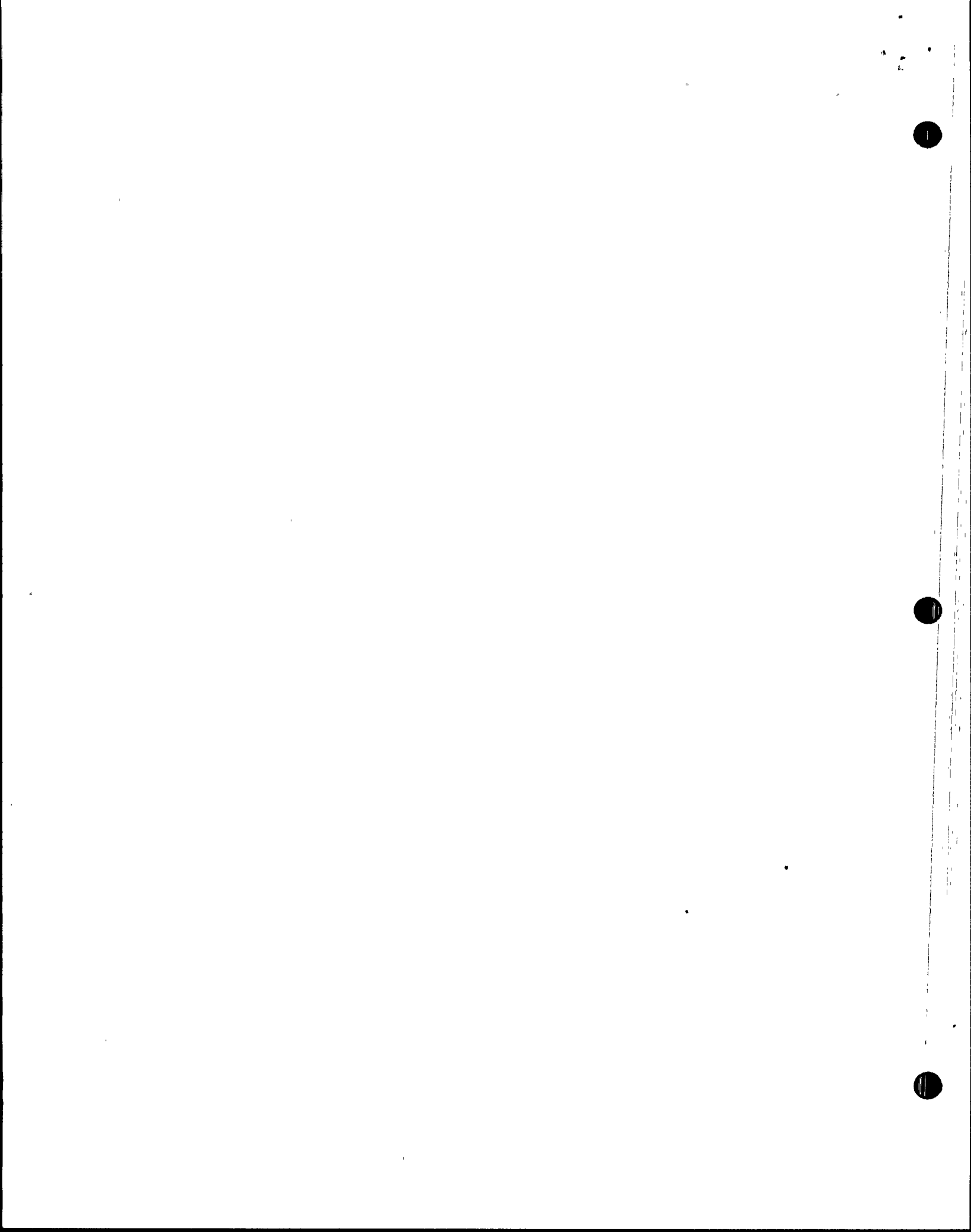
INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

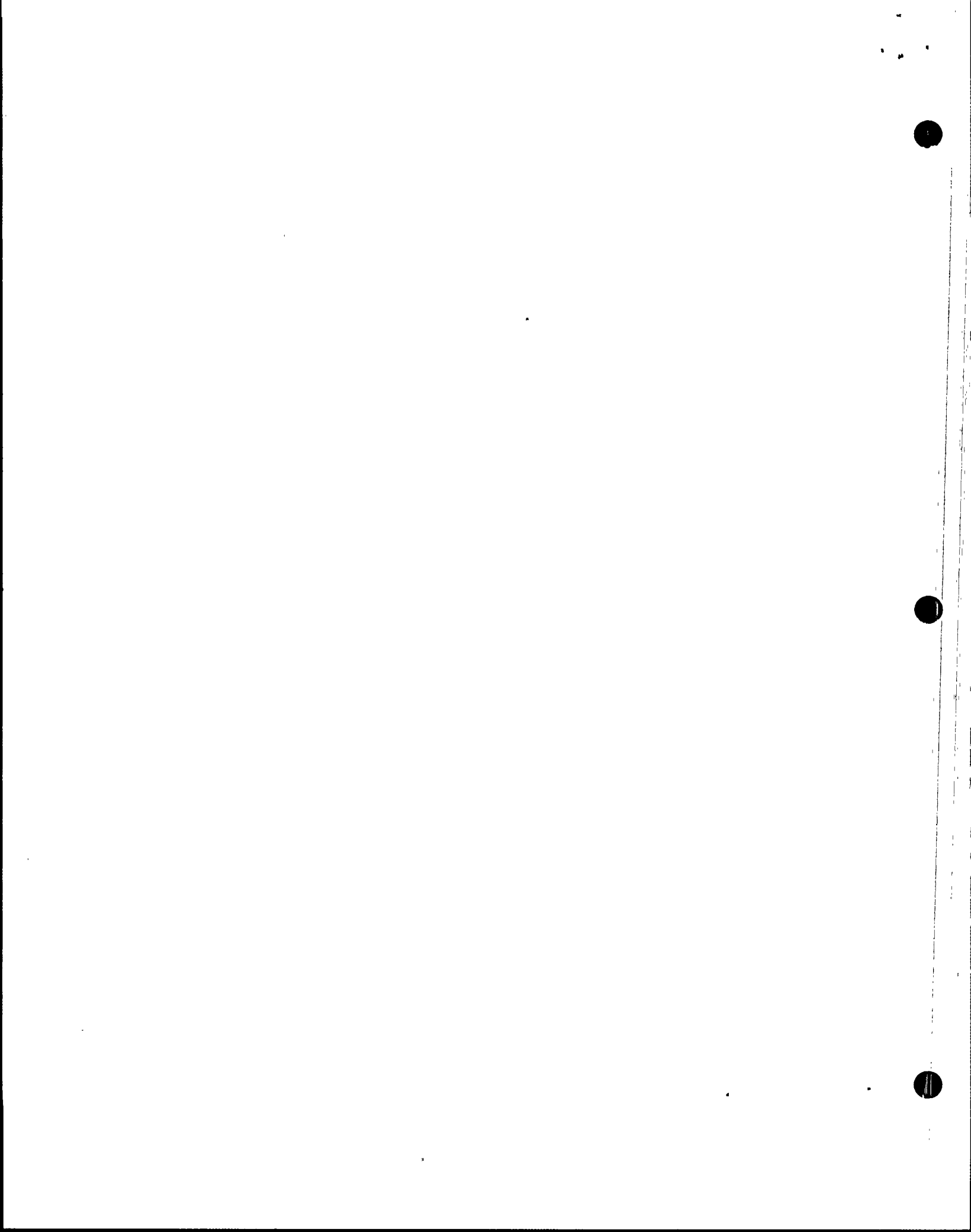
SYSTEM CONTAINMENT HYDROGEN CONTROL										P & ID HPP-001		REVISION - DATE 1 2/82		PAGE 57 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS		
V002	F-6	2	A, C	2"	CK	SA	C	C	AJLT	RF			NOTES 1, 9		
V004	C-6	2	A, C	2"	CK	SA	C	C	AJLT	RF			NOTES 1, 9		
HV7A	F-5	2	A	1"	GL	SO	C	C	AJLT	RF			NOTES 1, 9		
HV7B	G-6	2	A	1"	GL	SO	C	C	AJLT	RF			NOTES 1, 9		
HV8A	C-5	2	A	1"	GL	SO	C	C	AJLT	RF			NOTES 1, 9		
HV8B	B-6	2	A	1"	GL	SO	C	C	AJLT	RF			NOTES 1, 9		
UV1	E-6	2	A	2"	GL	MO	C	C	AJLT	RF			NOTES 1, 9		
UV2	D-6	2	A	2"	GL	MO	C	C	AJLT	RF			NOTES 1, 9		







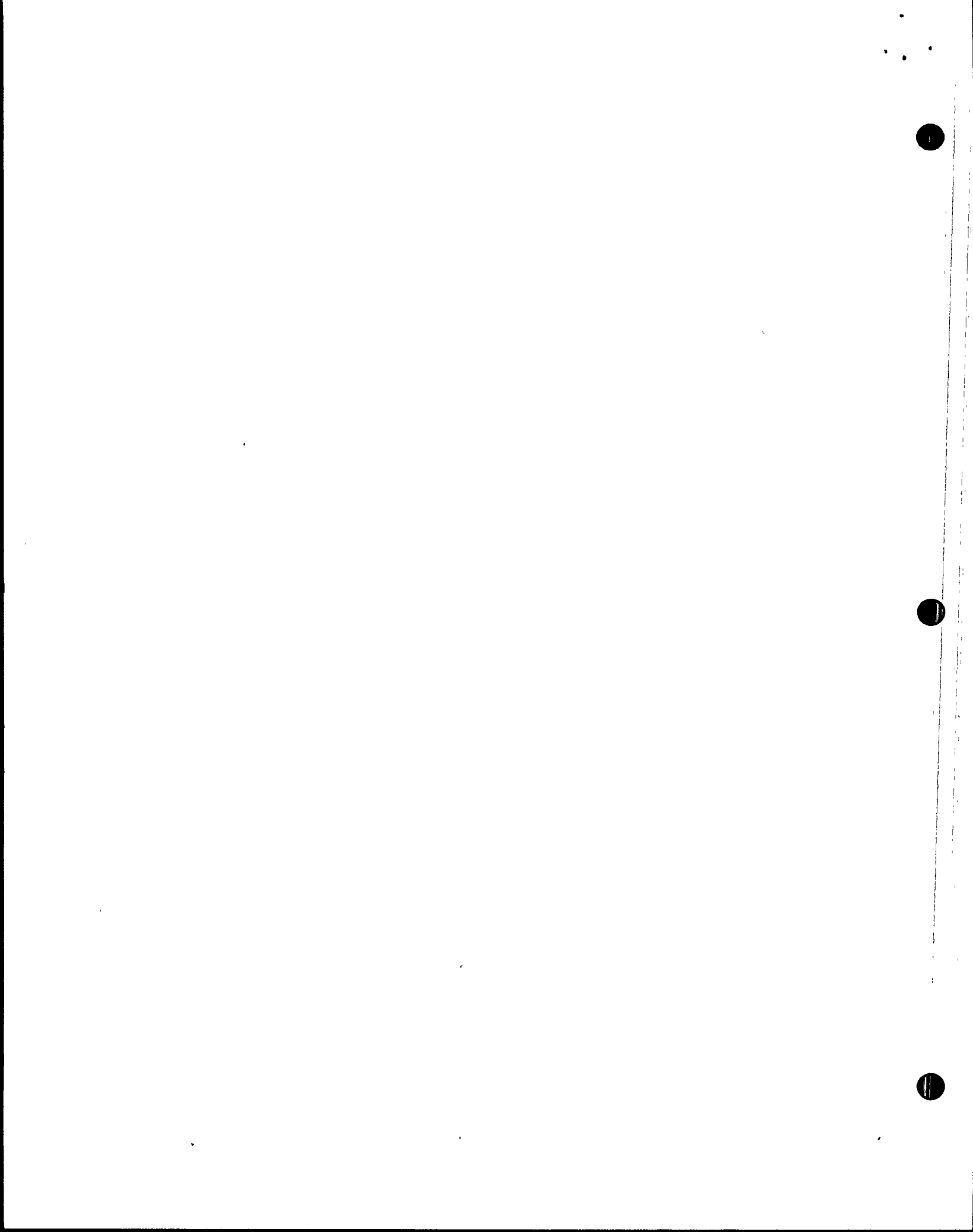






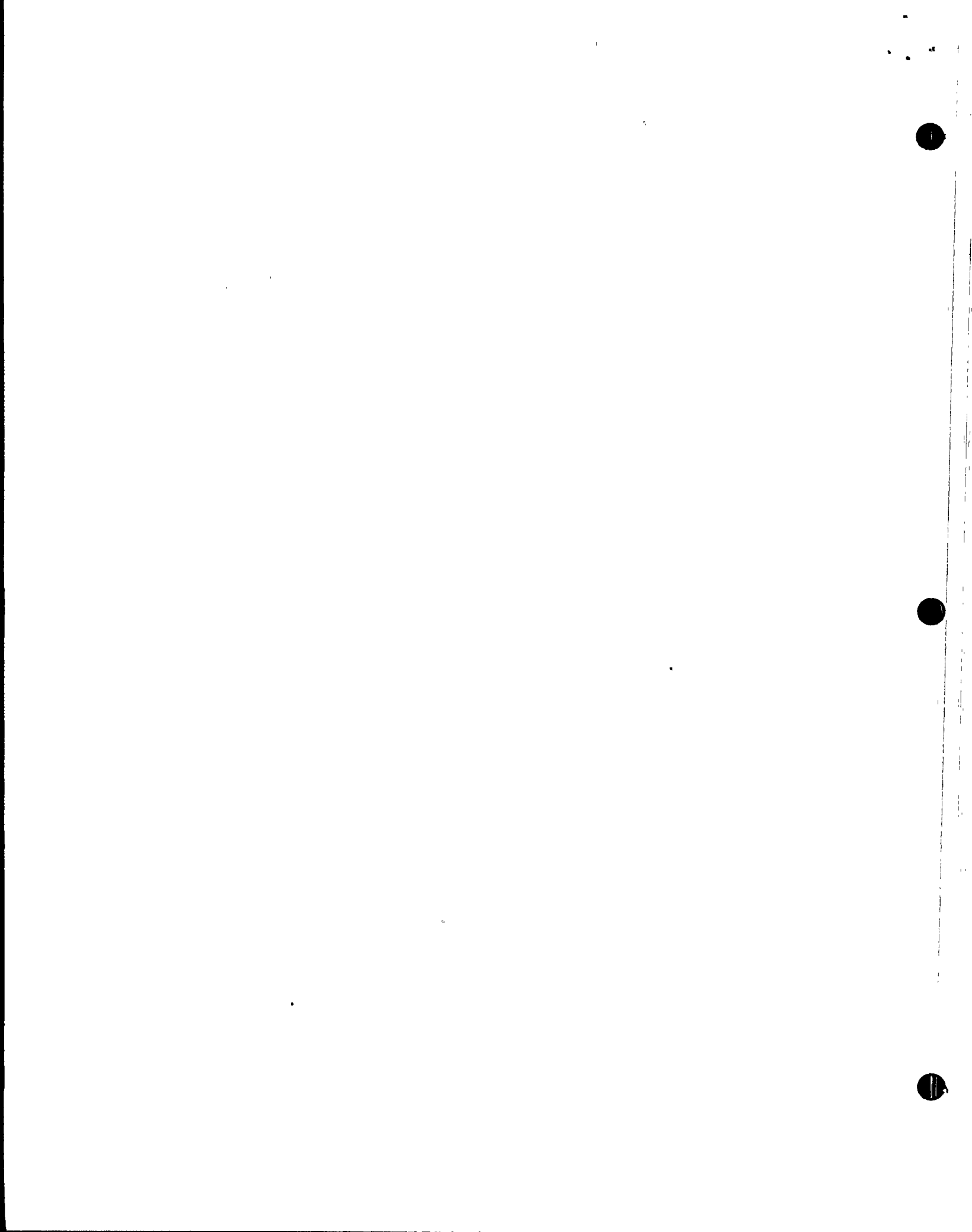
INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

SYSTEM REACTOR COOLANT										P & ID RCP-001	REVISION - DATE 1 2/82	PAGE 63 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
V056	G-6	1	B	1"	GL	M	C	C	NA				NOTE 3
V057	G-7	1	B	1"	GL	M	C	C	NA				NOTE 3
V210	A-12		B	3/4"	GL	M	O	O	NA				NOTE 3
V212	D-6		B	3/4"	GL	M	O	O	NA				NOTE 3
V213	B-7		B	3/4"	GL	M	O	O	NA				NOTE 3
V215	C-5	1	B	2"	GL	M	O	O	NA				NOTE 3
V236	G-6	1	B	3/4"	GL	M	O	O	NA				NOTE 3
V237	G-6		B	3/4"	GL	M	O	O	NA				NOTE 3



INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

SYSTEM REACTOR COOLANT										P & ID RCP-001		REVISION - DATE 1 2/82		PAGE 64 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS		
V238	F-11		B	3/4"	GL	M	O O	NA					NOTE 3		
V240	F-6	1	B	3"	GA	M	O O	NA					NOTE 3		
V241	F-6	1	B	3"	GA	M	O O	NA					NOTE 3		
V242	G-6	1	B	3"	GA	M	O O	NA					NOTE 3		
V243	G-6	1	B	3"	GA	M	O O	NA					NOTE 3		
V244	H-7	1	C	4"	CK	SA	O/C C	FST	OP				NOTE 11		
V332	C-2	1	B	2"	GL	M	C O	NA					NOTE 3		
V333	F-2	1	B	2"	GL	M	C C	NA					NOTE 3		

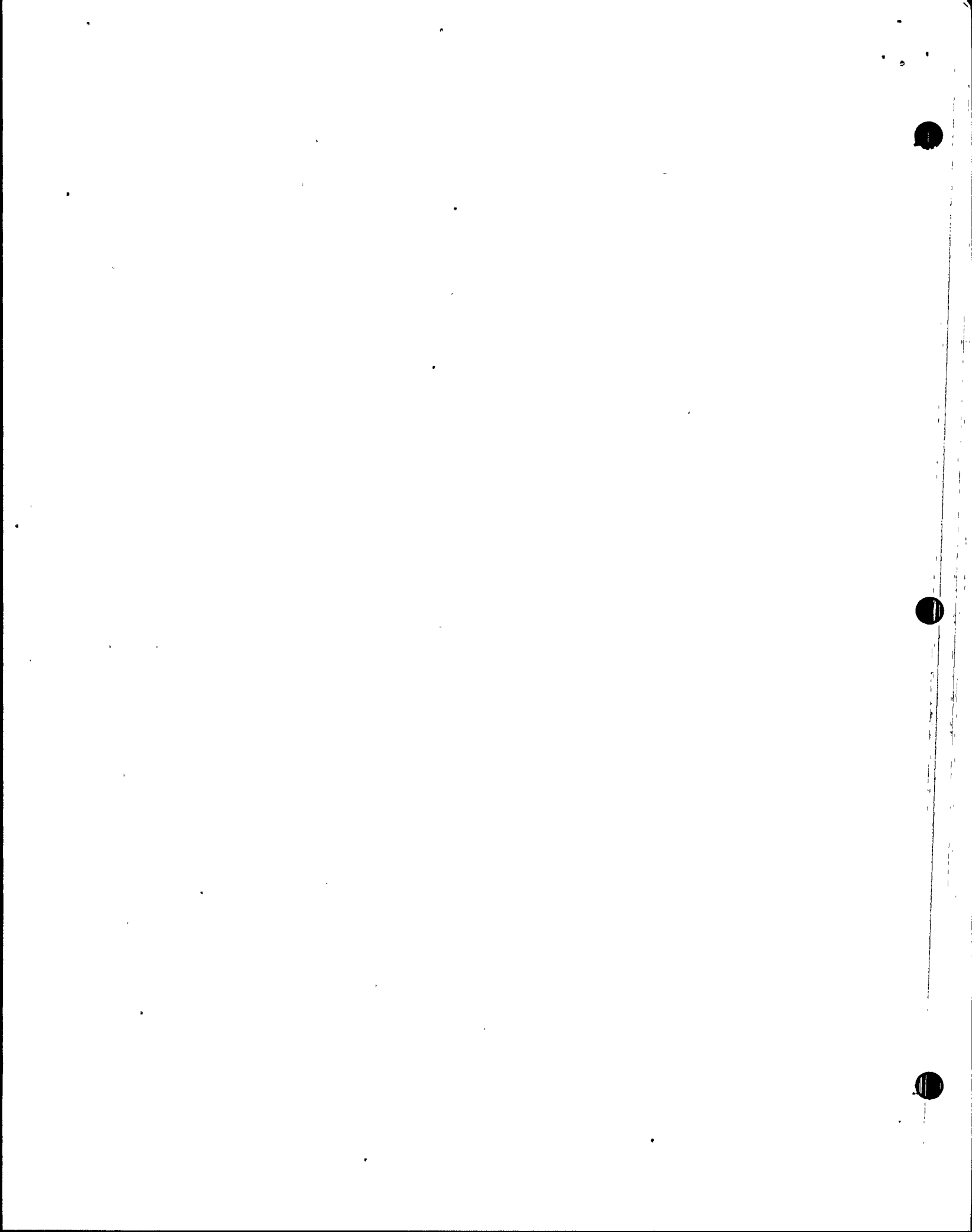


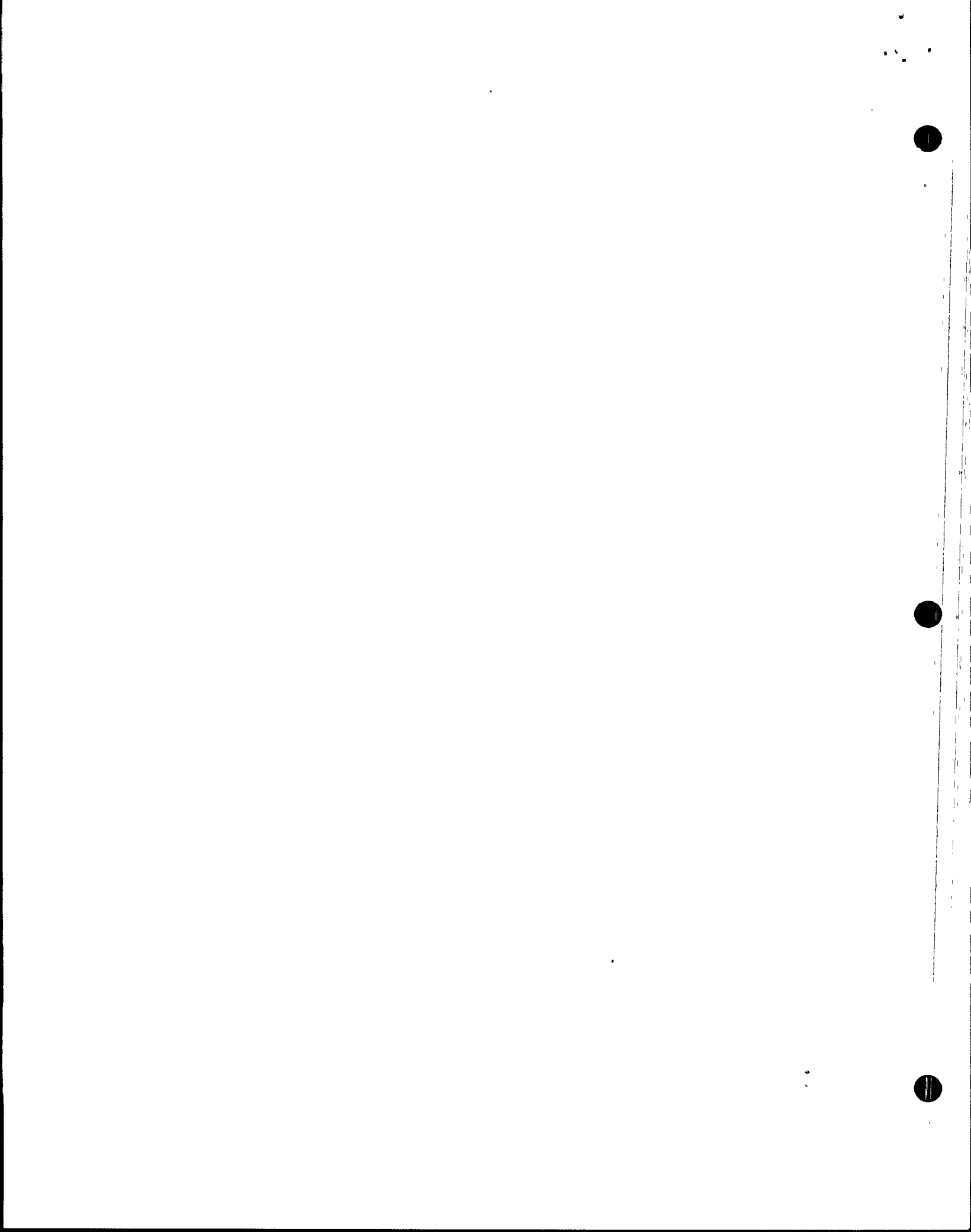
Arizona
Public
Service

INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

Power
Production
Engineering

SYSTEM REACTOR COOLANT										P & ID RCP-001	REVISION - DATE 1 2/82		PAGE 65 of 118
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
V334	B-10	1	B	2"	GL	M	C	C	NA				NOTE 3
V335	F-10	1	B	2"	GL	M	C	C	NA				NOTE 3
HV101	G-13	2	B	1"	GL	SO	C	C	NA				NOTE 3
HV102	G-13	2	B	1"	GL	SO	C	C	NA				NOTE 3
HV103	G-13	2	B	1"	GL	SO	C	C	NA				NOTE 3
HV104	G-13	2	B	1"	GL	SO	C	C	NA				NOTE 3
PV100E	G-6	1	B	3"	GL	AO	O/C	C	FST F T VPI	CS CS RF		VRR	NOTE 5
PV100F	G-6	1	B	3"	GL	AO	O/C	C	FST F T VPI	CS CS RF		VRR	NOTE 5





INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

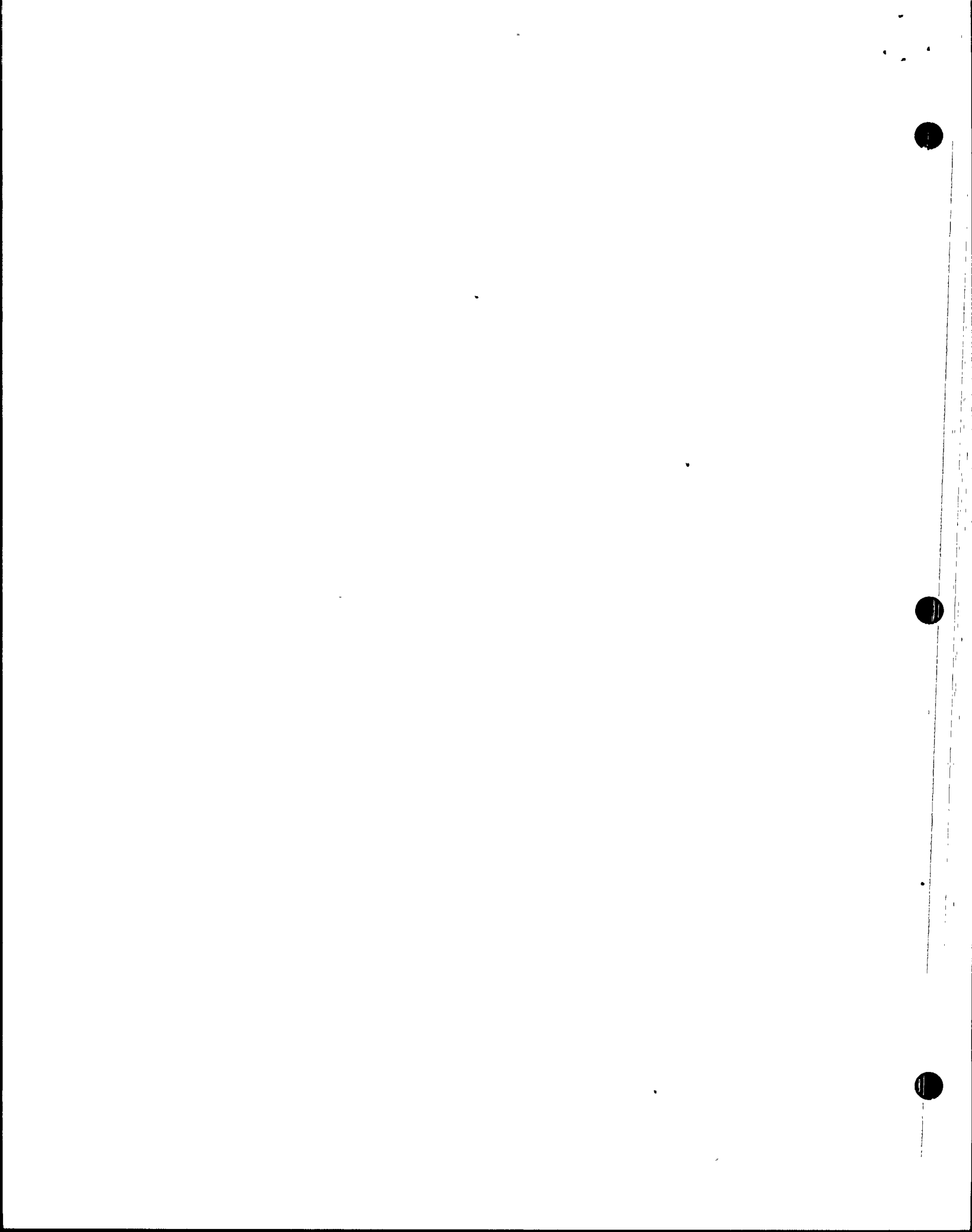
SYSTEM REACTOR COOLANT										P & ID RCP-002		REVISION - DATE 1 2/82		PAGE 67 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS		
V344	D-10	2	B	3/4	GL	M	O	O	NA				NOTE 3		
V345	H-10	2	B	3/4"	GL	M	O	O	NA				NOTE 3		
V346	H-2	2	B	3/4"	GL	M	O	O	NA				NOTE 3		
V347	D-2	2	B	3/4"	GL	M	O	O	NA				NOTE 3		
HV430	D-11	2	B	1"	GL	MO	O	O	NA				NOTE 3		
HV431	H-11	2	B	1"	GL	MO	O	O	NA				NOTE 3		
HV432	H-3	2	B	1"	GL	MO	O	O	NA				NOTE 3		
HV433	D-2	2	B	1"	GL	MO	O	O	NA				NOTE 3		





INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

SYSTEM MAIN STEAM										P & ID SGP-001		REVISION - DATE 1 27/82		PAGE 69 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS		
V043	E-12	3	C	6"	CK	SA	C	O	PST FST	OP CS					
V044	C-12	3	C	6"	CK	SA	C	O	PST FST	OP CS					
HV178	E-14	2	A	12"	GL	AO	C	C	AJLT	RF			NOTE 9		
HV179	A-14	2	A	12"	GL	AO	C	C	AJLT	RF			NOTE 9		
HV184	F-14	2	A	12"	GL	AO	C	C	AJLT	RF			NOTE 9		
HV185	C-14	2	A	12"	GL	AO	C	C	AJLT	RF			NOTE 9		
UV134	E-12	2	A	6"	GA	MO	C	O/C	AJLT FST VPI PST	RF CS RF OP			NOTES 6, 10		
UV138	C-12	2	A	6"	GA	MO	C	O/C	AJLT FST VPI PST	RF CS RF OP			NOTES 6, 10		



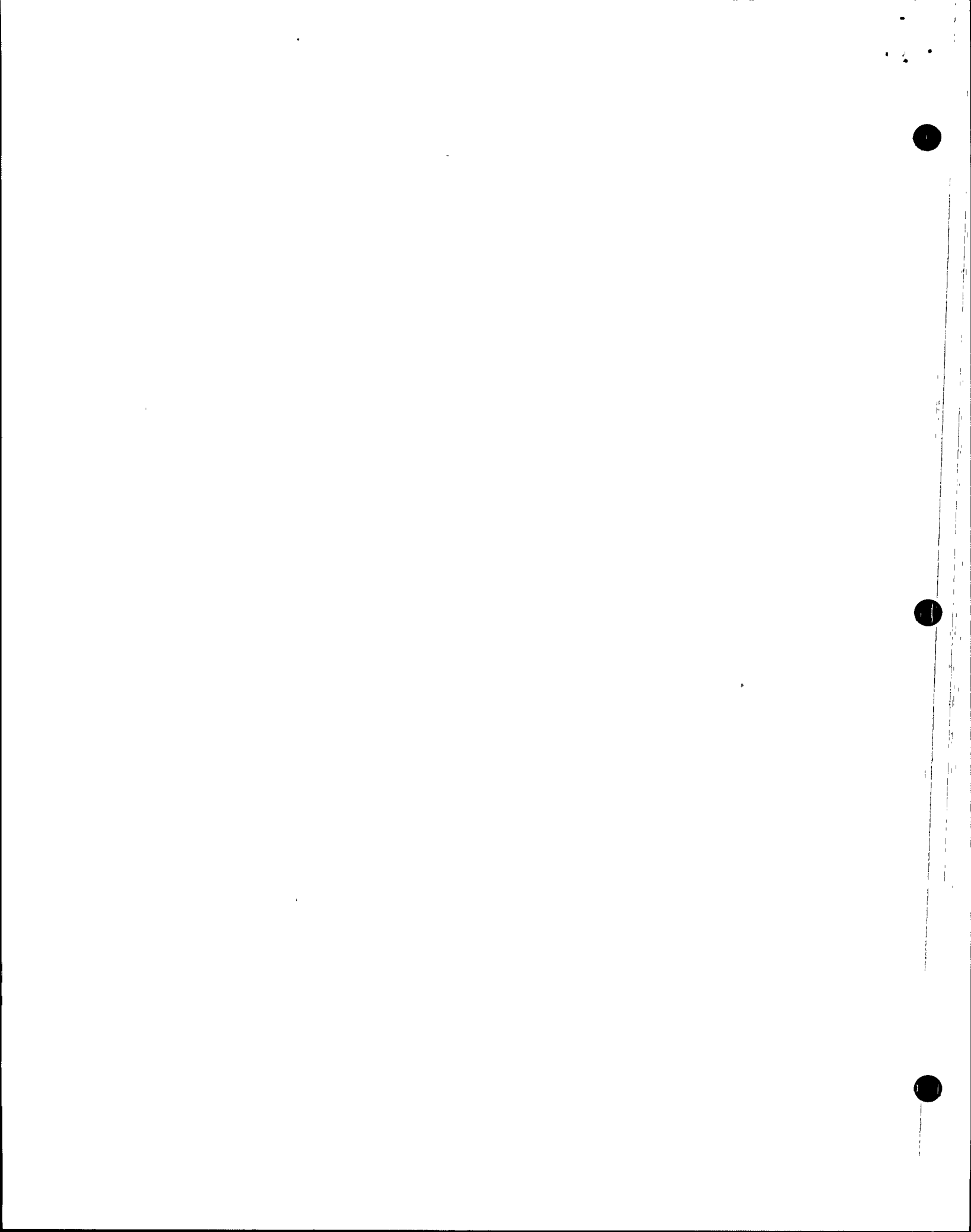
INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

SYSTEM MAIN STEAM										P & ID SGP-001	REVISION - DATE 1 2/82	PAGE 71 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
UV1135A	G-10	2	A	1"	GL	SO	O	C	AJLT EST F T VPT	RF OP OP RF			NOTE 10
UV1135B	E-10	2	A	1"	GL	SO	O	C	AJLT EST F T VPI	RF OP OP RF			NOTE 10
UV1136A	C-10	2	A	1"	GL	SO	O	C	AJLT EST FT VPI	RF OP OP RF			NOTE 10
UV1136B	B-11	2	A	1"	GL	SO	O	C	AJLT EST FT VPI	RF OP OP RF			NOTE 10
PSV554	D-12	2	A,C	6"	PSV	SA	C	O	PSVT				NOTE 2
PSV555	D-13	2	A,C	6"	PSV	SA	C	O	PSVT				NOTE 2
PSV556	D-13	2	A,C	6"	PSV	SA	C	O	PSVT				NOTE 2
PSV557	D-14	2	A,C	6"	PSV	SA	C	O	PSVT				NOTE 2



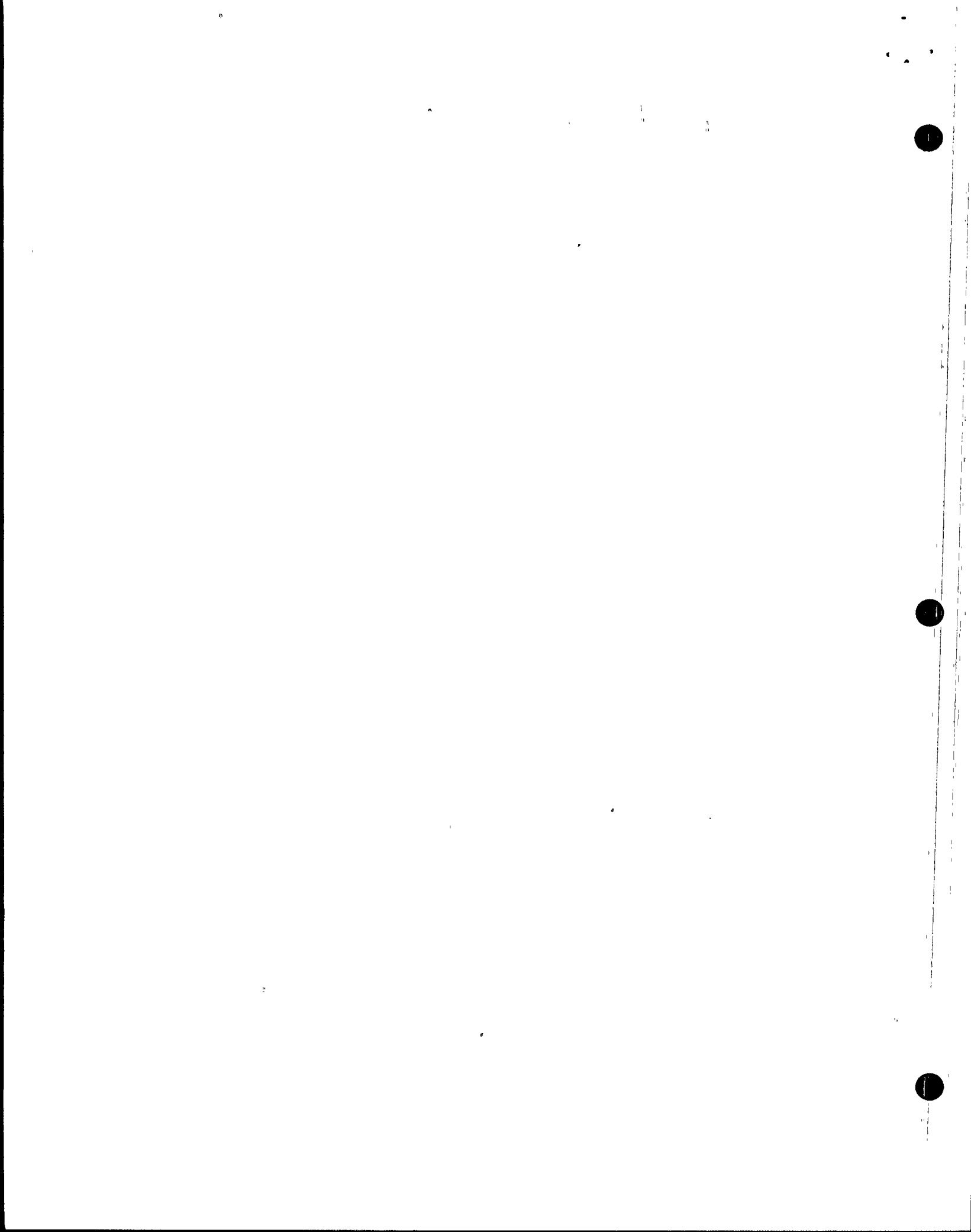
INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

SYSTEM MAIN STEAM									P & ID SGP-001	REVISION - DATE 1 2/82	PAGE 70 of 118		
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
UV169	F-11	2	A	4"	GA	AO	C	C	AJLT	RF			NOTE 9
UV170	G-10	2	A	28"	GA	HY	O	C	AJLT FST PST FT VPI	RF CS CS RF	5s		NOTE 10
UV171	D-10	2	A	28"	GA	HY	O	C	AJLT FST PST FT VPI	RF CS OP CS RF	5s		NOTE 10
UV180	E-10	2	A	28"	GA	HY	O	C	AJLT FST PST FT VPI	RF CS OP CS RF	5s		NOTE 10
UV181	B-10	2	A	28"	GA	HY	O	C	AJLT FST PST FT VPI	RF CS OP CS RF	5s		NOTE 10
UV183	B-11	2	A	4"	GA	AO	C	C	AJLT	RF			NOTE 9
UV1133	D-13	2	A	1"	GL	SO	O	C	AJLT FST FT VPI	RF OP OP RF			NOTE 10
UV1134	C-13	2	A	1"	GL	SO	O	C	AJLT FT FST VPI	RF OP OP RF			NOTE 10



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ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

SYSTEM MAIN STEAM										P & ID SGP-001	REVISION - DATE 1 2/82		PAGE 72 of 118
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
PSV558	B-14	2	A,C	6"	PSV	SA	C	O	PSVT				NOTE 2
PSV559	B-13	2	A,C	6"	PSV	SA	C	O	PSVT				NOTE 2
PSV560	B-13	2	A,C	6"	PSV	SA	C	O	PSVT				NOTE 2
PSV561	B-12	2	A,C	6"	PSV	SA	C	O	PSVT				NOTE 2
PSV572	H-13	2	A,C	6"	PSV	SA	C	O	PSVT				NOTE 2
PSV573	H-13	2	A,C	6"	PSV	SA	C	O	PSVT				NOTE 2
PSV574	H-14	2	A,C	6"	PSV	SA	C	O	PSVT				NOTE 2
PSV575	H-15	2	A,C	6"	PSV	SA	C	O	PSVT				NOTE 2



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INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
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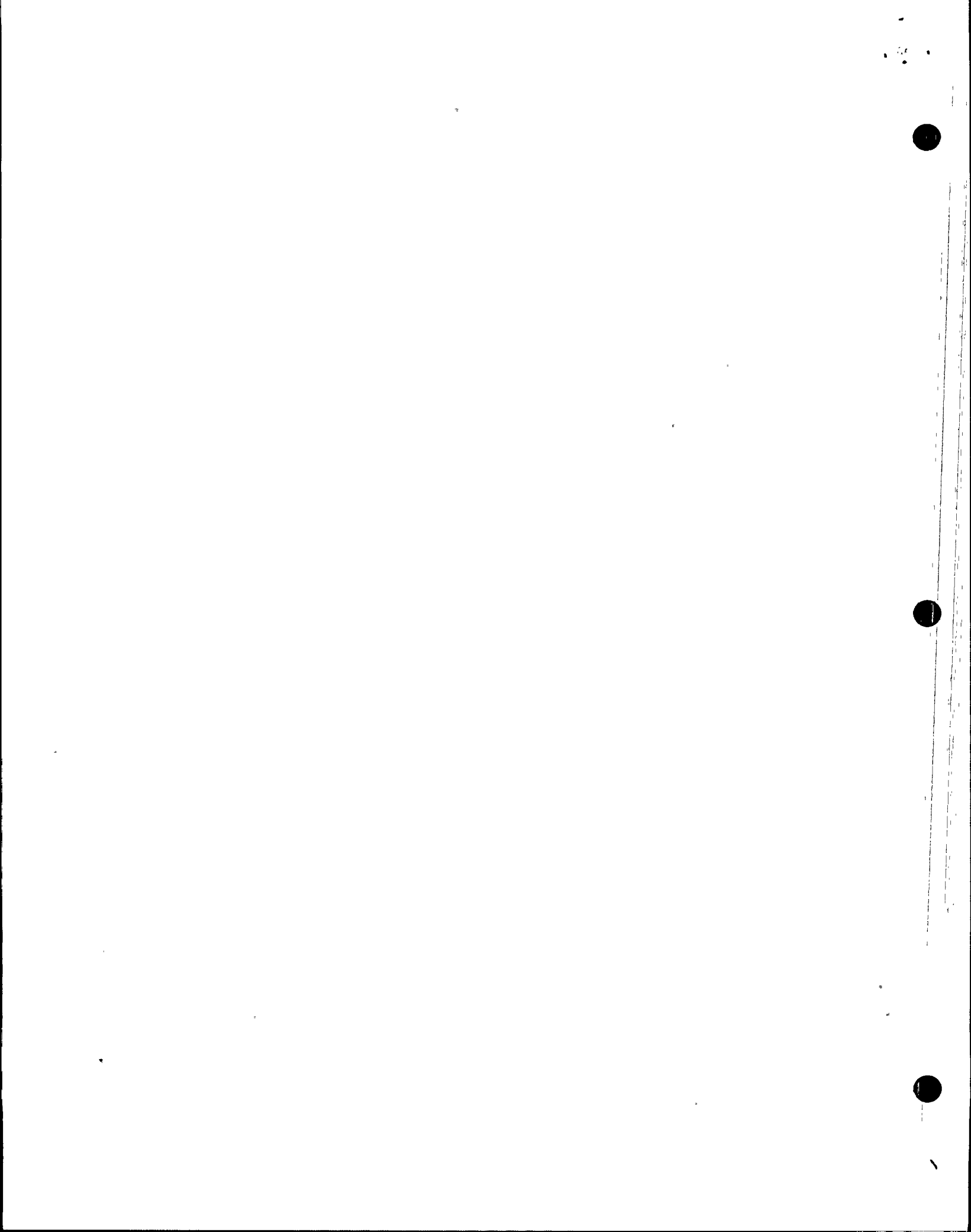
Power
Production
Engineering

SYSTEM MAIN STEAM										P & ID SGP-001	REVISION - DATE 1 2/82		PAGE 73 of 118
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
PSV576	F-14	2	A,C	6"	P SV	SA	C	O	PSVT				NOTE 2
PSV577	F-13	2	A,C	6"	P SV	SA	C	O	PSVT				NOTE 2
PSV578	F-13	2	A,C	6"	P SV	SA	C	O	PSVT				NOTE 2
PSV579	F-12	2	A,C	6"	P SV	SA	C	O	PSVT				NOTE 2
PSV691	F-15	2	A,C	6"	P SV	SA	C	O	PSVT				NOTE 2
PSV692	H-15	2	A,C	6"	P SV	SA	C	O	PSVT				NOTE 2
PSV694	B-15	2	A,C	6"	P SV	SA	C	O	PSVT				NOTE 2
PSV965	D-15	2	A,C	6"	P SV	SA	C	O	PSVT				NOTE 2



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SYSTEM MAIN STEAM										P & ID SGP-002	REVISION - DATE 1 2/82	PAGE 74 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
V003	E-10	2	C	24"	CK	SA	O	C	FST	CS		VRR-16	NOTE 5
V005	A-10	2	C	24"	CI	SA	O	C	EST	CS		VRR-16	NOTE 5
V006	A-10	2	C	24"	CK	SA	O	C	FST	CS		VRR-16	NOTE 5
V007	E-10	2	C	24"	CK	SA	O	C	FST	CS		VRR-16	NOTE 5
V023	F-4	2	B	3"	GL	M	C	C	NA				NOTE 3
V026	F-3	2	B	2"	GL	M	C	C	NA				NOTE 3
V029	B-4	2	B	3"	GL	M	C	C	NA				NOTE 3
V032	B-3	2	B	2"	GL	M	C	C	NA				NOTE 3



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SYSTEM MAIN STEAM										P & ID SGP-002	REVISION - DATE 1 2/82	PAGE 75 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
V039	B-5	2	B	½"	GL	M	O	O	NA				NOTE 3
V041	F-5	2	B	½"	GL	M	O	O	NA				NOTE 3
V289	E-4	2	B	6"	GA	M	O	O	NA				NOTE 3
V290	A-4	2	B	6"	GA	M	O	O	NA				NOTE 3
V291	G-11	2	B	1"	GL	M	O	O	NA				NOTE 3
V292	C-11	2	B	1"	GL	M	O	O	NA				NOTE 3
V295	E-4	2	B	½"	GL	M	O	O	NA				NOTE 3
V296	B-4	2	B	½"	GL	M	O	O	NA				NOTE 3



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ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

SYSTEM MAIN STEAM										P&ID SGP-002	REVISION - DATE 1 2/82	PAGE 76 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
V423	F-7	2	B	1/2"	GL	M	O	O	NA				NOTE 3
V428	C-7	2	B	1/2"	GL	M	O	O	NA				NOTE 3
V524	C-11	2	C	3/8"	CK	SA	C	C	NA				NOTE 3
V525	F-11	2	C	3/8"	CK	SA	C	C	NA				NOTE 3
V590	F-4	2	B	1"	GL	M	C	C	NA				NOTE 3
(1) V603	H-6	2	B	1"	GL	M	C	C	NA				NOTE 3
V610	C-4	2	B	1"	GL	M	C	C	NA				NOTE 3
(1) V611	D-6	2	B	1"	GL	M	C	C	NA				NOTE 3



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ISI CLASS 1, 2 & 3 VALVES
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SYSTEM MAIN STEAM										P&ID SGP-002	REVISION - DATE 1 2/82	PAGE 77 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
V642	G-11	2	C	8"	CK	SA	O	C	FST	CS		VRR-16	NOTE 5
V652	G-10	2	C	8"	CK	SA	O	C	FST	CS		VRR-16	NOTE 5
V653	C-10	2	C	8"	CK	SA	O	C	FST	CS		VRR-16	NOTE 5
V693	C-11	2	C	8"	CK	SA	O	C	FST	CS		VRR-16	NOTE 5
HV41	E-5	2	B	6"	GA	MO	O	O	NA				NOTE 3
HV42	B-5	2	B	6"	GA	MO	O	O	NA				NOTE 3
HV43	E-5	2	B	6"	GA	MO	C	C	NA				NOTE 3
Hv44	A-5	2	B	6"	GA	MO	C	C	NA				NOTE 3



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ISI CLASS 1, 2 & 3 VALVES
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SYSTEM MAIN STEAM										P & ID SGP-002	REVISION - DATE 1 2/82	PAGE 78 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
HV200	F-11	2	A	3/8"	GA	SO	C	C	AJLT	RF	1s		NOTE 1, 9
HV201	C-11	2	A	3/8"	GA	SO	C	C	AJLT	RF	1s		NOTE 1, 9
UV130	G-12	2	A	8"	GA	AO	O	C	AJLT FST PST F T VPI	RF CS OP CS RF	5s		NOTE 10
UV132	E-12	2	A	24"	GA	HY	O	C	AJLT FST PST F T VPI	RF CS OP CS RF	5s		NOTE 10
UV135	C-12	2	A	8"	GA	AO	O	C	AJLT FST PST F T VPI	RF CS OP CS RF	5s		NOTE 10
UV137	A-12	2	A	24"	GA	HY	O	C	AJLT FST PST F T VPI	RF CS OP CS RF	5s		NOTE 10
UV172	G-12	2	B	8"	GA	AO	O	C	FST PST F T VPI	CS OP CS RF	5s		
UV174	E-12	2	B	24"	GA	HY	O	C	FST PST F T VPI	CS OP CS RF	5s		



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ISI CLASS 1, 2 & 3 VALVES
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SYSTEM		MAIN STEAM								P & ID	REVISION	DATE	PAGE
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VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
(1) UV175	C-12	2	B	8"	GA	AO	O	C	FST PST F T VPI	CS OP CS RF	5s		
(1) UV177	A-12	2	B	24"	GA	HY	O	C	FST PST F T VPI	CS OP CS RF	5s		
UV204	G-3	2	B	½"	GL	SO	C	C	NA				NOTE 3
UV211	G3	2	B	½"	GL	SO	O	C	FST F T VPI	OP OP RF	5s		
UV219	G-2	2	A	½"	GL	SO	C	C	AJLT	RF	5s		NOTE 9
UV220	F-6	2	B	½"	GL	SO	O	C	FST F T VPI	OP OP RF	5s		
UV221	F-5	2	A	½"	GL	SO	O	C	AJLT FST F T VPI	RF OP OP RF	5s		NOTE 10
UV222	C-3	2	B	½"	GL	SO	C	C	NA				NOTE 3

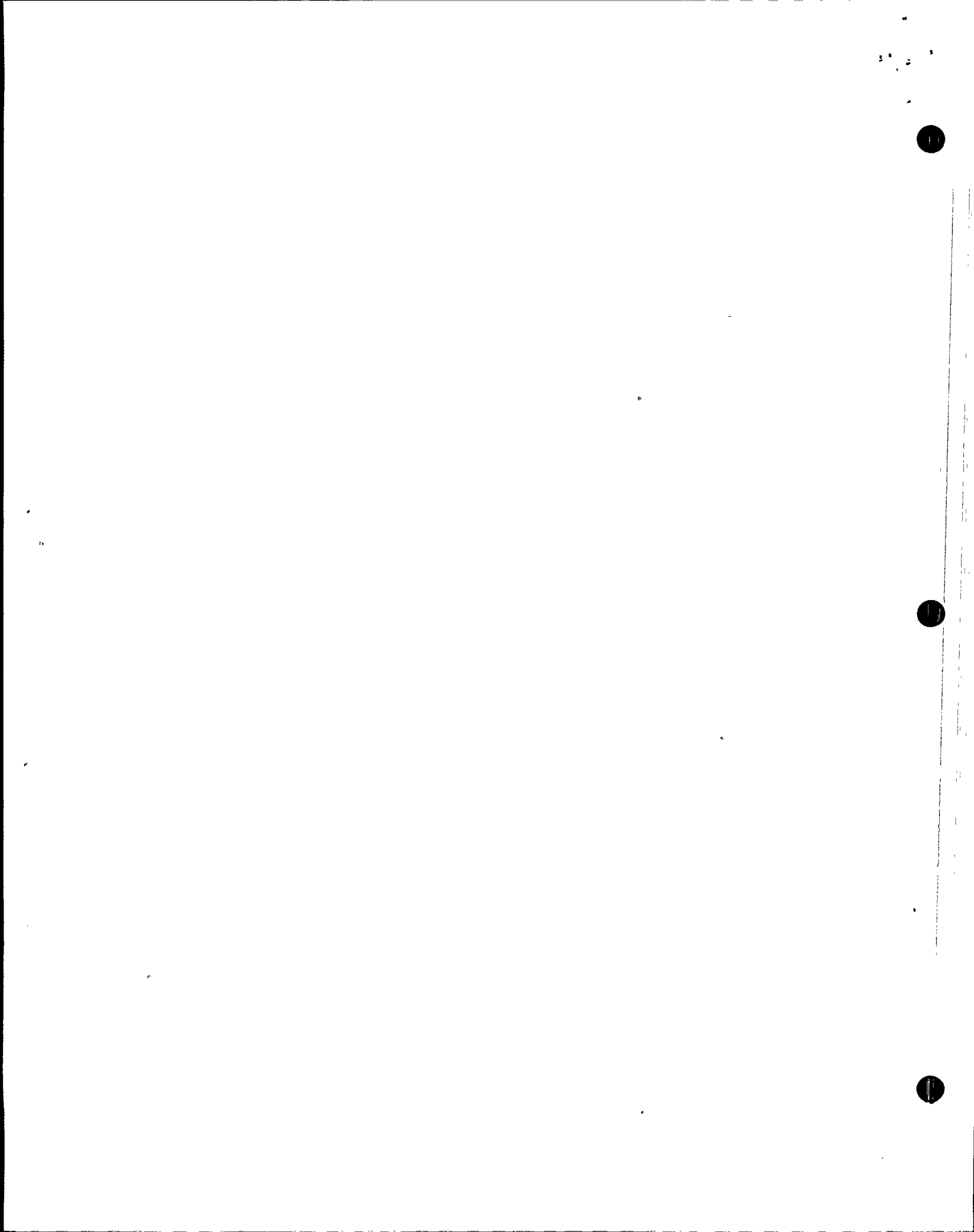


INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

SYSTEM MAIN STEAM										P & ID SGP-002		REVISION - DATE 1 2/82		PAGE 80 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS		
UV223	C-2	2	A	½"	GL	SO	C	C	AJTL	RF	5s		NOTE 9		
UV224	D-3	2	B	½"	GL	SO	O	C	FST F T VPI	OP OP RF	5s				
UV225	D-2	2	A	½"	GL	SO	O	C	AJLT FST F T VPI	RF OP OP RF	5s		NOTE 10		
UV226	C-6	2	B	½"	GL	SO	O	C	FST F T VPI	OP OP RF	5s				
UV227	C-5	2	A	½"	GL	SO	C	C	AJLT	RF	5s		NOTE 9		
UV228	G-2	2	A	½"	GL	SO	O	C	AJLT F: T FST VPI	RF OP OP RF	5s		NOTE 10		
UV500P	E-3	2	B	6"	GA	AO	O	C	FST F T VPI	OP OP RF	10s				
UV500Q	E-2	2	A	6"	GA	AO	O	C	AJLT FST FT VPI	RF OP OP RF	10s		NOTE 10		

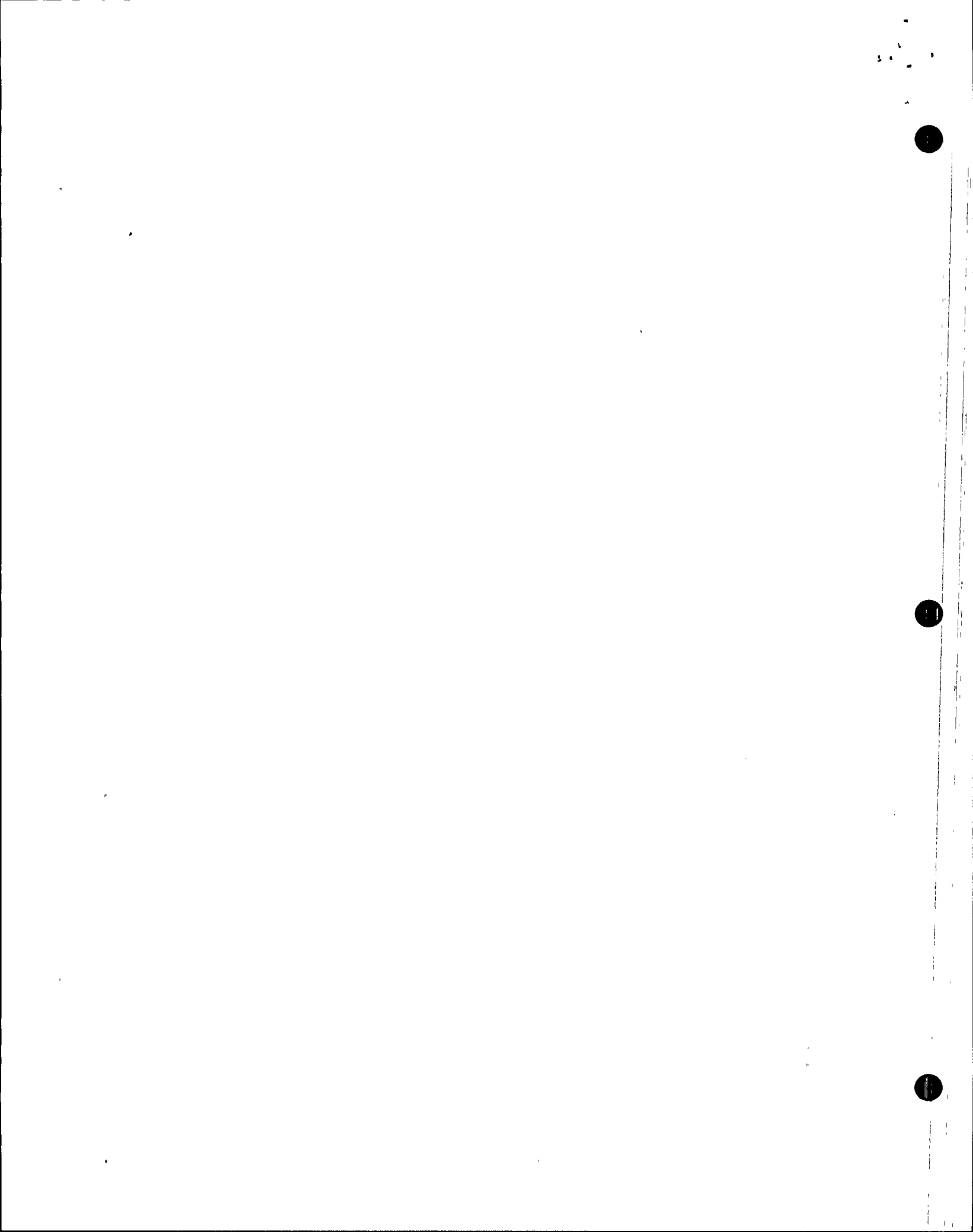
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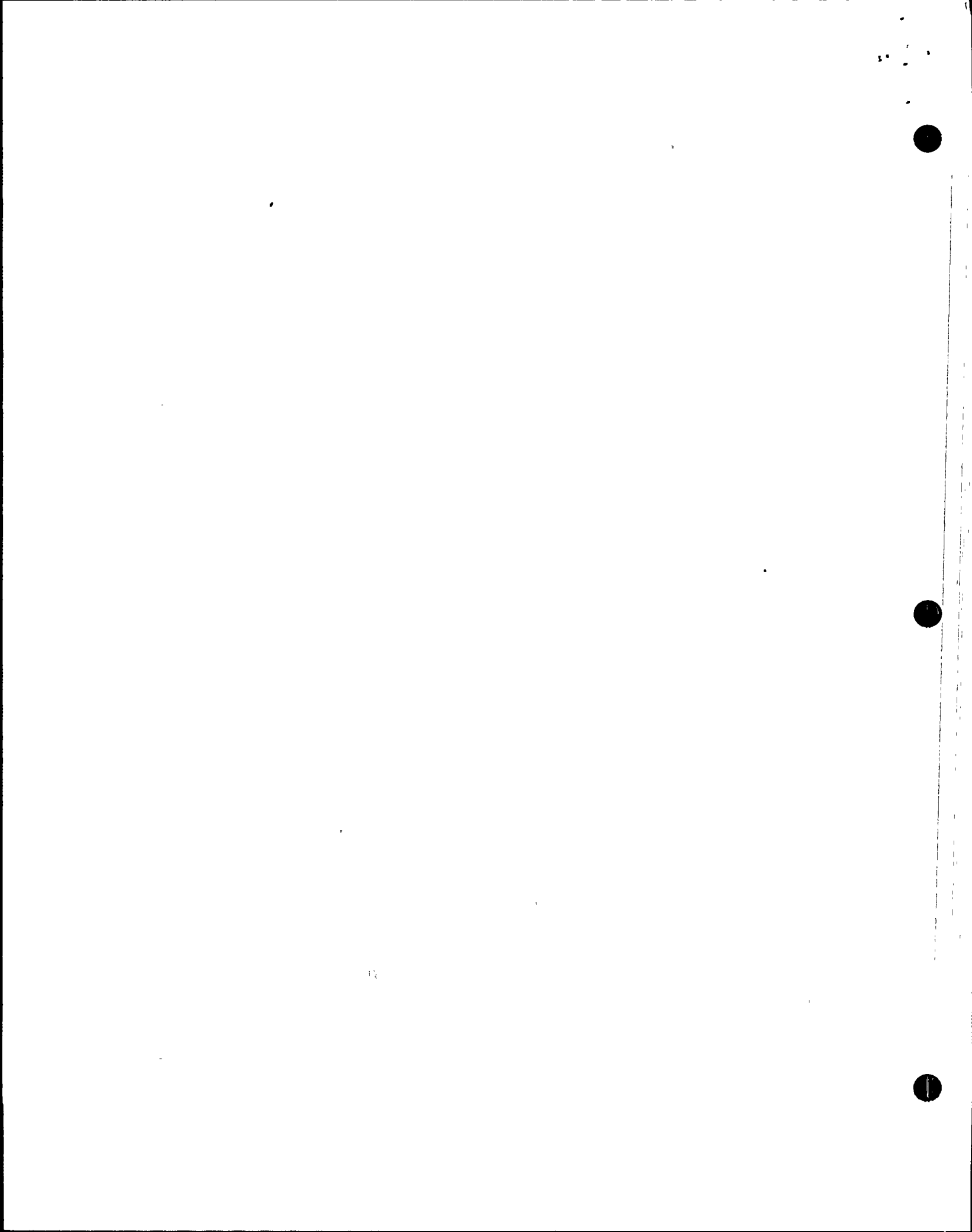
INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
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SYSTEM SAFETY INJECTION AND SHUT DOWN COOLING										P & ID SIP-001		REVISION - DATE 1 2/82		PAGE 82 of 116	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS		
V040	B-2	2	B	1"	GL	M	C	C	NA				NOTE 3		
V104	C-13	2	B	18"	GA	M	O	O	NA				NOTE 3		
V105	G-13	2	B	18"	GA	M	O	O	NA				NOTE 3		
V120	C-12	2	C	½"	CK	SA	C	O	FST	OP					
V128	D-13	2	B	1"	GL	M	C	C	NA				NOTE 3		
V130	E-12	2	C	½"	CK	SA	C	O	FST	OP					
V148	D-13	2	B	½"	GL	M	C	C	NA				NOTE 3		
V152	F-14	2	B	1"	GL	M	C	C	NA				NOTE 3		



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SYSTEM SAFETY INJECTION AND SHUT DOWN COOLING										SIP-881 ^D		REVISION - DATE 1 2/82		PAGE 83 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS		
V157	G-13	2	C	18"	CK	SA	C	O	FST	OP					
V158	C-13	2	C	18"	CK	SA	C	O	FST	OP					
V184	G-13	2	B	14"	GA	M	C	C	NA				NOTE 3		
V185	C-13	2	B	14"	GA	M	C	C	NA				NOTE 3		
V200	B-12	2	C	20"	CK	SA	C	O	FST	OP					
V201	F-12	2	C	20"	CK	SA	C	O	FST	OP					
V205	G-14	2	C	24"	CK	SA	C	O	PST	RF		VRR-3	NOTES 4, 5		
V206	A-14	2	C	24"	CK	SA	C	O	PST	RF		VRR-3	NOTES 4, 5		



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ISI CLASS 1, 2 & 3 VALVES
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SYSTEM SAFETY INJECTION AND SHUT DOWN COOLING										SIP-001 ^{B&D}		REVISION - DATE 1 2/82		PAGE 84 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS		
V252	F-16	2	B	1½"	GL	M	C	C	NA				NOTE 3		
V256	H-15	2	B	12"	GA	M	C	C	NA				NOTE 3		
V260	H-7	2	B	1"	GL	M	C	C	NA				NOTE 3		
V262	G-7	2	B	1"	GL	M	C	C	NA				NOTE 3		
V264	C-7	2	B	1"	GL	M	C	C	NA				NOTE 3		
V266	C-7	2	B	1"	GL	M	C	C	NA				NOTE 3		
V298	D-5	2	B	6"	GA	M	C	C	NA				NOTE 3		
V400	D-10	2	B	2"	GL	M	C	C	NA				NOTE 3		

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ISI CLASS 1, 2 & 3 VALVES
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Power
Production
Engineering

SYSTEM SAFETY INJECTION AND SHUT DOWN COOLING										P & ID SIP-001	REVISION - DATE 1 2/82	PAGE 85 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
V402	A-13	2	B	10"	GA	M	O	O	NA				NOTE 3
V404	G-5	2	C	4"	CK	SA	C	O	FST	CS		VRR-7	NOTE 5
V405	B-5	2	C	4"	CK	SA	C	O	FST	CS		VRR-7	NOTE 5
V418	B-15	2	B	3"	GA	M	C	C	NA				NOTE 3
V419	H-15	2	B	3"	GA	M	C	C	NA				NOTE 3
V420	D-1	2	B	3"	GA	M	C	C	NA				NOTE 3
V421	H-1	2	B	3"	GA	M	C	C	NA				NOTE 3
V424	F-10	2	C	2"	CK	SA	C	O	FST	OP			



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SYSTEM SAFETY INJECTION AND SHUT DOWN COOLING										P & ID SIP-001	REVISION - DATE 1 2/82		PAGE 86 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS	
V426	A-10	2	C	2"	CK	SA	C	O	FST	OP				
V427	B-7	2	B	3/4"	GL	M	O	O	NA				NOTE 3	
V429	H-14	2	B	1/2"	GL	M	O	O	NA				NOTE 3	
V434	F-9	2	C	10"	CK	SA	C	O	FST	OP				
V435	F-8	2	B	10"	GA	M	O	O	NA				NOTE 3	
V442	B-15	2	B	12"	GA	M	C	C	NA				NOTE 3	
V445	B-14	2	B	1/2"	GL	M	O	O	NA				NOTE 3	
V446	B-9	2	C	10"	CK	SA	C	O	FST	OP				



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SYSTEM SAFETY INJECTION AND SHUT DOWN COOLING										P & ID SIP-001	REVISION - DATE 1 2/82	PAGE 87 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
V447	B-8	2	B	10"	GA	M	O	O	NA				NOTE 3
V448	B-10	2	C	2"	CK	SA	C	O	FST	OP			
V451	G-10	2	C	2"	CK	SA	C	O	FST	OP			
V455	C-4	2	B	14"	GA	M	C	C	NA				NOTE 3
V458	G-5	2	B	14"	GA	M	C	C	NA				NOTE 3
V459	D-6	2	B	2"	GL	M	C	C	NA				NOTE 3
V460	E-5	2	B	6"	GA	M	C	C	NA				NOTE 3
V463	D-8	2	A	2"	GL	M	C	C	AJLT	RF			NOTE 9



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INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
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SYSTEM SAFETY INJECTION AND SHUT DOWN COOLING										P & ID SIP-001		REVISION - DATE 1 2/82		PAGE 88 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS		
V464	D-5	2	B	6"	GA	M	C	C	NA				NOTE 3		
V465	F-7	2	B	3/4"	GL	M	O	O	NA				NOTE 3		
V470	E-13	2	B	10"	GA	M	O	O	NA				NOTE 3		
V476	F-4	2	B	4"	GA	M	O	O	NA				NOTE 3		
V478	B-4	2	B	4"	GA	M	O	O	NA				NOTE 3		
V484	C-9	2	C	10"	CK	SA	C	O	FST	OP					
V485	H-9	2	C	10"	CK	SA	C	O	FST	OP					
V486	G-10	2	C	2"	CK	SA	C	O	FST	OP					

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PALO VERDE NUCLEAR GENERATING STATION

Power
Production
Engineering

SYSTEM SAFETY INJECTION AND SHUT DOWN COOLING										P&ID SIP-001	REVISION - DATE 1 2/82		PAGE 89 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS	
V487	C-10	2	C	2"	CK	SA	C	O	FST	OP				
V508	F-2	2	B	2"	GL	SA	C	C	NA				NOTE 3	
V509	E-2	2	B	2"	GL	M	C	C	NA				NOTE 3	
V811	F-2	2	B	1"	GL	M	C	C	NA				NOTE 3	
V821	G-2	2	B	1"	GL	M	C	C	NA				NOTE 3	
V947	D-11	2	B	2"	GL	MO	O	O	NA				NOTE 3	
HV306	G-4	2	B	10"	GL	MO	O	O	NA				NOTE 3	
HV307	B-4	2	B	10"	GL	MO	O	O	NA				NOTE 3	



Arizona
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INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
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Power
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SYSTEM SAFETY INJECTION AND SHUT DOWN COOLING										P & ID SIP-001	REVISION - DATE 1 2/82	PAGE 90 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
HV604	G-3	2	B	3"	GA	MO	C	O/C	FST VPI	OP RE			
HV609	C-3	2	B	3"	GA	MO	C	O/C	FST VPI	OP RF			
HV657	H-3	2	B	16"	BTF	MO	C	C	NA				NOTE 3
HV658	C-3	2	B	16"	BTF	MO	C	C	NA				NOTE 3
HV661	E-11	2	B	1"	GL	MO	C	C	NA				NOTE 3
HV678	H-9	2	B	10"	BTF	MO	O	O	NA				NOTE 3
HV679	C-9	2	B	10"	BTF	MO	O	O	NA				NOTE 3
HV683	F-13	2	B	20"	GA	MO	O	O	NA				NOTE 3

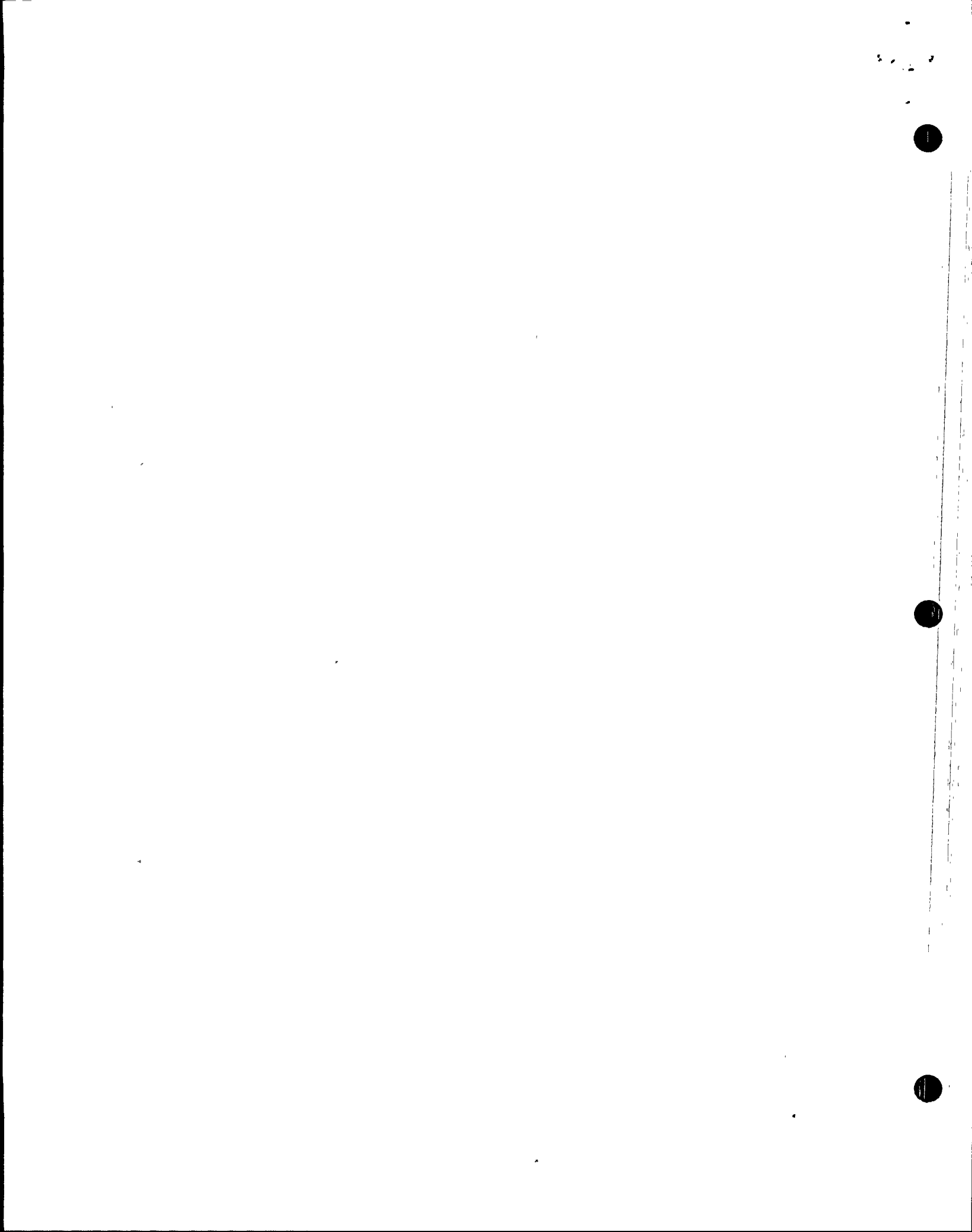


Arizona
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INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

Power
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SYSTEM SAFETY INJECTION AND SHUT DOWN COOLING										P & ID SIP-001		REVISION - DATE 1 2/82		PAGE 91 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS		
HV684	H-9	2	B	10"	GA	MO	O	O	NA				NOTE 3		
HV685	G-8	2	B	10"	GA	MO	C	C	NA				NOTE 3		
HV686	H-6	2	B	10"	GA	MO	C	C	NA				NOTE 3		
HV687	G-6	2	B	10"	GA	MO	O	O	NA				NOTE 3		
HV688	G-9	2	B	10"	GA	MO	C	C	NA				NOTE 3		
HV689	C-9	2	B	10"	GA	MO	O	O	NA				NOTE 3		
HV692	B-13	2	B	20"	GA	MO	O	O	NA				NOTE 3		
HV693	C-9	2	B	10"	GA	MO	C	C	NA				NOTE 3		



INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
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SYSTEM SAFETY INJECTION AND SHUT DOWN COOLING										P & ID SIP-001	REVISION - DATE 1 2/82	PAGE 92 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
HV694	B-8	2	B	10"	GA	MO	C	C	NA				NOTE 3
HV695	C-6	2	B	10"	GA	MO	O	O	NA				NOTE 3
HV696	C-6	2	B	20"	GA	MO	C	C	NA				NOTE 3
HV698	F-3	2	B	4"	GA	MO	O	O	NA				NOTE 3
HV699	B-3	2	B	4"	GA	MO	O	O	NA				NOTE 3
UV602	D-15	2	B	½"	GL	SO	C	O	FST FT VPI	OP OP RF			
UV603	D-15	2	B	½"	GL	SO	C	O	FST FT VPI	OP OP RF			
UV659	A-6	2	B	4"	GL	SO	O	C	FST FT VPI	OP OP RF			



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SYSTEM SAFETY INJECTION AND SHUT DOWN COOLING										P & ID SIP-001		REVISION - DATE 1 2/82		PAGE 93 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS .		
UV660	F-6	2	B	4"	GL	SO	O	C	FST FT VPI	OP OP RF					
UV664	G-10	2	B.	2"	GL	MO	O	C	FST VPI	OP RF			NOTE 6		
UV665	B-10	2	B.	2"	GL	MO	O	C	FST VPI	OP RF			NOTE 6		
UV666	F-10	2	B	2"	GL	MO	O	C	FST VPI	OP RF			NOTE 6		
UV667	A-10	2	B	2"	GL	MO	O	C	FST VPI	OP RF			NOTE 6		
UV668	B-10	2	B	2"	GL	MO	O	C	FST VPI	OP RF			NOTE 6		
UV669	G-10	2	B	2"	GL	MO	O	C	FST VPI	OP RF			NOTE 6		
UV671	C-6	2	A		GA	MO	C	O/C	AJLT FST VPI	RF OP RF	10s		NOTES, 6, 10		



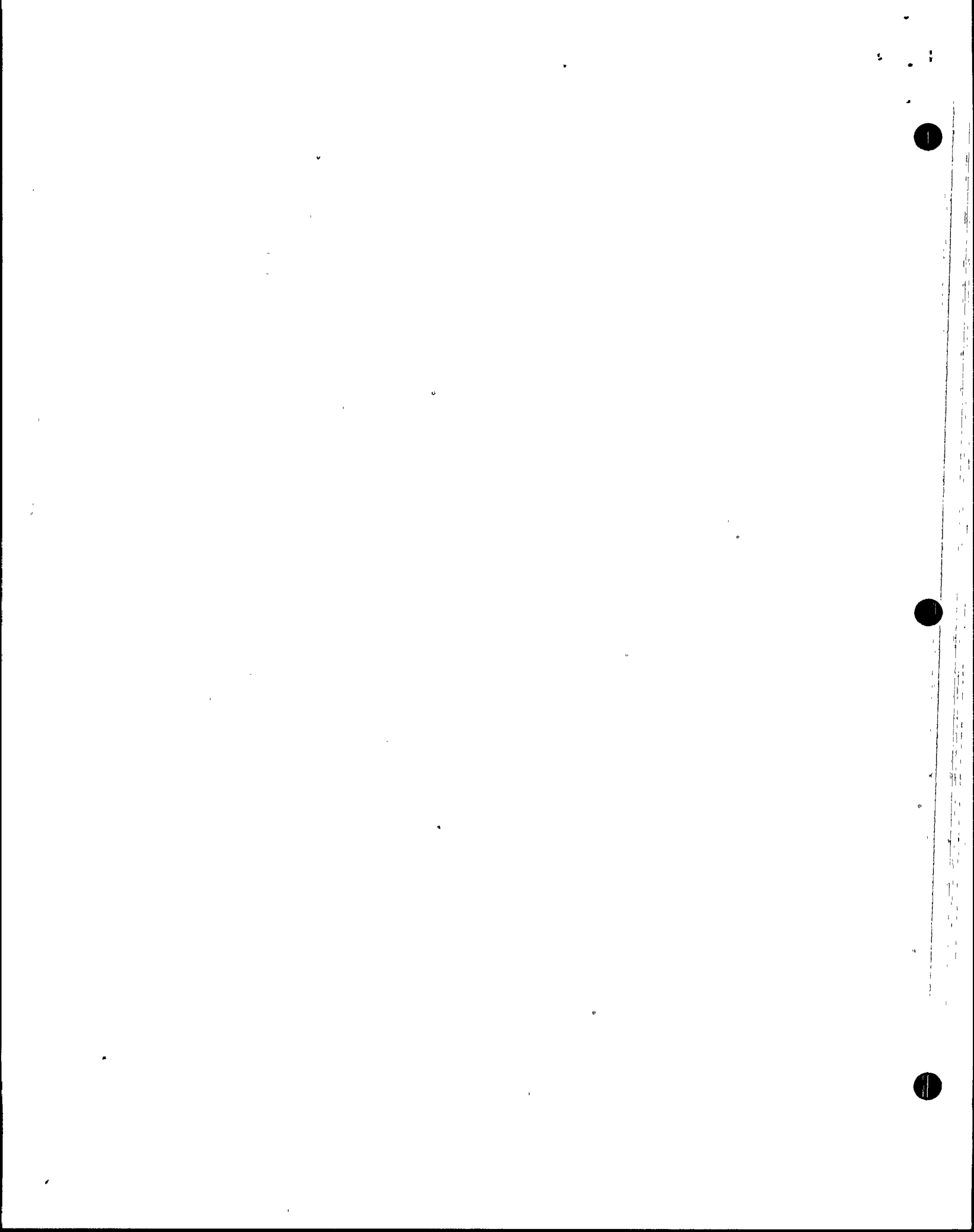
INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

SYSTEM SAFETY INJECTION AND SHUTDOWN COOLING									P & ID SIP-001		REVISION - DATE 1 2/82		PAGE 94 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS	
UV672	G-6	2	A		GA	MO	C	O/C	AJLT FST VPI	RF OP RF	10s		NOTES 6, 10	
UV673	G-16	2	A	24"	BTF	MO	C	O/C	AJLT FST VPI	RF OP RF	20s		NOTES 6, 10	
UV674	G-14	2	A	24"	BTF	MO	C	O/C	AJLT FST VPI	RF OP RF	20s		NOTES 6, 10	
UV675	A-16	1	A	24"	BTF	MO	C	O/C	AJLT FST	RF OP	10s		NOTES 6, 10	
UV676	A-14	2	A	24"	BTF	MO	C	O/C	AJLT FST VPI	RF OP RF	10s		NOTES 6, 10	
UV680	C-13	2	B	½"	GL	SO	C	O	FST FT VPI	OP OP RF				
UV681	E-13	2	B	½"	GL	SO	C	O	FST FT VPI	OP OP RF				
UV682	D-10	2	A	2"	GL	AO	C	C	AJLT	RF	5s		NOTE 9	



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ISI CLASS 1, 2 & 3 VALVES
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SYSTEM SAFETY INJECTION AND SHUT DOWN COOLING										P & ID SIP-001	REVISION - DATE 1 2/82	PAGE 95 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
UV708	G-15	2	A	½"	GL	SO	C	C	AJLT	RF			NOTE 9
UV709	F-7	2	B	½"	GL	SO	C	C	NA				NOTE 3
UV710	A-7	2	B	½"	GL	SO	C	C	NA				NOTE 3
PSV100	F-15	2	C	1"	PSV	SA	C	C	NA				NOTE 3
PSV118	F-15	2	C	1"	PSV	SA	C	C	NA				NOTE 3
PSV140	B-15	2	A,C	3/4"	PSV	SA	C	C	AJLT	RF			NOTE 9
PSV151	G-15	2	A,C	3/4"	PSV	SA	C	C	AJLT	RF			NOTE 9
PSV159	D-15	2	C	3/4"	PSV	SA	C	C	NA				NOTE 3



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SYSTEM SAFETY INJECTION AND SHUT DOWN COOLING										SIP&P01		REVISION - DATE 1 2/82		PAGE of 118 98	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS		
PSV160	D-15	2	C	3/4"	PSV	SA	C	C	NA				NOTE 3		
PSV161	H-6	2	C	3/4"	PSV	SA	C	C	NA				NOTE 3		
PSV178	D-14	2	C	3/4"	PSV	SA	C	C	NA				NOTE 3		
PSV187	C-14	2	C	3/4"	PSV	SA	C	C	NA				NOTE 3		
PSV191	D-6	2	C	1½"	PSV	SA	C	C	NA				NOTE 3		
PSV193	D-6	2	C	3/4"	PSV	SA	C	C	NA				NOTE 3		
PSV194	H-6	2	C	1½"	PSV	SA	C	C	NA				NOTE 3		
PSV250	F-14	2	C	1"	PSV	SA	C	C	NA				NOTE 3		

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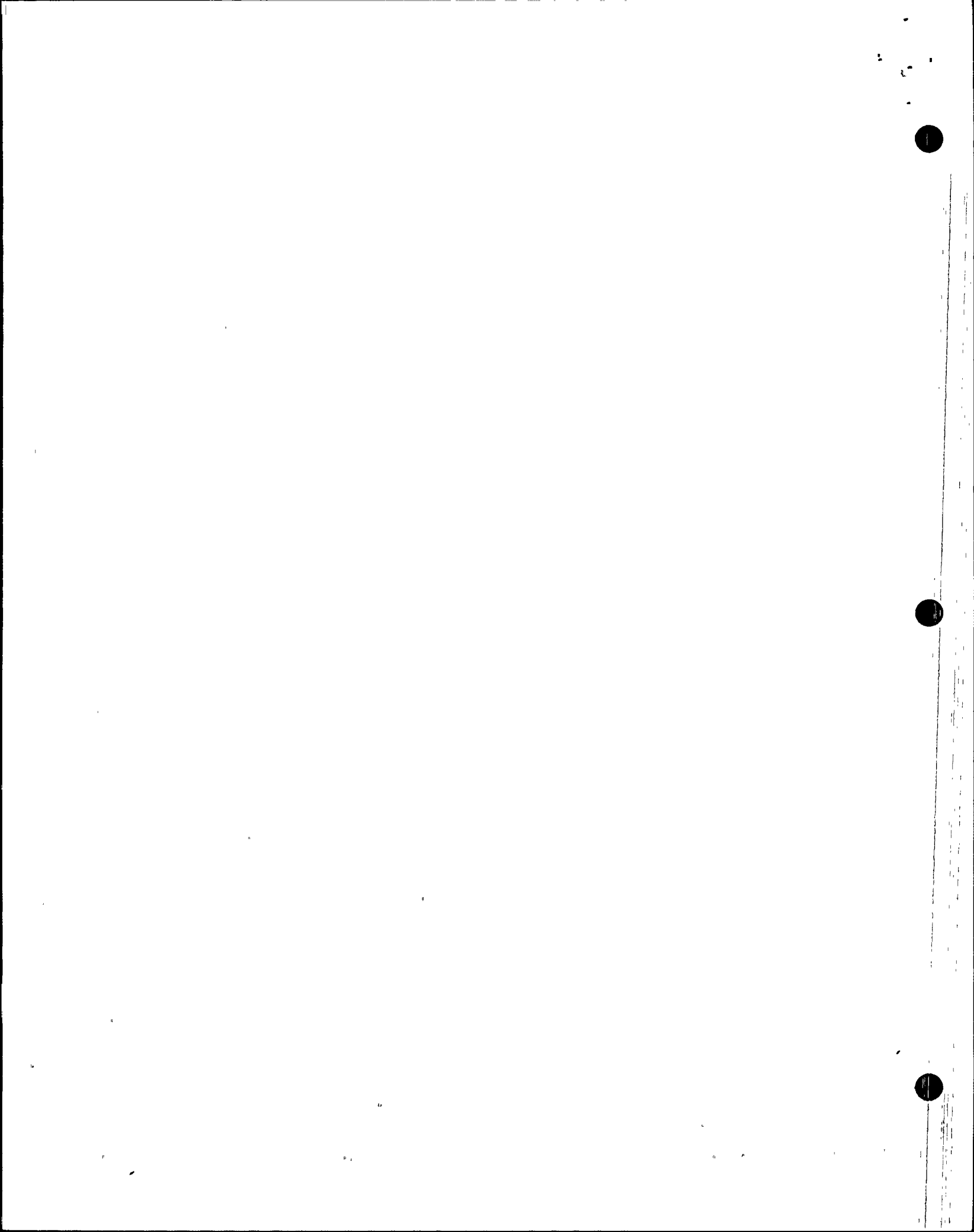


INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

SYSTEM SAFETY INJECTION AND SHUT DOWN COOLING										P & ID SIP-001		REVISION - DATE 1 2/82		PAGE 97 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS		
PSV285	F-9	2	C	3/4"	PSV	SA	C	C	NA				NOTE 3		
PSV286	B-9	2	C	3/4"	PSV	SA	C	C	NA				NOTE 3		
PSV287	C-9	2	C	3/4"	PSV	SA	C	C	NA				NOTE 3		
PSV289	G-9	2	C	3/4"	PSV	SA	C	C	NA				NOTE 3		
PSV409	B-2	2	C	3/4"	PSV	SA	C	C	NA				NOTE 3		
PSV417	F-2	2	C	3/4"	PSV	SA	C	C	NA				NOTE 3		
PSV439	H-2	2	C	3/4"	PSV	SA	C	C	NA				NOTE 3		
PSV449	D-2	2	C	3/4"	PSV	SA	C	C	NA				NOTE 3		

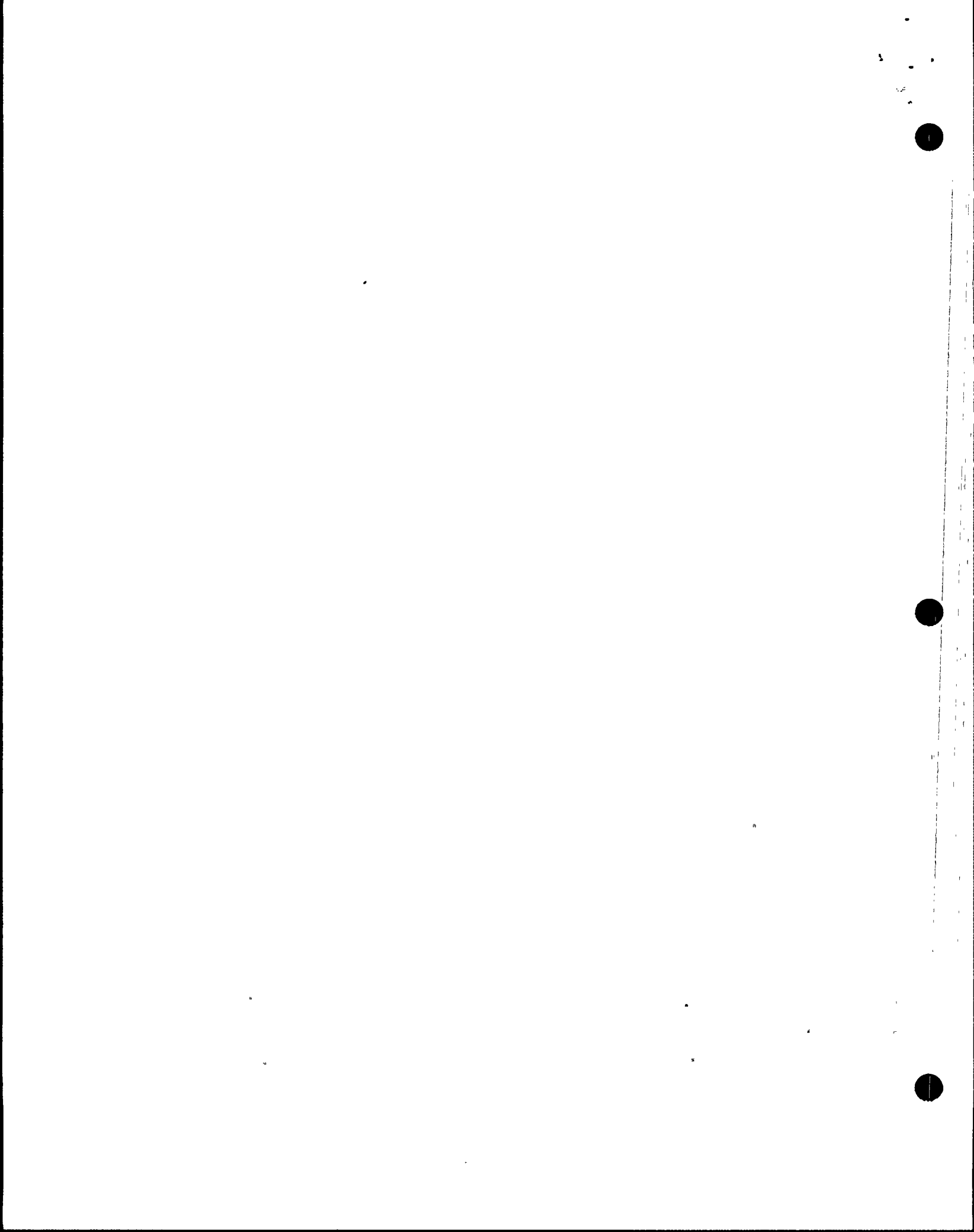
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INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

SYSTEM SAFETY INJECTION AND SHUT DOWN COOLING										P & ID SIP-002		REVISION - DATE 1 2/82		PAGE 99 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS		
1) V113	F-14	2	A,C	3"	CK	SA	C	O/C	AJLT FST	RF RF		VRR-7	NOTES 5, 10		
V114	F-14	2	A,C	12"	CK	SA	C	O/C	AJLT FST	RF RF		VRR-4	NOTES 5, 10		
1) V123	F-11	2	A,C	3"	CK	SA	C	O/C	AJLT FST	RF RF		VRR-7	NOTES 5, 10		
V124	F-11	2	A,C	12"	CK	SA	C	O/C	AJLT FST	RF RF		VRR-4	NOTES 5, 10		
1) V133	F-7	2	A,C	3"	CK	SA	C	O/C	AJLT FST	RF RF		VRR-7	NOTES 5, 10		
V134	F-6	2	A,C	12"	CK	SA	C	O/C	AJLT FST	RF RF		VRR-4	NOTES 5, 10		
1) V143	F-4	2	A,C	3"	CK	SA	C	O/C	AJLT FST	RF RF		VRR-7	NOTES 5, 10		
V144	F-4	2	A,C	12"	CK	SA	C	O/C	AJLT FST	RF RF		VRR-4	NOTES 5, 10		



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ISI CLASS 1, 2 & 3 VALVES
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SYSTEM SAFETY INJECTION AND SHUT DOWN COOLING										P & ID SIP-002	REVISION - DATE 1 2/82	PAGE 100 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
V164	F-9	2	A,C	10"	CK	SA	C	O/C	AJLT	RF		VRR-5	NOTES 4,5,8,10
V165	F-6	2	A,C	10"	CK	SA	C	O/C	AJLT	RF		VRR-5	NOTES 4,5,8,10
V210	C-16	2	B	2"	GL	M	O	O	NA				NOTE 3
V215	B-15	1	C	14"	CK	SA	C	O	PST	RF		VRR-6	NOTES 4, 5
V217	B-14	1	C	14"	CK	SA	C	O	FST	RF		VRR-9	NOTE 5
V220	C-13	2	B	2"	GL	M	O	O	NA				NOTE 3
V225	B-12	1	C	14"	CK	SA	C	O	PST	RF		VRR-6	NOTES 4, 5
V227	B-11	1	C	14"	CK	SA	C	O	FST	RF		VRR-9	NOTE 5

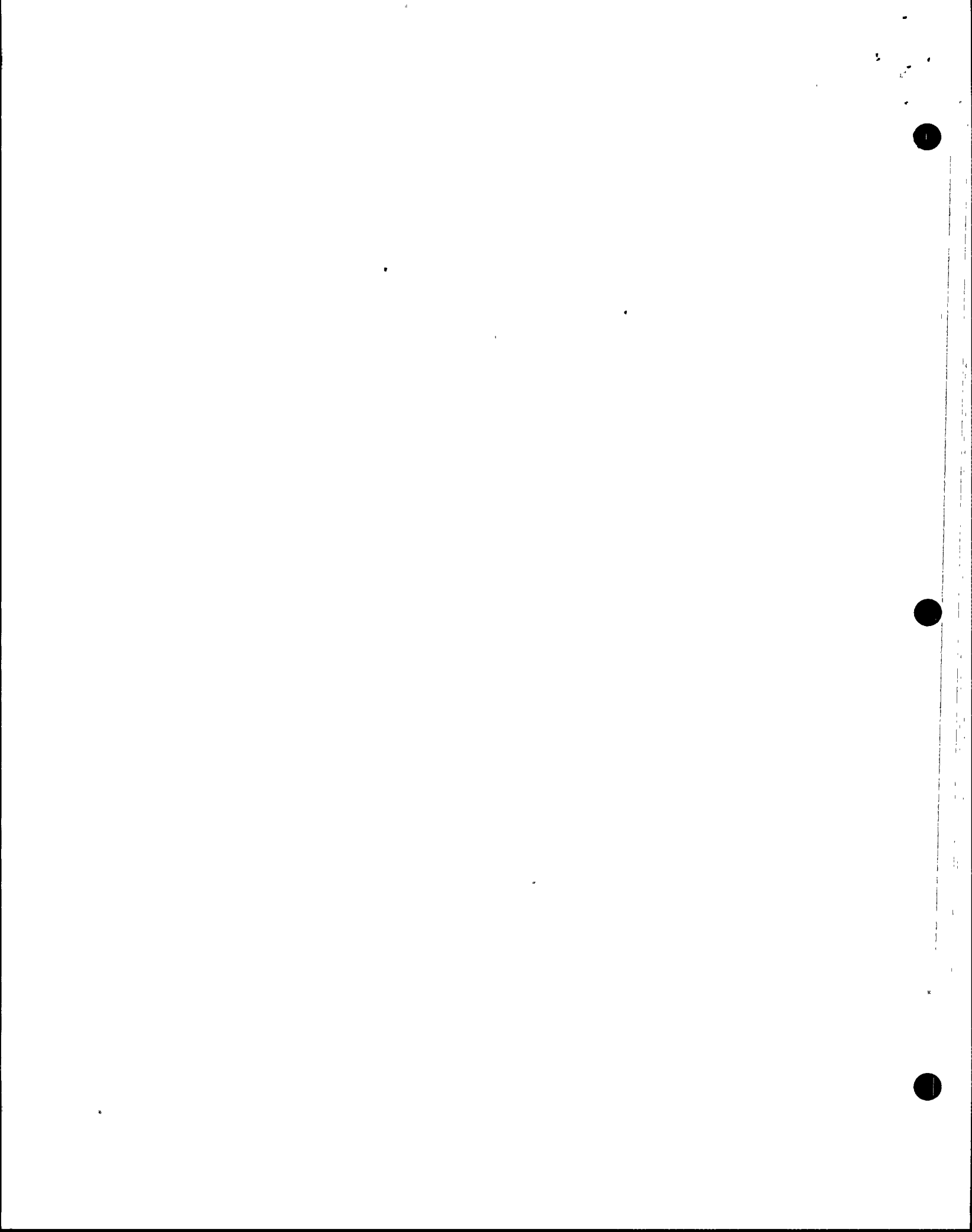
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INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
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SYSTEM SAFETY INJECTION AND SHUT DOWN COOLING										P & ID SIP-002		REVISION - DATE 1 2/82		PAGE 101 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS		
V230	B-9	2	B	2"	GL	M	O	O	NA				NOTE 3		
V235	B-8	1	C	14"	CK	SA	C	O	PST	RF		VRR-6	NOTES 4, 5		
(1) V237	B-6	1	C	14"	CK	SA	C	O	FST	RF		VRR-9	NOTE 5		
V240	B-6	2	B	2"	GL	M	O	O	NA				NOTE 3		
V245	B-5	1	C	14"	CK	SA	C	O	PST	RF		VRR-6	NOTES 4, 5		
(1) V247	B-4	1	C	14"	CK	SA	C	O	FST	RF		VRR-9	NOTE 5		
(1) V522	C-3	1	C	3"	CK	SA	C	O	FST	RF		VRR-8			
(1) V523	F-2	1	A,C	3	CK	SA	C	O/C	AJLT PST FST	RF OP RF		VRR-10	NOTE 10		



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SYSTEM SAFETY INJECTION AND SHUT DOWN COOLING										P & ID SIP-002		REVISION - DATE 1 2/82		PAGE 102 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS		
1) V532	C-10	1	C	3"	CK	SA	C	O	FST	RF		VRR-8			
1) V533	F-10	1	A,C	3"	CK	SA	C	O/C	AJLT PST FST	RF OP RF		VRR-10	NOTE 10		
1) V540	C-14	1	C	12"	CK	SA	C	O	FST	RF		VRR-9	NOTE 5		
1) V541	C-11	1	C	12"	CK	SA	C	O	FST	RF		VRR-9	NOTE 5		
1) V542	C-6	1	C	12"	CK	SA	C	O	FST	RF		VRR-9	NOTE 5		
1) V543	C-4	1	C	12"	CK	SA	C	O	FST	RF		VRR-9	NOTE 5		
HV321	G-2	2	A,	3"	GL	MO	C	O/C	AJLT FST VPI	RF OP RF	10s		NOTE 6		
HV331	G-10	2	A	3"	GL	MO	C	O/C	AJLP FST VPI	RF OP RF	10s		NOTE 6		

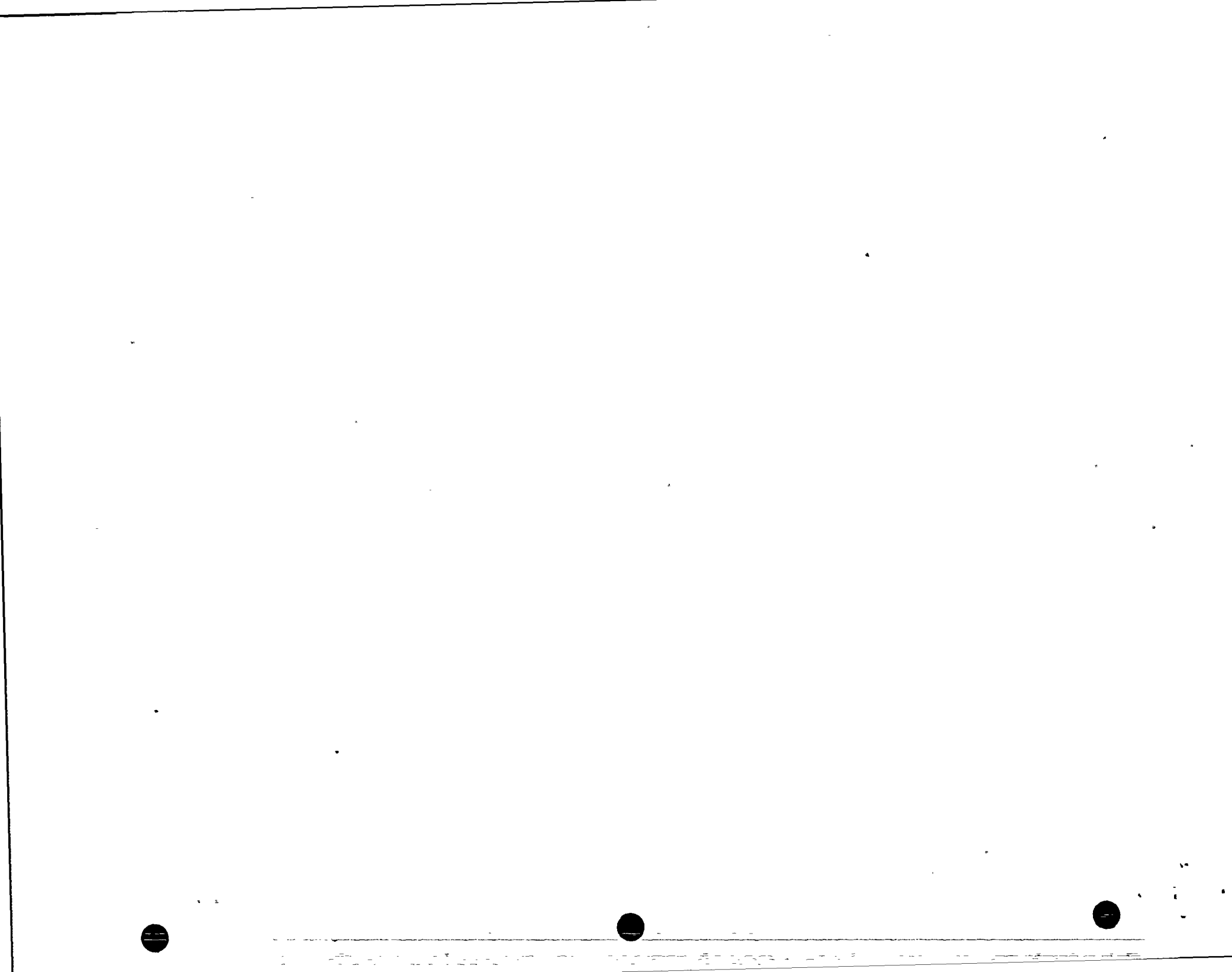


Arizona
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INSERVICE TESTING PROGRAM
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SYSTEM SAFETY INJECTION AND SHUT DOWN COOLING										P & ID SIP-002	REVISION - DATE 1 2/82	PAGE 103 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
HV605	E-15	2	B	1"	GL	SO	C	C	NA				NOTE 3
HV606	E-12	2	B	1"	GL	SO	C	C	NA				NOTE 3
HV607	E-8	2	B	1"	GL	SO	C	C	NA				NOTE 3
HV608	E-5	2	B	1"	GL	SO	C	C	NA				NOTE 3
HV612	D-14	2	B	1"	GL	AO	C	C	NA				NOTE 3
HV613	E-15	2	B	1"	GL	SO	C	C	NA				NOTE 3
HV619	D-15	2	B	1"	GL	AO	C	C	NA				NOTE 3
HV622	D-11	2	B	1"	GL	AO	C	C	NA				NOTE 3



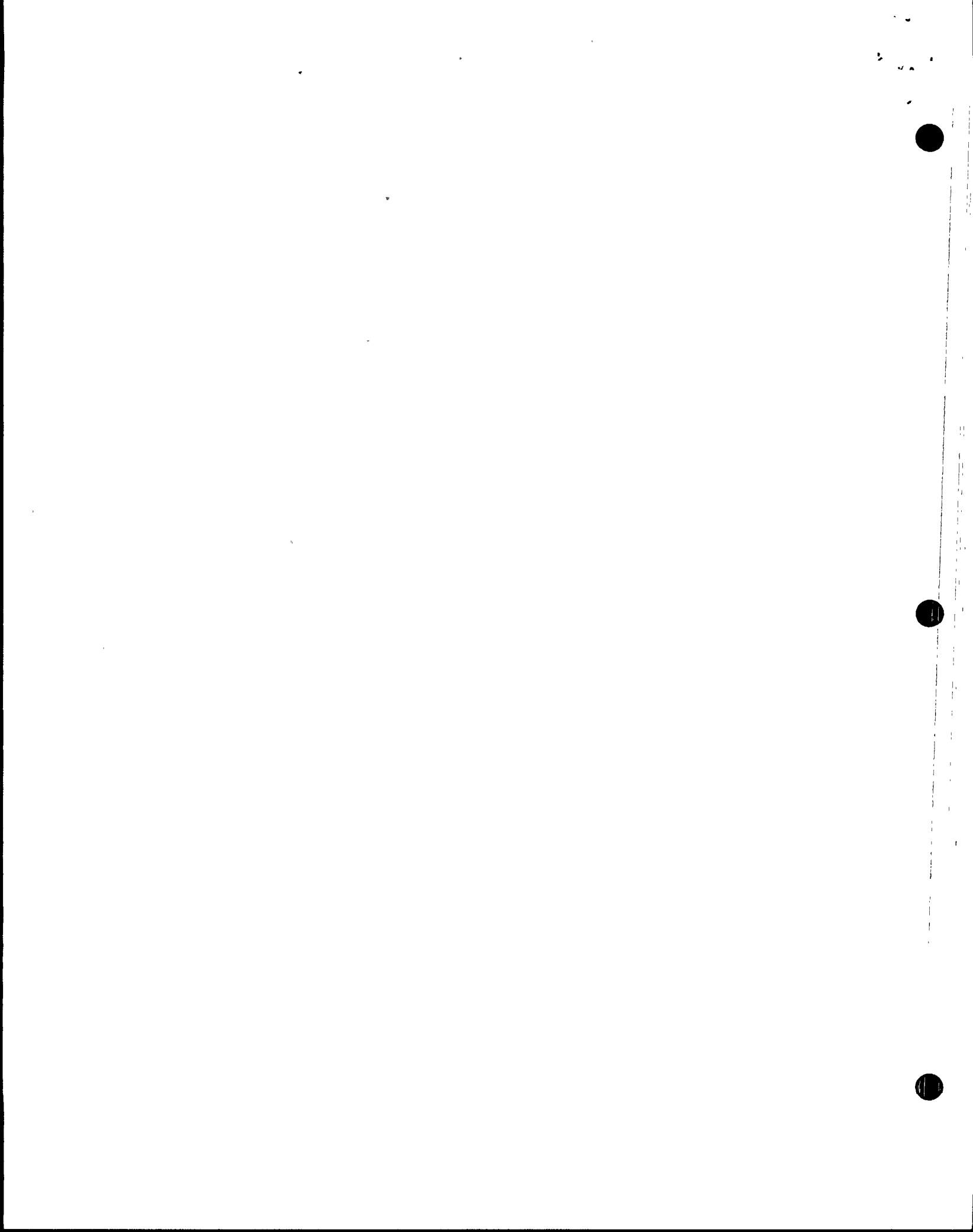
INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

SYSTEM		SAFETY INJECTION AND SHUT DOWN COOLING								P & ID SIP-002	REVISION - DATE 1 2/82	PAGE 104 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
HV623	E-12	2	B	1"	GL	SO	C	C	NA				NOTE 3
HV629	D-12	2	B	1"	GL	AO	C	C	NA				NOTE 3
HV632	D-7	2	B	1"	GL	AO	C	C	NA				NOTE 3
HV633	E-8	2	B	1"	GL	SO	C	C	NA				NOTE 3
HV639	D-8	2	B	1"	GL	AO	C	C	NA				NOTE 3
HV642	D-4	2	B	1"	GL	AO	C	C	NA				NOTE 3
HV643	E-5	2	B	1"	GL	SO	C	C	NA				NOTE 3
HV649	D-5	2	B	1"	GL	AO	C	C	NA				NOTE 3



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ISI CLASS 1, 2 & 3 VALVES
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SYSTEM SAFETY INJECTION AND SHUT DOWN COOLING										P & ID SIP-002		REVISION - DATE 1 2/82		PAGE 105 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS		
HV690	H-13	2	A	10"	GL	MO	C	C	AJLT	RF			NOTE 9		
HV691	H-4	2	A	10"	GL	MO	C	C	AJLT	RF			NOTE 9		
UV322	E-2	1	B	1"	GL	AO	C	C	NA				NOTE 3		
UV332	E-10	1	B	1"	GL	AO	C	C	NA				NOTE 3		
UV611	C-16	2	B	2"	GL	AO	C	C	NA				NOTE 3		
UV614	B-15	1	B	14"	GA	MO	O	O	NA				NOTE 3		
UV615	G-14	2	A	12"	GL	MO	C	O/C	AJLT FST VPI	RF OP RF	10s		NOTES 6, 10		
UV616	G-14	2	A	2"	GL	MO	C	O/C	AJLT FST VPI	RF OP RF	10s		NOTES 6, 10		



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ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

SYSTEM

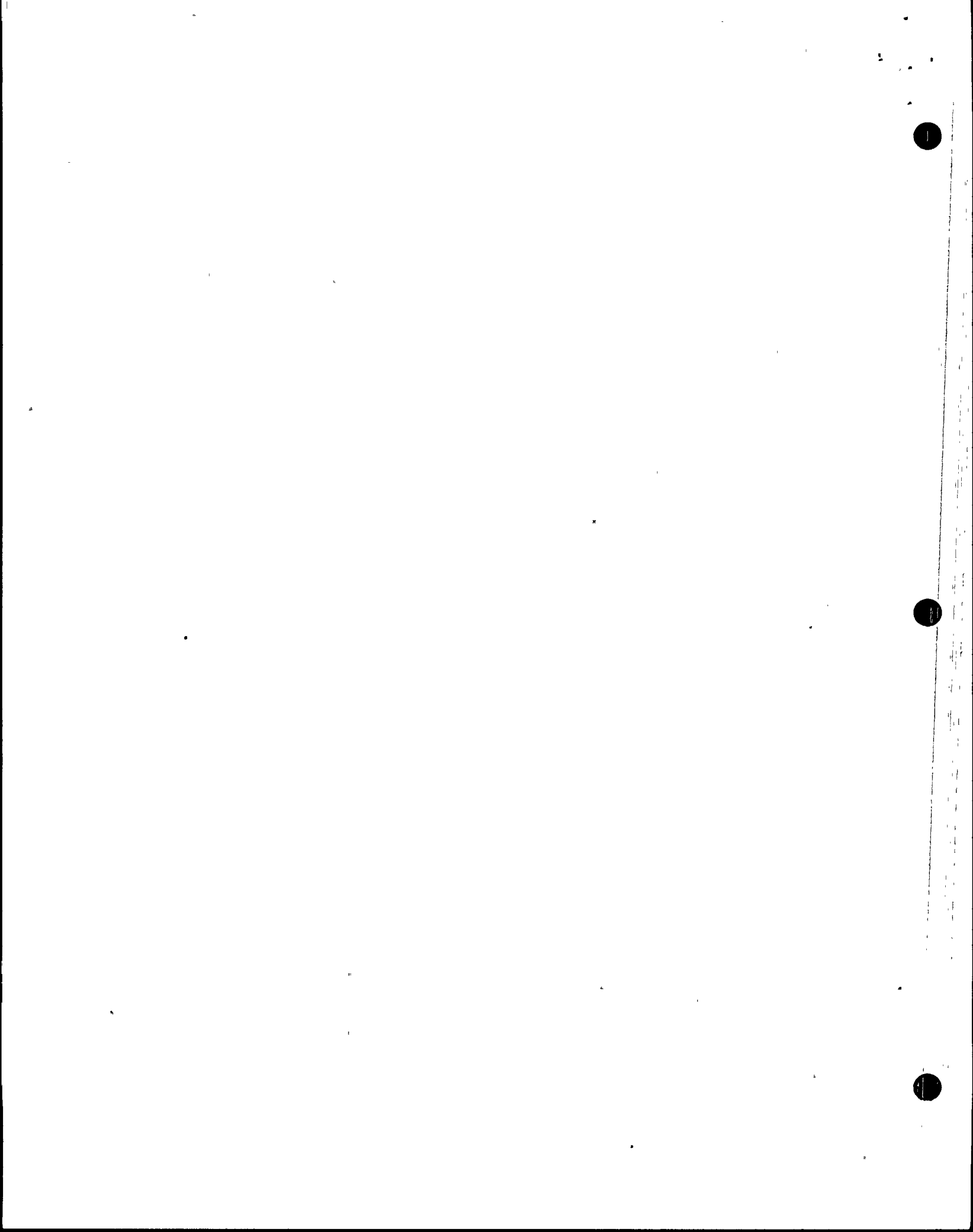
SAFETY INJECTION AND SHUT DOWN COOLING

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VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
UV617	G-15	2	A	2"	GL	MO	C	O/C	AJLT FST VPI	RF OP RF	10s		NOTES 6, 10
UV618	B-16	1	B	1"	GL	AO	C	C	NA				NOTE 3
UV621	C-13	2	B	2"	GL	AO	C	C	NA				NOTE 3
UV624	B-12	1	B	14"	GA	MO	O	O	NA				NOTE 3
UV625	G-11	2	A	12"	GL	MO	C	O/C	AJLT FST VPI	RF OP RF	10s		NOTES 6, 10
UV626	G-11	2	A	2"	GL	MO	C	O/C	AJLT FST VPI	RF OP RF	10s		NOTES 6, 10
UV627	G-12	2	A	2"	GL	MO	C	O/C	AJLT FST VPI	RF OP RF	10s		NOTES 6, 10
UV628	B-13	1	B	1"	GL	AO	C	C	NA				NOTE 3



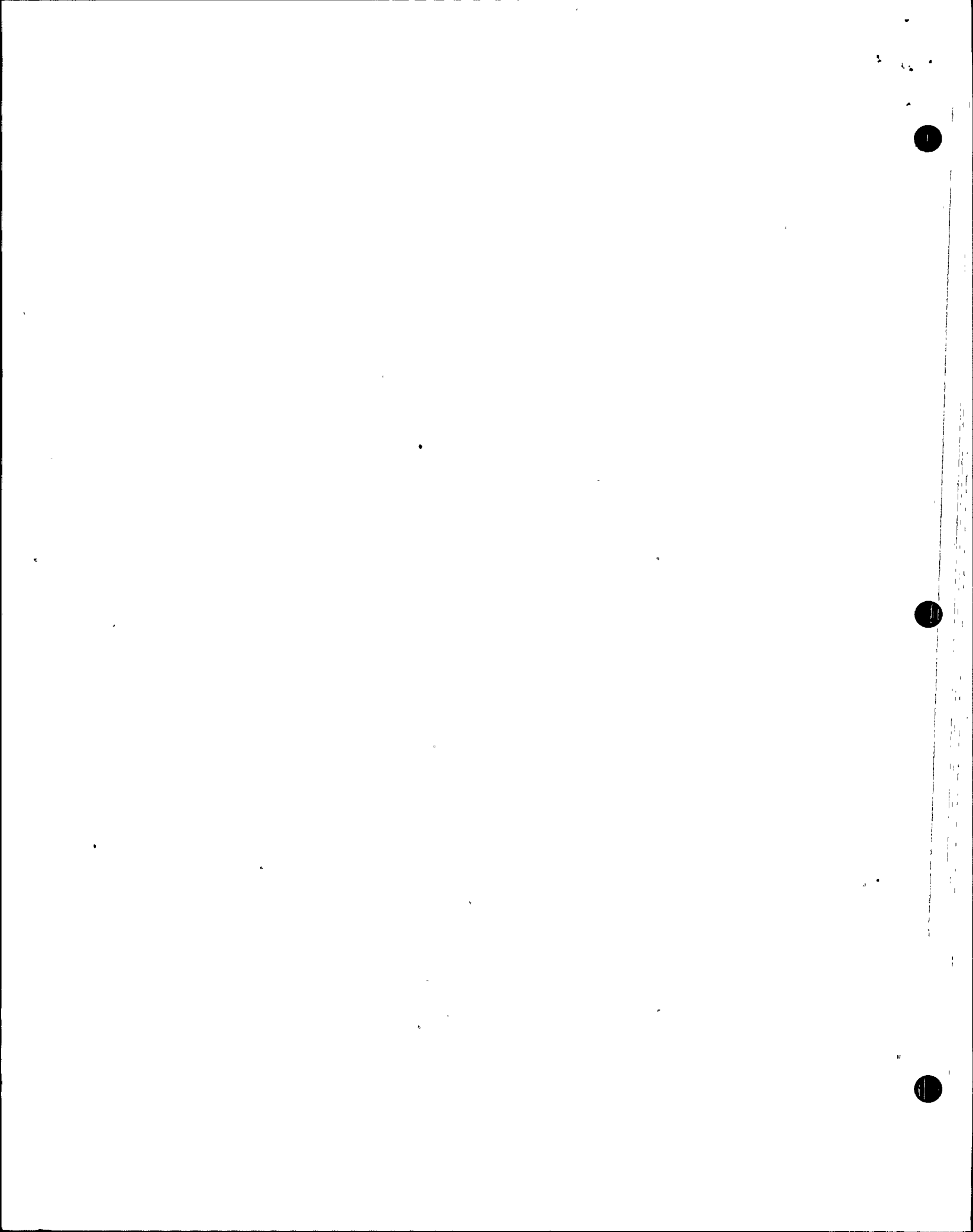
INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

SYSTEM SAFETY INJECTION AND SHUT DOWN COOLING										P & ID SIP-002		REVISION - DATE 1 2/82		PAGE 107 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS		
UV631	C-9	2	B	2"	GL	AO	C	C	NA				NOTE 3		
UV634	B-8	1	B	14"	GA	MO	O	O	NA				NOTE 3		
UV635	G-6	2	A	12"	GL	MO	C	O/C	AJLT FST VPI	RF OP RF	10s		NOTES 6, 10		
UV636	G-7	2	A	2"	GL	MO	C	O/C	AJLT FST VPI	RF OP RF	10s		NOTES 6, 10		
UV637	G-8	2	A	2"	GL	MO	C	O/C	AJLT FST VPI	RF OP RF	10s		NOTES 6, 10		
UV638	B-9	1	B	1"	GL	AO	C	O	NA				NOTE 3		
UV641	B-6	2	B	2"	GL	AO	C	C	NA				NOTE 3		
UV644	B-5	1	B	14"	GA	MO	O	O	NA				NOTE 3		



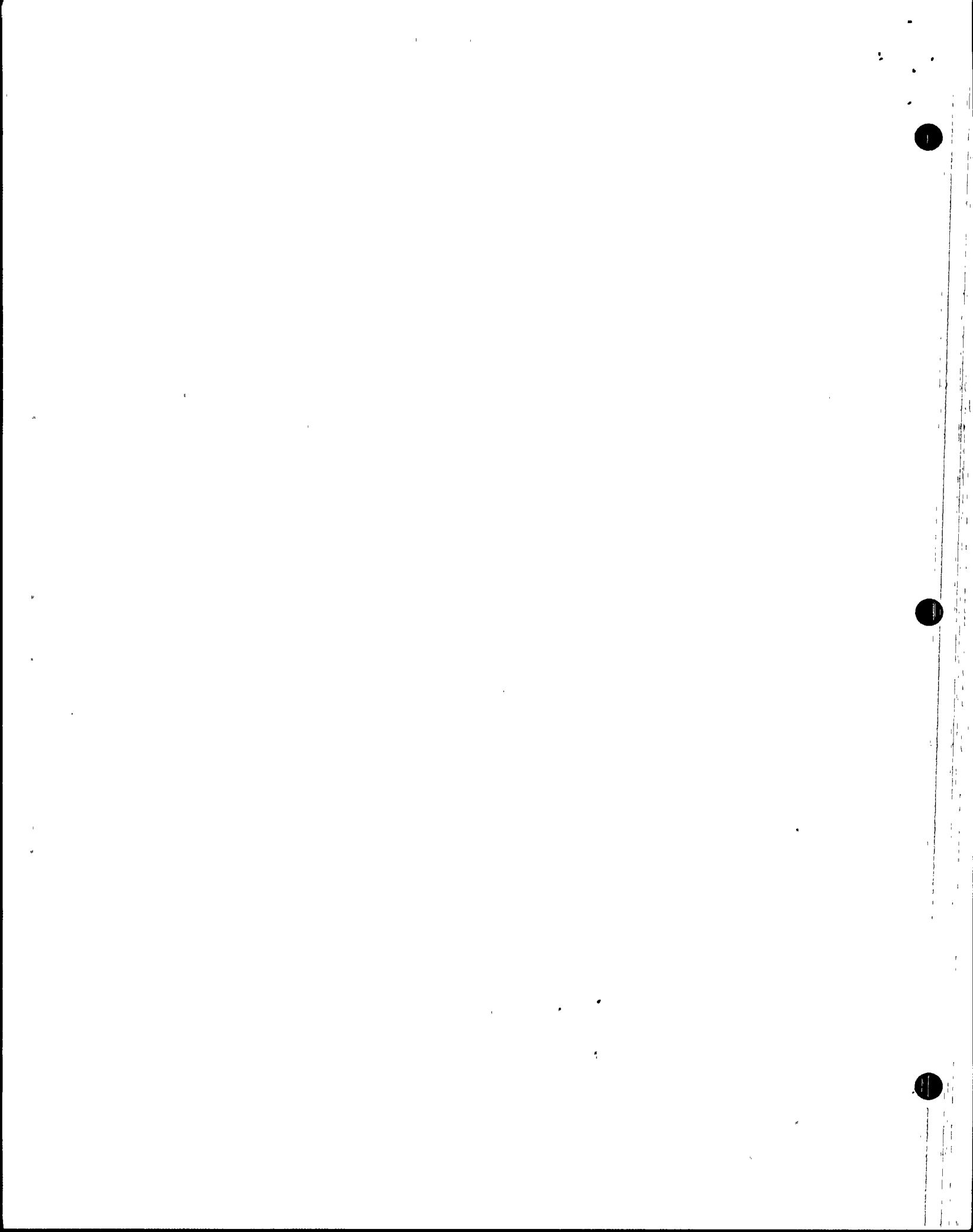
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ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

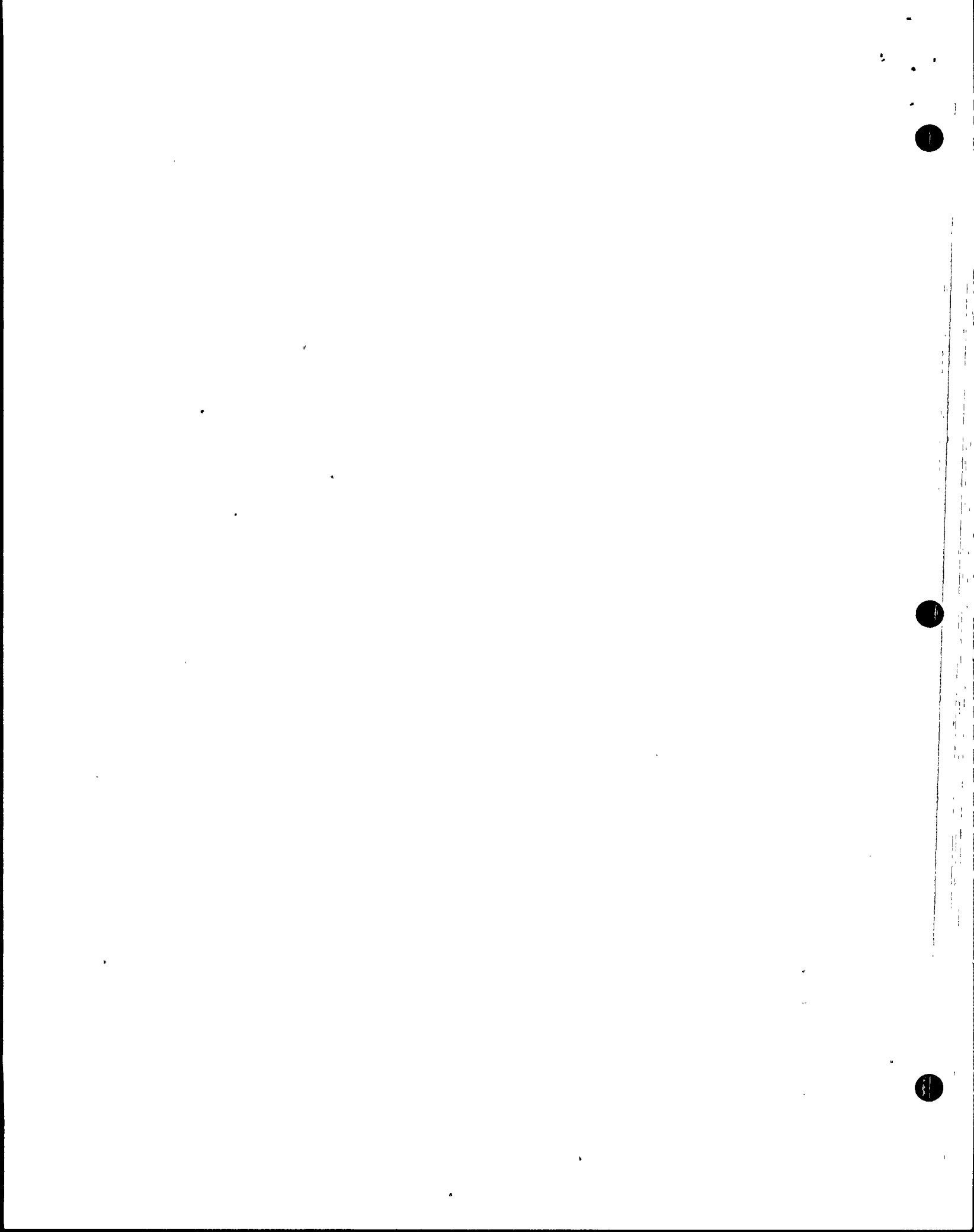
SYSTEM SAFETY INJECTION AND SHUT DOWN COOLING										P & ID SIP-002	REVISION - DATE 1 2/82	PAGE 108 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
UV645	G-4	2	A	12"	GL	MO	C	O/C	AJLT FST VPI	RF OP RF	10s		NOTES 6, 10
UV646	G-4	2	A	2"	GL	MO	C	O/C	AJLT FST VPI	RF OP RF	10S		NOTES 6, 10
UV647	G-5	2	A	2"	GL	MO	C	O/C	AJLT FST VPI	RF OP RF	10s		NOTES 6, 10
UV648	B-6	1	B	1"	GL	AO	C	C	NA				NOTE 3
UV651	C-3	1	B	16"	GA	MO	C	C	NA				NOTE 3
UV652	C-10	1	B	16"	GA	MO	C	C	NA				NOTE 3
UV653	D-3	1	A	16"	GA	MO	C	C	AJLT	RF			NOTE 9
UV654	E-10	1	A	16"	GA	MO	C	C	AJLT	RF			NOTE 9



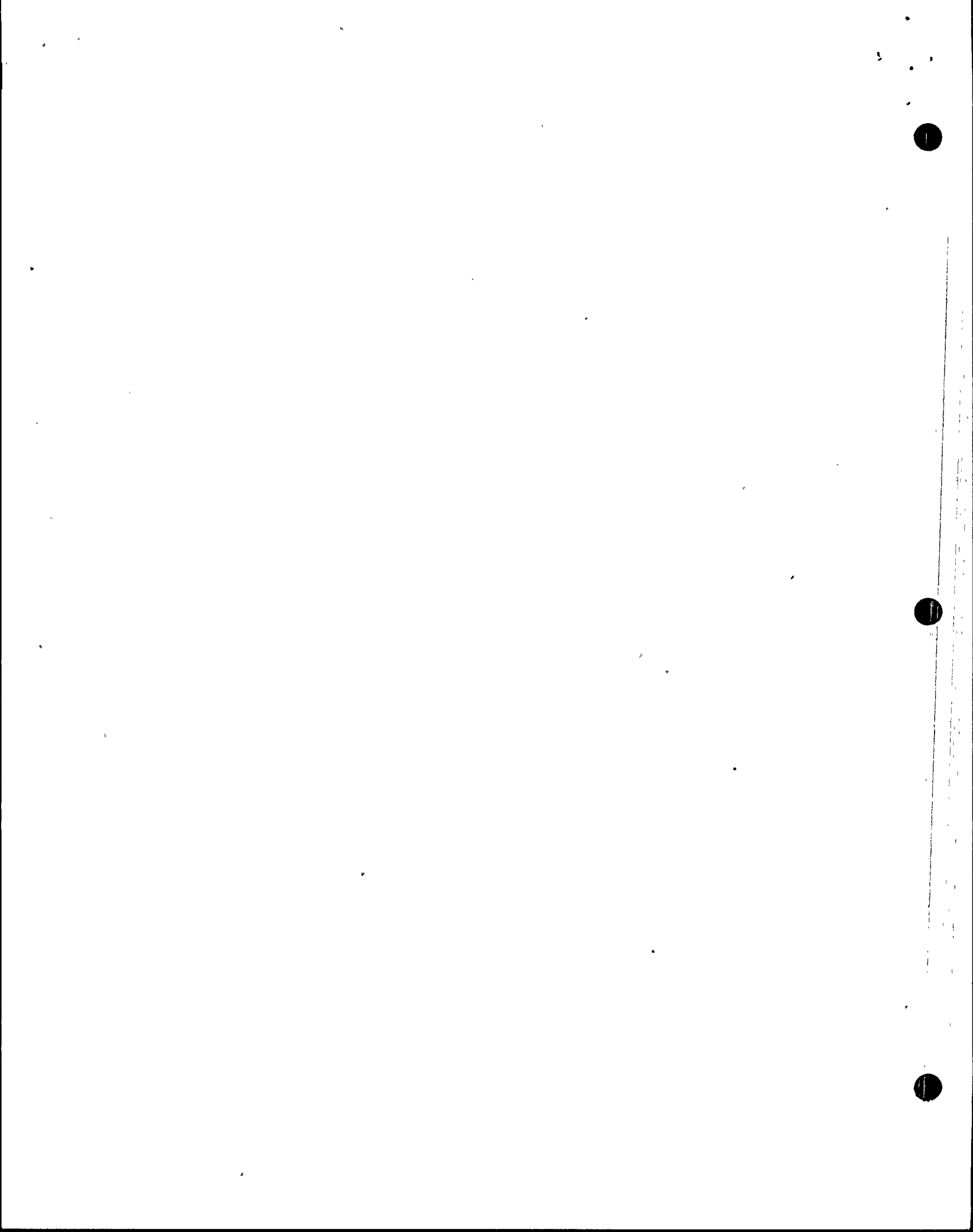
INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

SYSTEM SAFETY INJECTION AND SHUT DOWN COOLING										P & ID SIP-002		REVISION - DATE 1 2/82		PAGE 109 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS .		
UV655	G-3	2	A	16"	GA	MO	C	C	AJLT	RF			NOTE 9		
UV656	G-10	2	A	16"	GA	MO	C	C	AJLT	RF			NOTE 9		
PSV166	H-9	2	C	1½"	PSV	SA	C	C	NA				NOTE 3		
PSV169	D-10	1	C	3/4"	PSV	SA	C	C	NA				NOTE 3		
PSV179	F-3	2	A,C	10"	PSV	SA	C	C	AJLT	RF			NOTES		
PSV189	F-10	2	A,C	10"	PSV	SA	C	CC	AJLT	RF			NOTES		
PSV211	E-15	2	C	2"	PSV	SA	C	C	NA				NOTE 3		
PSV221	E-12	2	C	2"	PSV	SA	C	C	NA				NOTE 3		



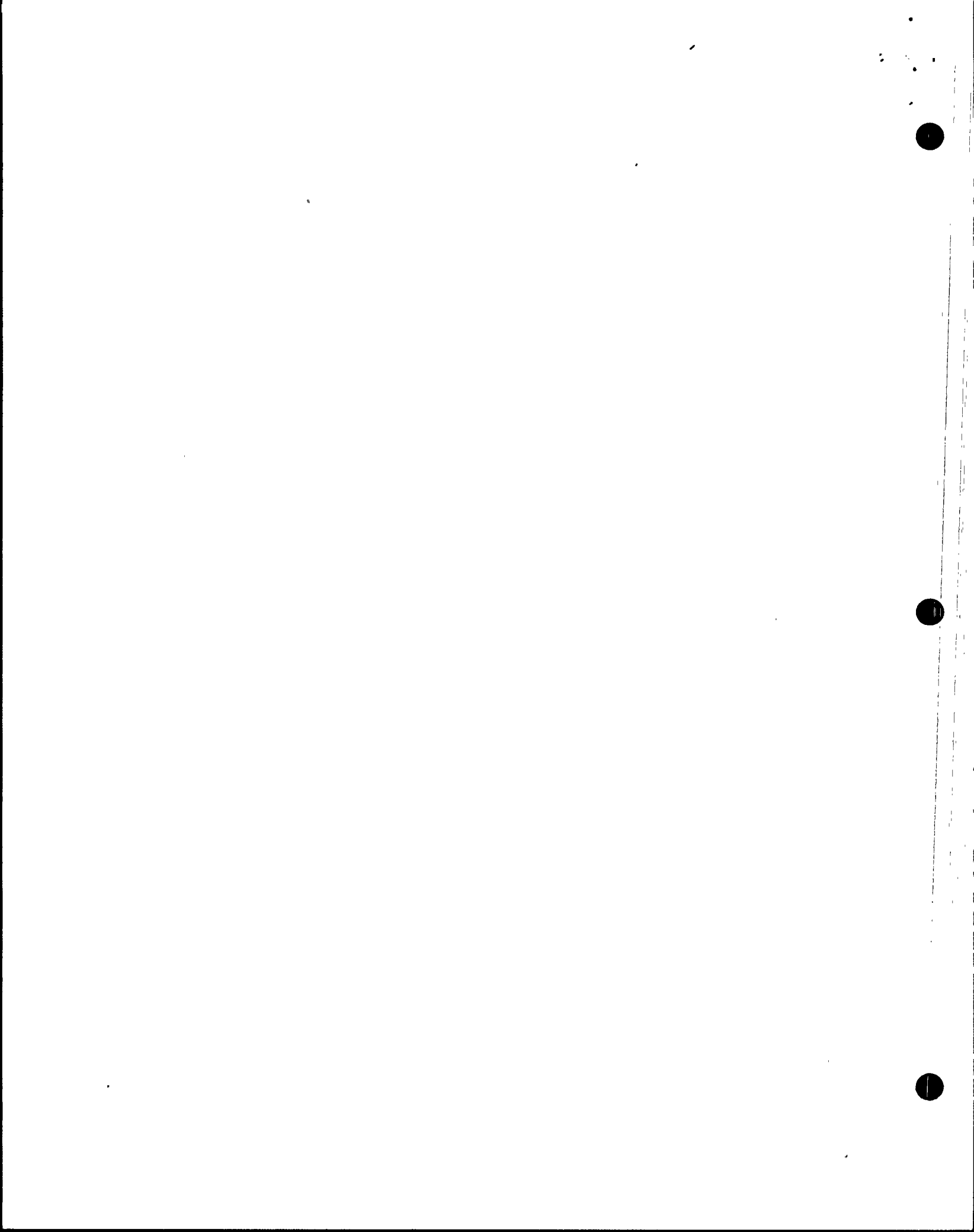






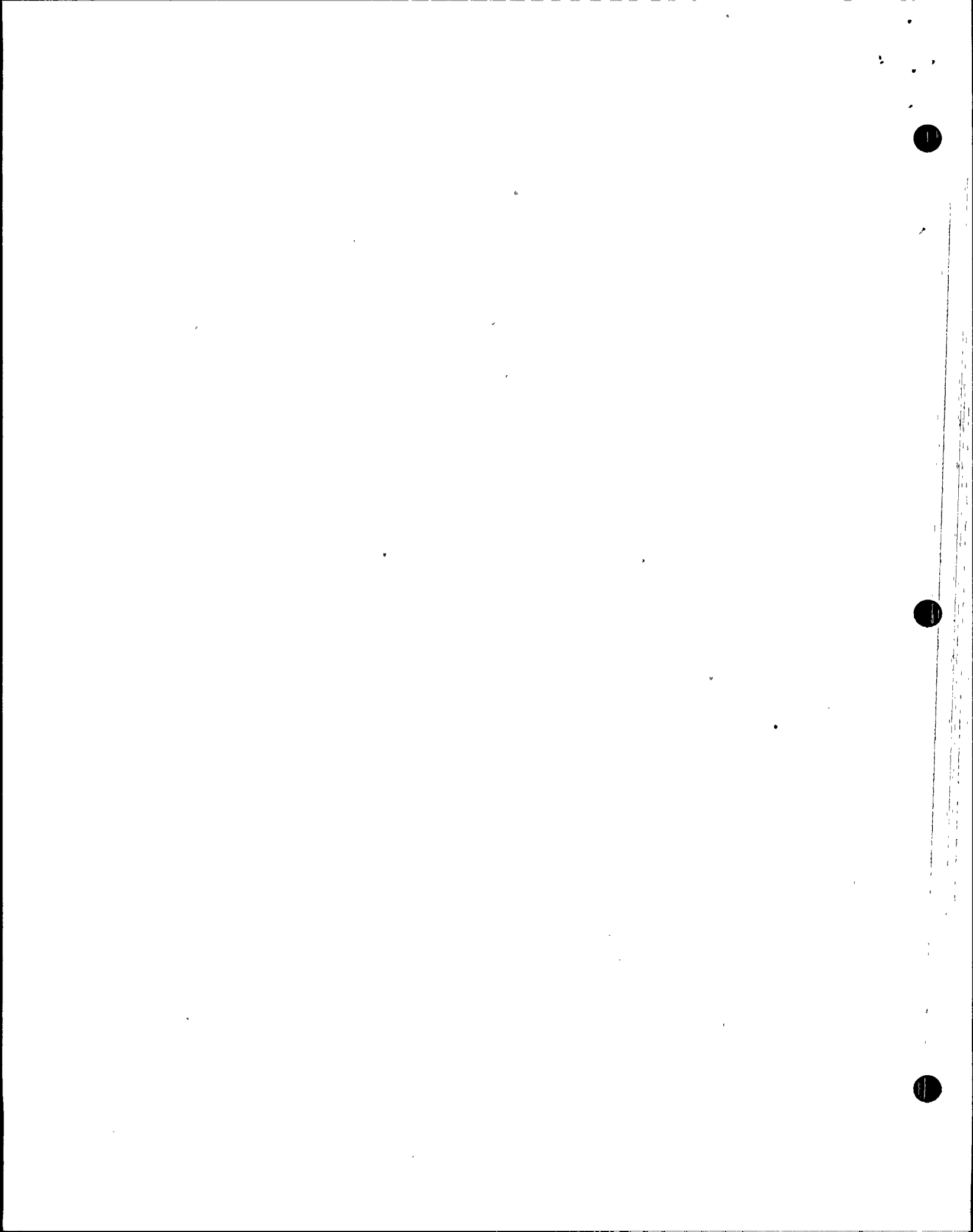
INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

SYSTEM										P & ID	REVISION - DATE	PAGE	
ESSENTIAL SPRAY POND										SPP-002	1 2/82	112 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS.
V087	G-4	3	B	1"	GL	M	O	O	NA				NOTE 3
V088	G-2	3	B	1"	GL	M	O	O	NA				NOTE 3
V093	E-7	3	B	1"	GL	M	O	O	NA				NOTE 3
V094	E-6	3	B	1"	GL	M	O	O	NA				NOTE 3
HCV45	D-4	3	B	20"	BTF	M	O	O	NA				NOTE 3
HCV46	D-8	3	B	20"	BTF	M	O	O	NA				NOTE 3
HCV47	D-2	3	B	20"	BTF	M	O	O	NA				NOTE 3
HCV48	D-6	3	B	20"	BTF	M	O	O	NA				NOTE 3



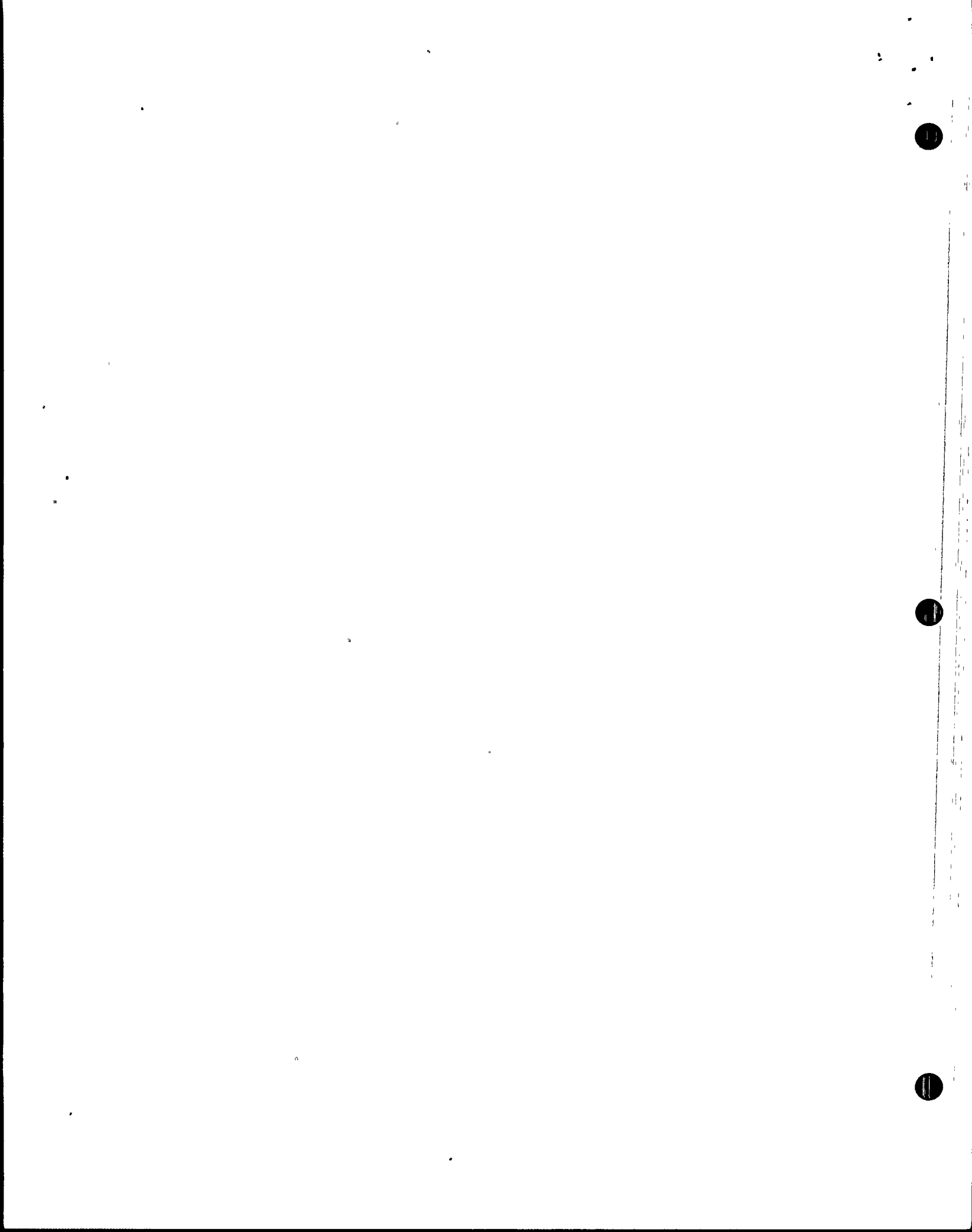
INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

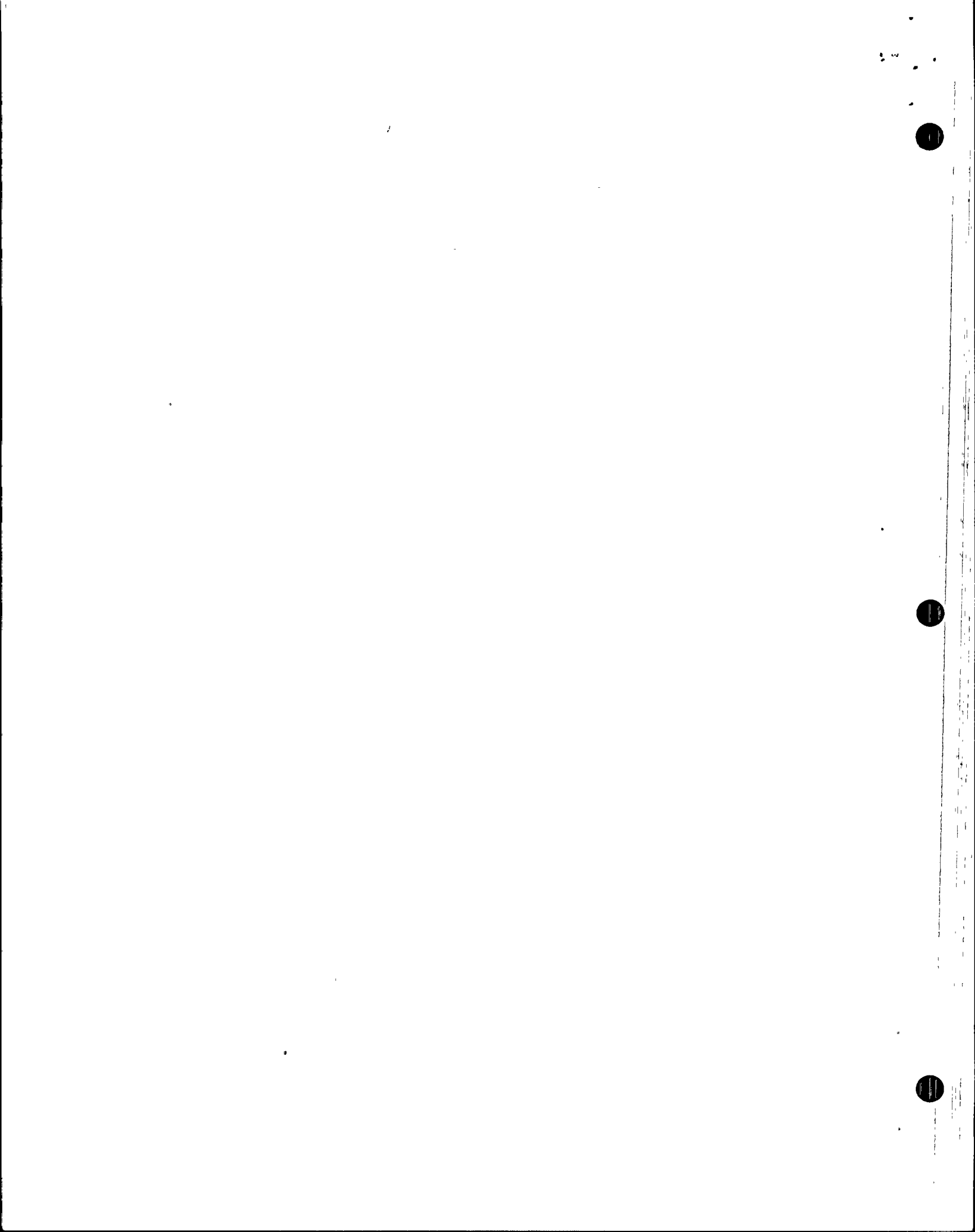
SYSTEM										P & ID		REVISION - DATE		PAGE	
ESSENTIAL SPRAY POND										SPP-002		1 2/82		113 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS		
HCV125	F-3	3	B	8"	BTF	M	O	O	NA				NOTE 3		
HCV126	F-8	3	B	6"	BTF	M	O	O	NA				NOTE 3		
HCV127	F-2	3	B	8"	BTF	M	O	O	NA				NOTE 3		
HCV128	F-6	3	B	6"	BTF	M	O	O	NA				NOTE 3		
HCV129	F-4	3	B	6"	BTF	M	O	O	NA				NOTE 3		
HCV130	F-8	3	B	6"	BTF	M	O	O	NA				NOTE 3		
HCV131	F-2	3	B	6"	BTF	M	O	O	NA				NOTE 3		
HCV132	F-6	3	B	6"	BTF	M	O	O	NA				NOTE 3		



INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

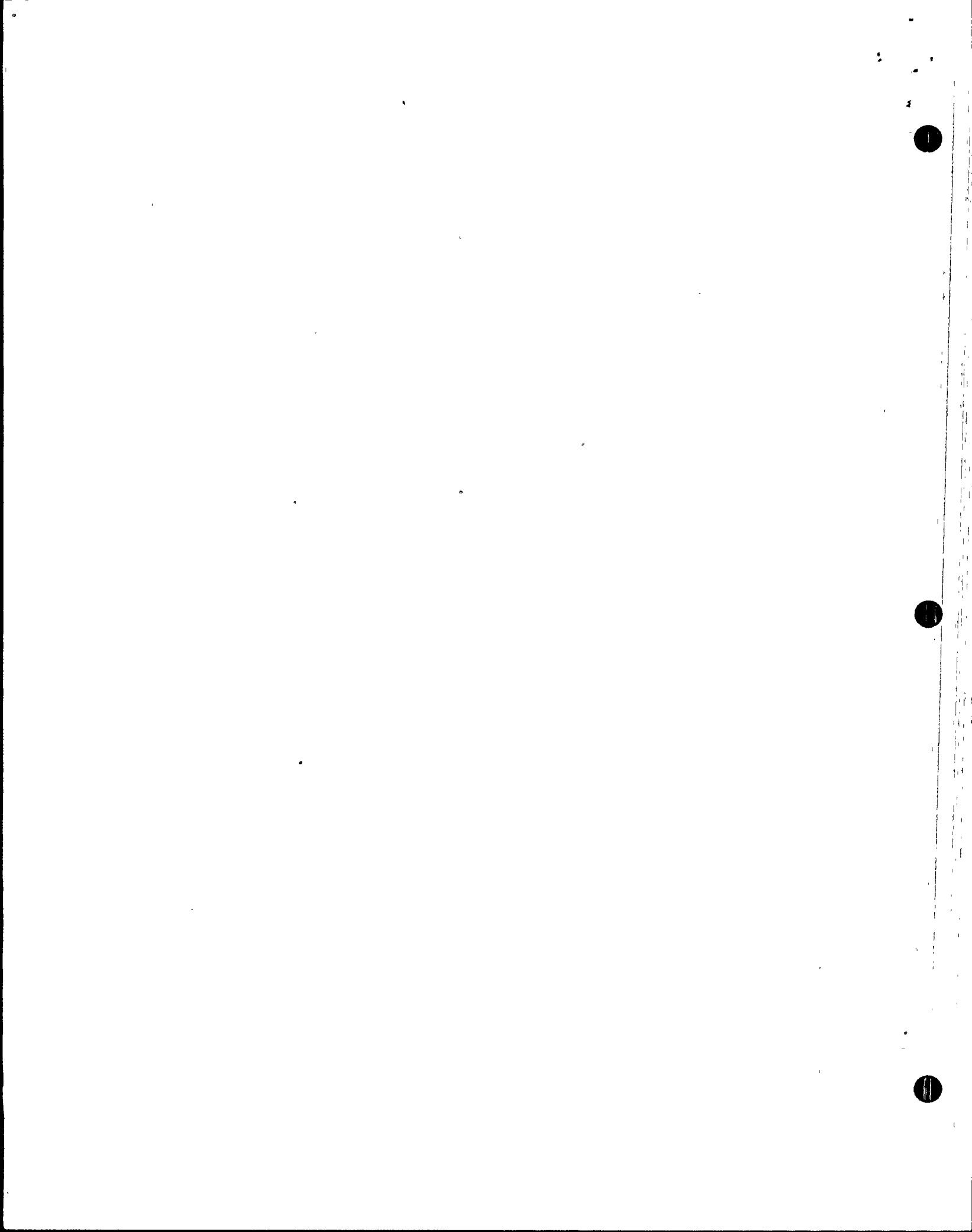
SYSTEM		ESSENTIAL SPRAY POND								P & ID	REVISION - DATE		PAGE
										SPP-002	1	2/82	114 of 118
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS
HCV133	E-4	3	B	6"	BTF	M	O	O	NA				NOTE 3
HCV134	F-8	3	B	8"	BTF	M	O	O	NA				NOTE 3
HCV135	E-2	3	B	6"	BTF	M	O	O	NA				NOTE 3
HCV136	F-6	3	B	8"	BTF	M	O	O	NA				NOTE 3
PSV29	D-4	3	C		PSV	SA	C	C	NA				NOTE 3
PSV30	D-7	3	C		PSV	SA	C	C	NA				NOTE 3
PSV137	G-2	3	C		PSV	SA	C	C	NA				NOTE 3
PSV138	G-6	3	C		PSV	SA	C	C	NA				NOTE 3

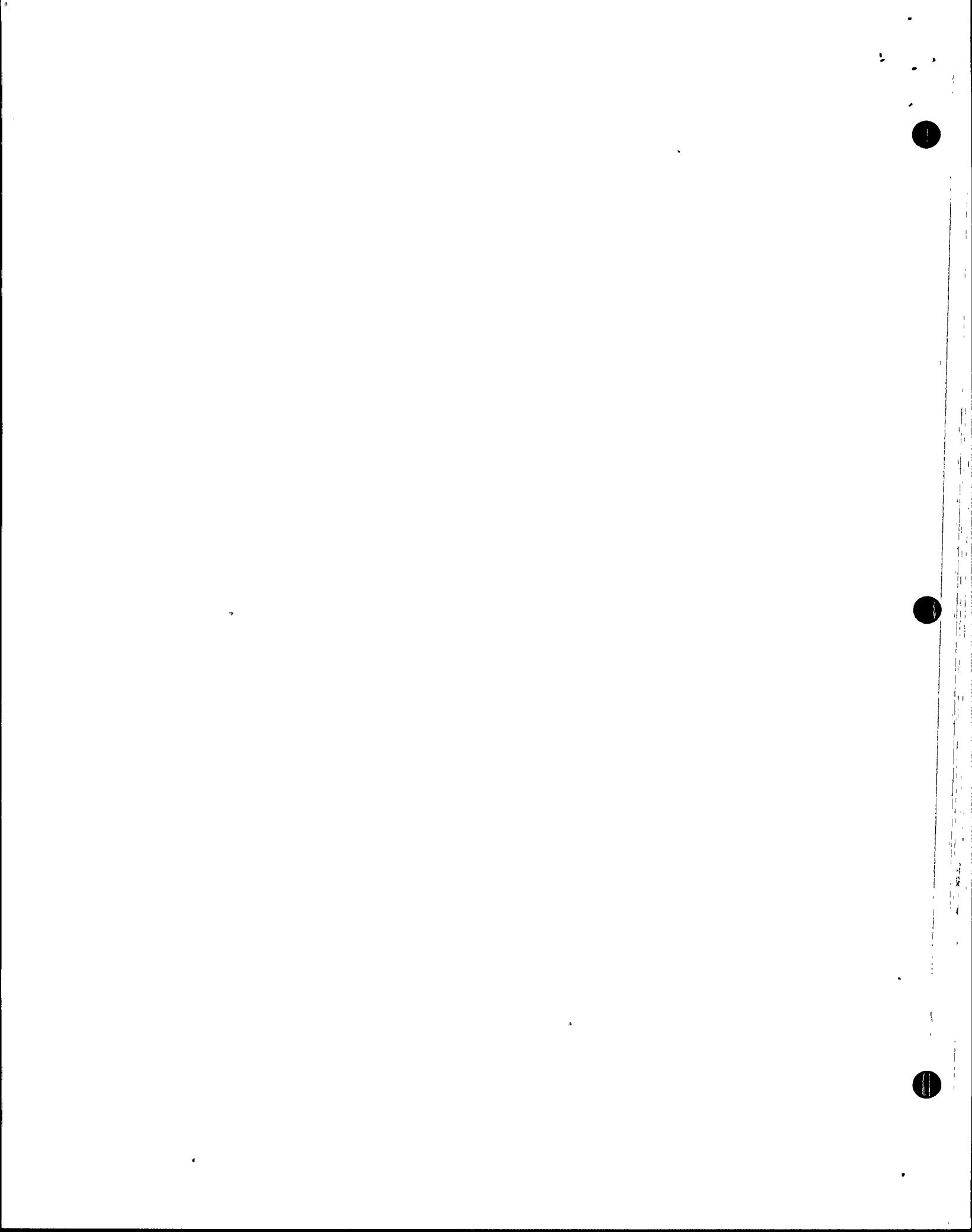


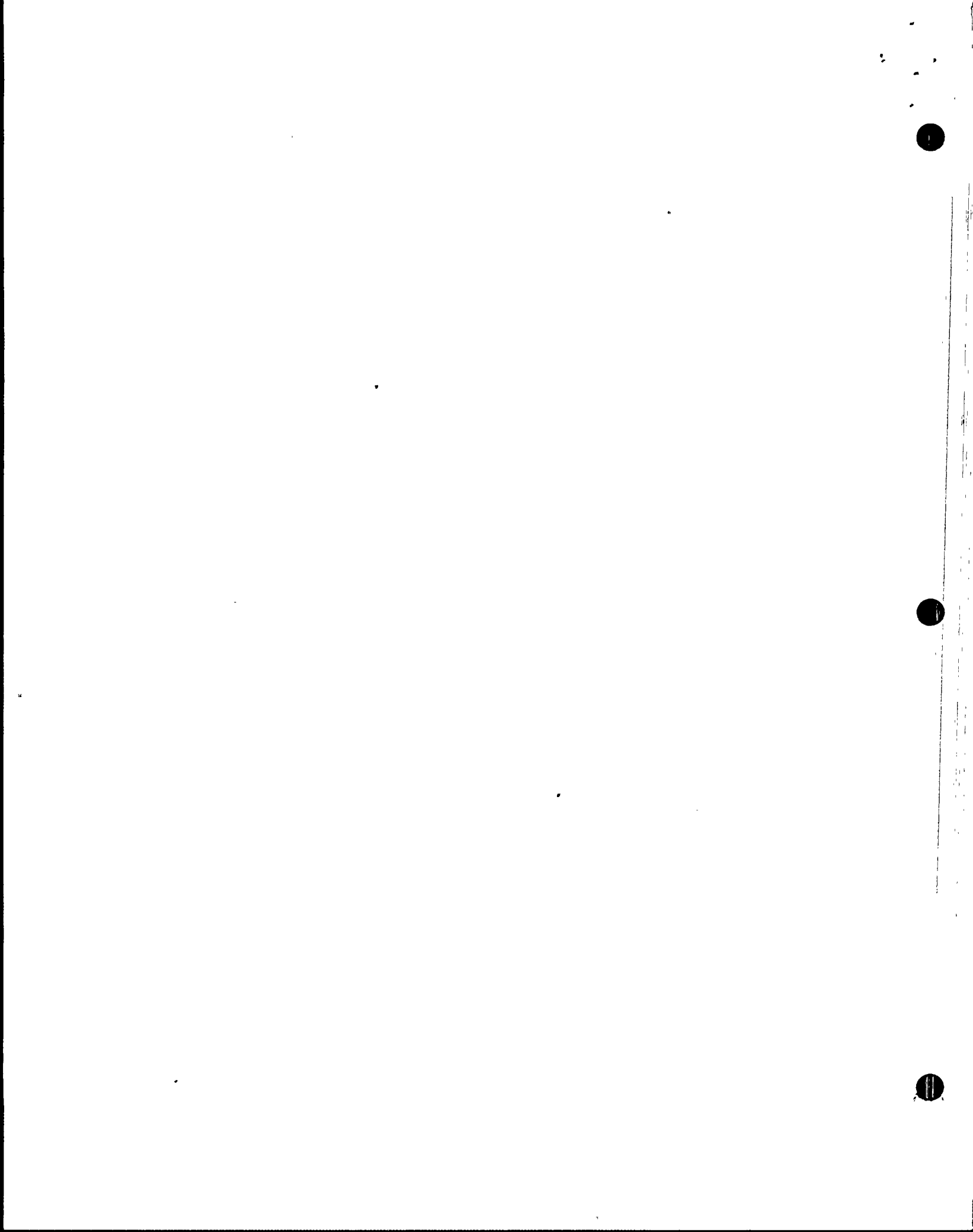


INSERVICE TESTING PROGRAM
ISI CLASS 1, 2 & 3 VALVES
PALO VERDE NUCLEAR GENERATING STATION

SYSTEM NUCLEAR SAMPLING										P & ID SSP-001		REVISION - DATE 1 2/82		PAGE 116 of 118	
VALVE NUMBER	COORDINATES	ISI CLASS	VALVE CATEGORY	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	STROKE DIRECTION	TEST	TEST MODE	MAX. STROKE TIME	RELIEF REQUEST	REMARKS		
V127	D-5	2	B	3/8"	GL	M	C	C	NA				NOTE 3		
V130	E-5	2	B	3/8"	GL	M	C	C	NA				NOTE 3		
V161	E-5	2	B	3/8"	GL	M	C	C	NA				NOTE 3		
V178	D-5	2	B	3/8"	GL	M	C	C	NA				NOTE 3		
UV200	G-6	2	A	1/2"	GL	SO	C	C	AJLT	RF			NOTE 9		
UV201	F-6	2	A	1/2"	GL	SO	C	C	AJLT	RF			NOTE 9		
UV202	E-6	2	A	1/2"	GL	SO	C	C	AJLT	RF			NOTE 9		
UV203	G-6	2	A	1/2"	GL	SO	C	C	AJLT	RF			NOTE 9		



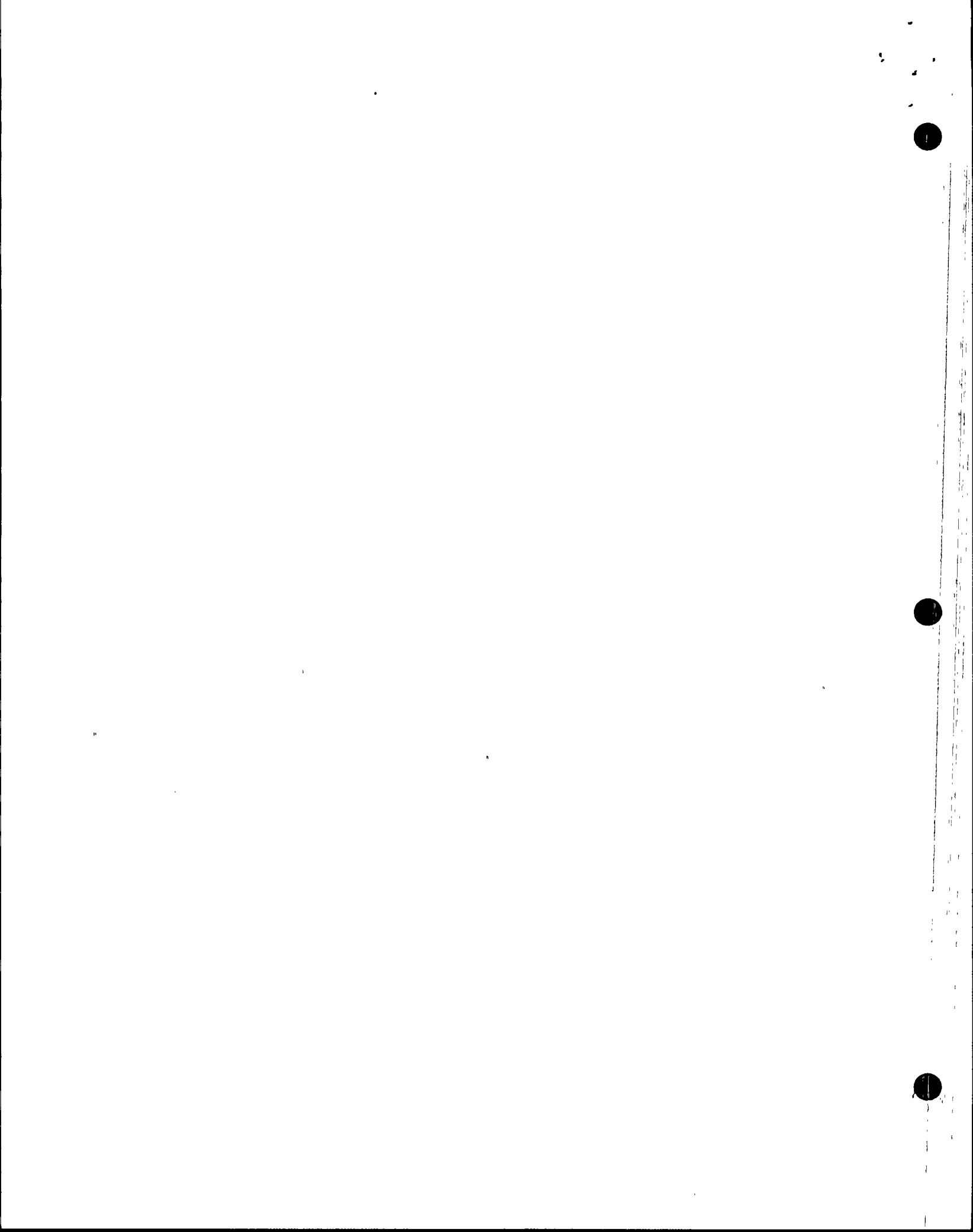




APPENDIX B

REQUEST FOR RELIEF

FOR VALVES



VALVE RELIEF REQUEST NO. 1

SYSTEM: Chemical and Volume Control.

COMPONENTS: CHV305 and CHV306.

P&ID & COORDINATES: CHP-002 @ B-15 & C-13.

CATEGORY: C

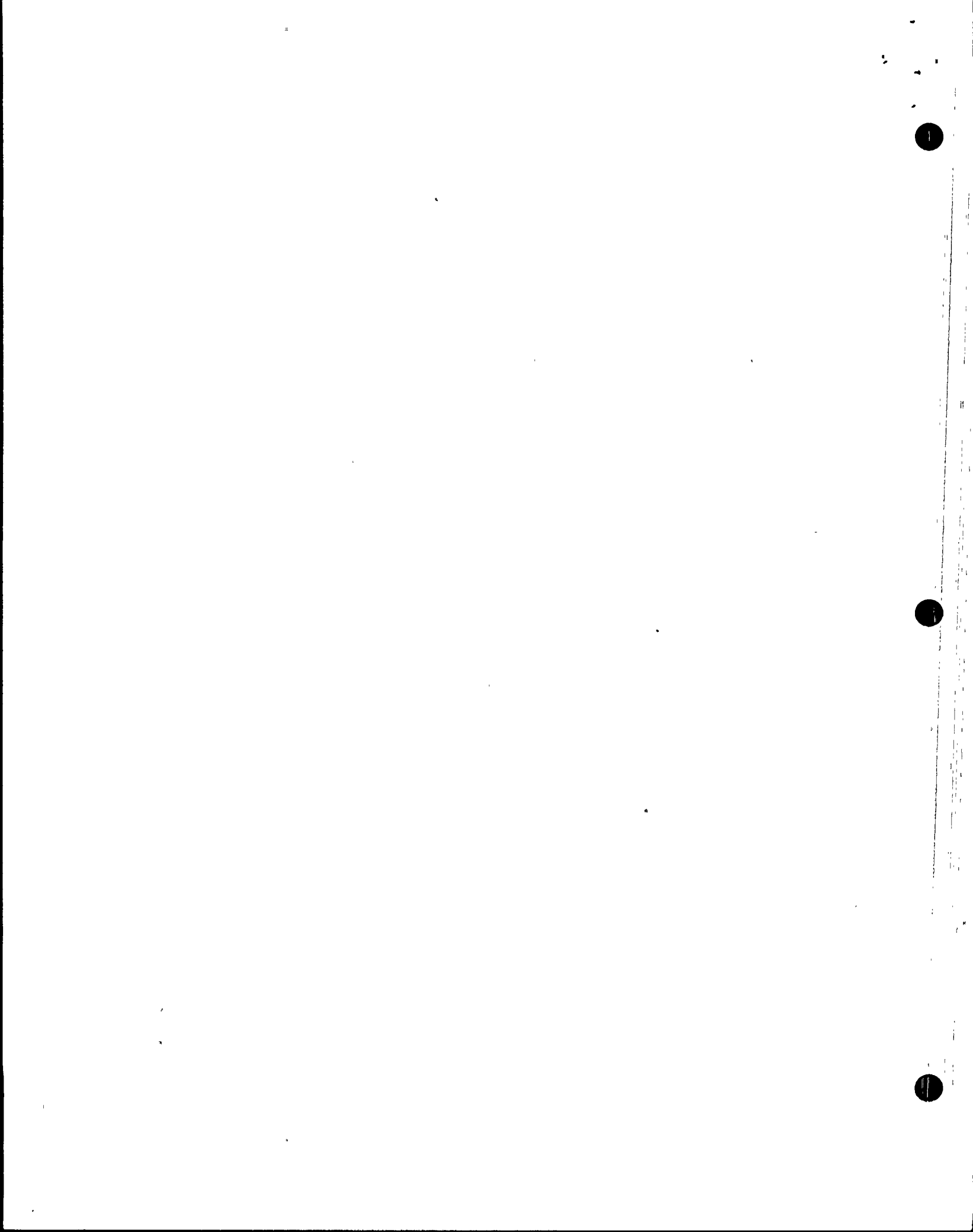
CLASS: 2

FUNCTION: Valves open with differential pressure to provide flow to the LPSI, HPSI, and CS pumps from Refueling Water Tank.

TEST REQUIREMENT: Full stroke exercise test once every three months.

BASIS FOR RELIEF: Flow will not be sufficient to completely stroke these valves during operation.

ALTERNATE TESTING: These valves will be given a partial stroke test at least once every 90 days while testing the pumps. A full stroke test will be accomplished during the refueling mode when full flow can be established. At this time the test flow path will be from the Refueling Water Tank to the primary loop. Due to the primary loop back pressure this test can only be accomplished during the refueling mode when the reactor head is removed.



VALVE RELIEF REQUEST NO. 2

SYSTEM: Essential Cooling Water.

COMPONENTS: EW-UV65 and EW-UV145.

P&ID & COORDINATES: EWP-001 @ C-8 and C-4.

CATEGORY: B

CLASS: 3

FUNCTION: Valves open to provide Normal Chilled Water System with Essential Chilled Water in the event that the Normal Chilled Water System is inoperable.

TEST REQUIREMENTS: Full stroke exercise test every three months.

BASIS FOR RELIEF: Opening these valves during operations or Cold Shutdown will produce a low pressure in the Normal Chilled Water System. This could lead to the system becoming inoperable.

ALTERNATE TESTING: Perform a full stroke exercise test during the refueling mode.



VALVE RELIEF REQUEST NO. 3

SYSTEM: Safety Injection and Shutdown Cooling.

COMPONENTS: SIV205 and SIV206.

P&ID & COORDINATES: SIP-001 @ G-14 and A-14.

CATEGORY: C

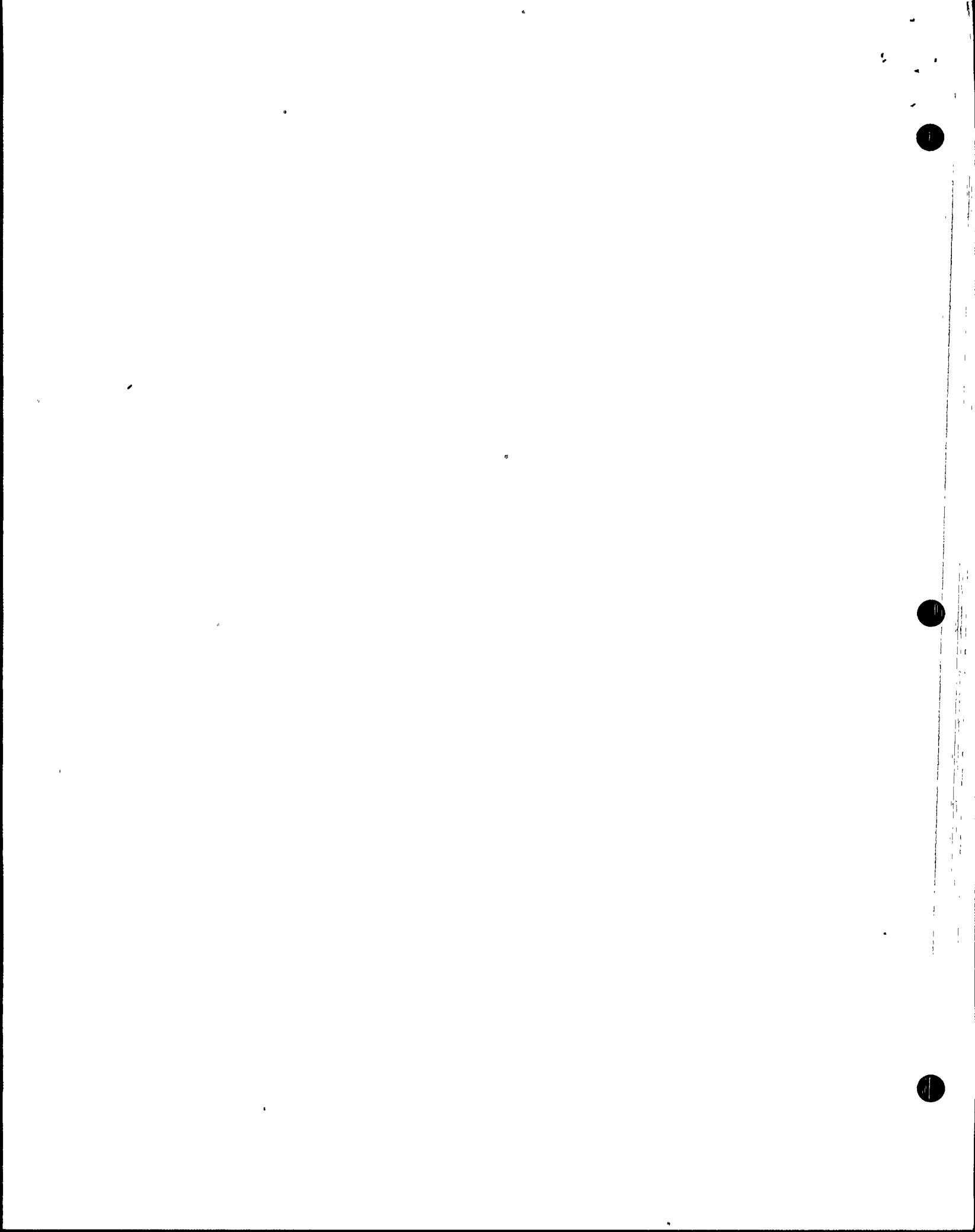
CLASS: 2

FUNCTION: These valves open to provide flow to the HPSI and CS pumps from the recirculation sump.

TEST REQUIREMENTS: Full stroke exercise test every three months.

BASIS FOR RELIEF: This recirculation sump is normally dry so full flow can not be established in this line.

ALTERNATE TESTING: Perform a partial stroke exercise test during refueling using test connections.



VALVE RELIEF REQUEST NO. 4

SYSTEM: Safety Injection and Shutdown Cooling.

COMPONENTS: SIV114, SIV124, SIV134 and SIV144.

P&ID & COORDINATES: SIP-002 @ F14, F-11, F-6 and F-4.

CATEGORY: C

CLASS: 2

FUNCTION: Valves open to provide flow paths from the low pressure safety injection headers to the primary loops.

TEST REQUIREMENTS: Full stroke exercise test every three months.

BASIS FOR RELIEF: Flow cannot be established to exercise valves during operation or cold shutdown due to the pressure in the Primary Coolant System.

ALTERNATE TESTING: These valves will be full stroke exercised during re-fueling when the reactor head is removed.



VALVE RELIEF REQUEST NO. 5

SYSTEM: Safety Injection and Shutdown Cooling

COMPONENTS: SIV164 and SIV165

P&ID & COORDINATES: SIP-002 @ F-9 and F-6.

CATEGORY: C

CLASS: 2

FUNCTION: Valves open to provide flow from the Containment Spray Pump to the discharge nozzles.

TEST REQUIREMENTS: Full stroke exercise test every three months

BASIS FOR RELIEF: Flow can not be established without discharging water into containment.

ALTERNATE TESTING: Test these valves per Technical Specification during refueling.



VALVE RELIEF REQUEST NO. 6

SYSTEM: Safety Injection and Shutdown Cooling.

COMPONENTS: SIV215, SIV225, SIV235 and SIV245.

P&ID & COORDINATES: SIP-002 @ B-15, B-12, B-8 and B-5.

CATEGORY: C

CLASS: 2

FUNCTION: Valves open to provide a flowpath from the Safety Injection to the Primary Coolant Loop.

TEST REQUIREMENTS: Full stroke exercise test every three months.

BASIS FOR RELIEF: Full stroking is only possible when the Safety Injection Tank discharges into the Primary Coolant Loop.

ALTERNATE TESTING: Partial stroke exercise these valves during refueling utilizing the test flowpath.



VALVE RELIEF REQUEST NO. 7

SYSTEM: Safety Injection and Shutdown Cooling.

COMPONENTS: SIV113, SIV123, SIV133, SIV143, SIV404, and SIV 405

P&ID & COORDINATES: SIP-002 @ F-14, F-11, F-7, G-5 and B-5

CATEGORY: A, C

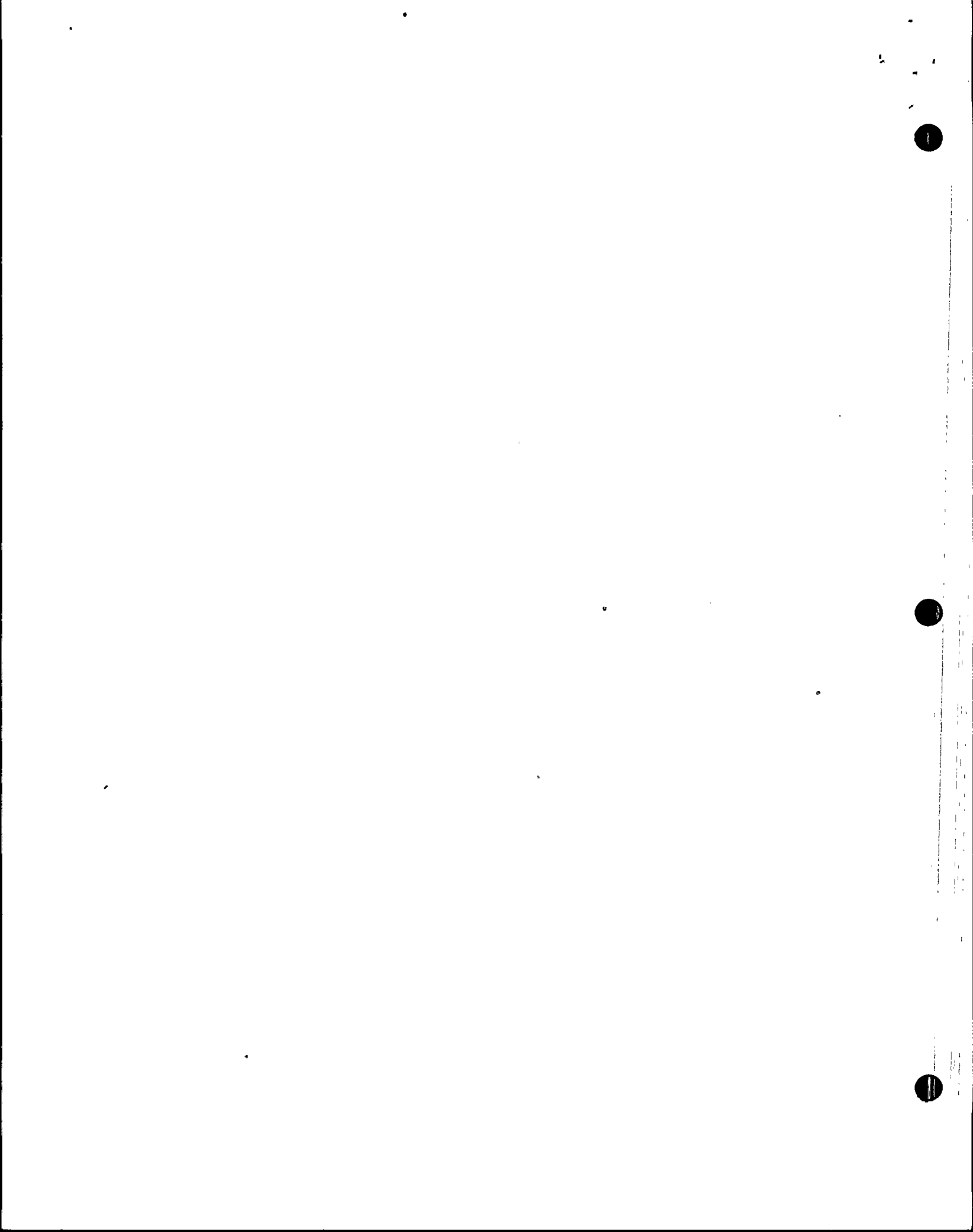
CLASS: 2

FUNCTION: Valves open to provide a flowpath from the Safety Injection System to the Primary Coolant Loop.

TEST REQUIREMENTS: Full stroke exercise test every three months.

BASIS FOR RELIEF: These valves can only be exercised by initiation of flow through the valves and into the Reactor Coolant System. Safety Injection Pumps are not sufficient to establish flow that will exercise these valves due to pressure of the Primary Coolant System.

ALTERNATE TESTING: Full stroke exercise these valves during refueling utilizing the Safety Injection Pumps.



VALVE RELIEF REQUEST NO. 8

SYSTEM: Safety Injection and Shutdown Cooling

COMPONENTS: SIV522 and SIV532

P&ID & COORDINATES: SIP-002 @ C-3 and C-10

CATEGORY: C

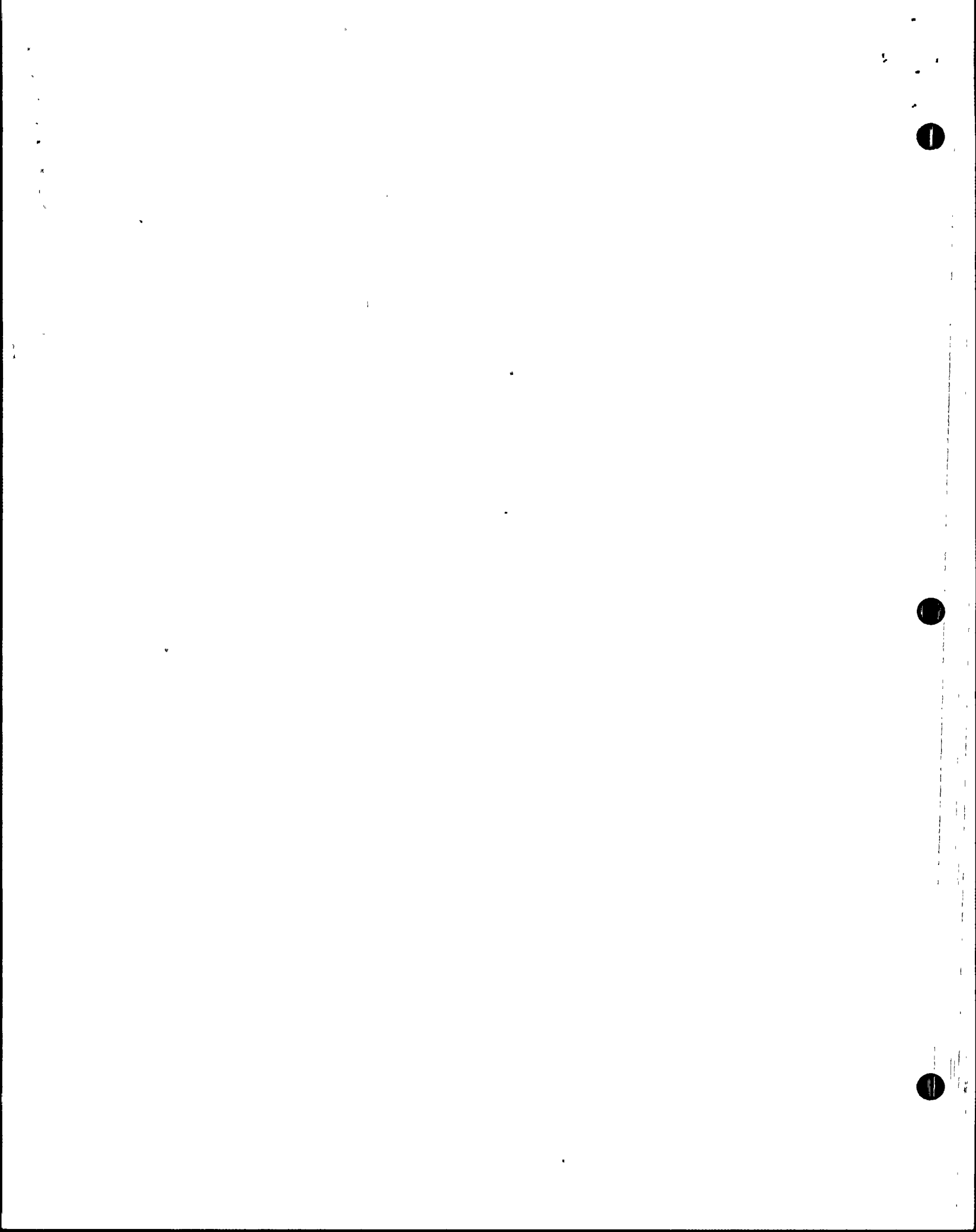
CLASS: 1

FUNCTION: Valves open to provide a flowpath for the HPSI system to the shutdown cooling lines.

TEST REQUIREMENTS: Full stroke exercise test every three months.

BASIS FOR RELIEF: These valves can only be exercised by initiation of flow through the valves and into the Reactor Coolant System. The Safety Injection pumps are not sufficient to exercise these valves due to pressure of the Primary Coolant System.

ALTERNATE TESTING: Full stroke exercise these valves during refueling when the reactor head is removed utilizing the Safety Injection System.



VALVE RELIEF REQUEST NO. 9

SYSTEM: Safety Injection and Shutdown Cooling

COMPONENTS: SIV217, SIV227, SIV237, SIV247, SIV540, SIV541,
SIV542, SIV543

P&ID & COORDINATES: SIP-002 @ B-14, B-11, B-6, B-4, C-14, C-11,
C-6 and C-4

CATEGORY: C

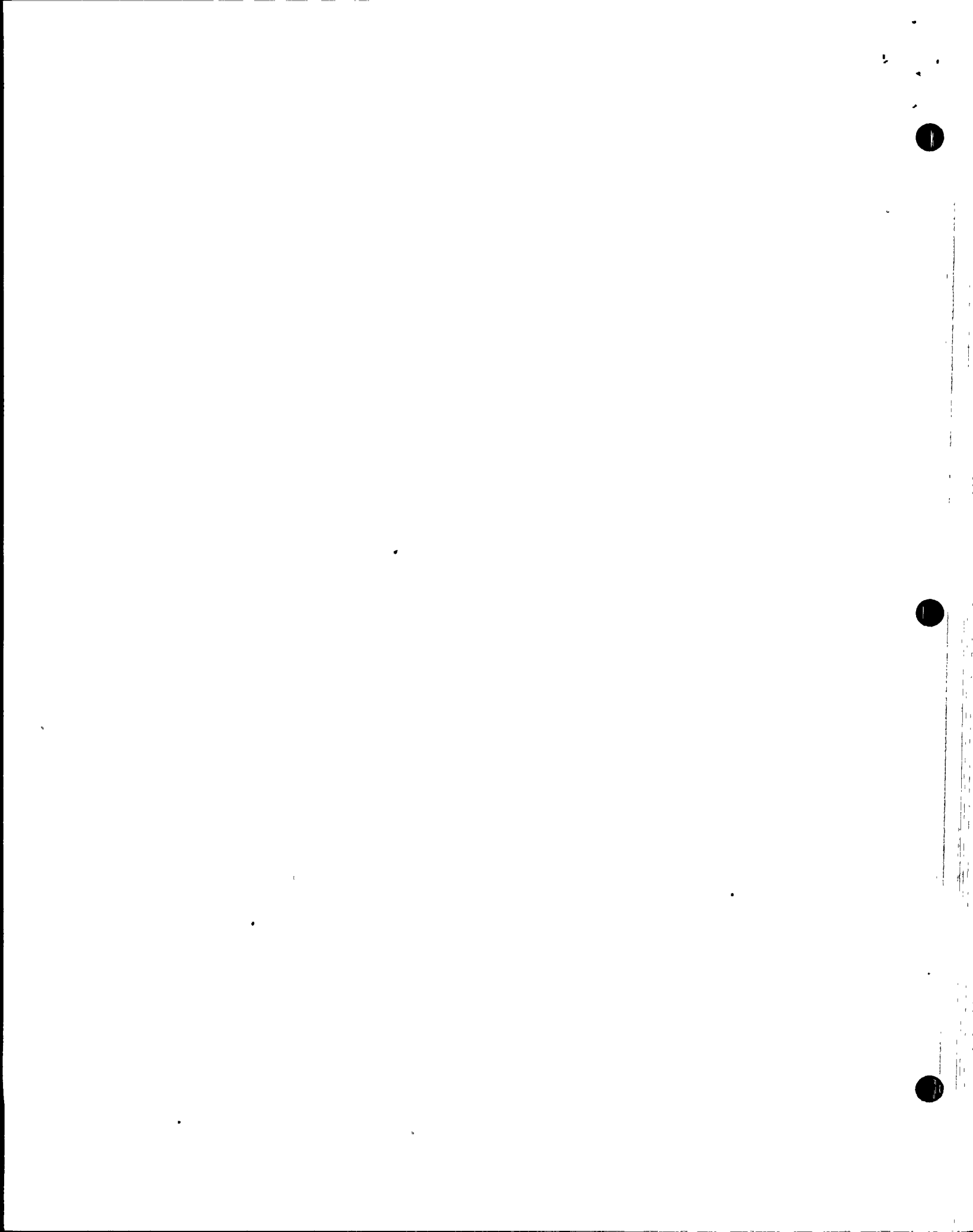
CLASS: 1

FUNCTION: Valves open to provide a flowpath from the Safety
Injection to the Primary Coolant Loop

TEST REQUIREMENTS: Full stroke exercise test every three months.

BASIS FOR RELIEF: These valves can only be exercised by initiation
of flow through the valves and into the Reactor
Coolant System. Safety Injection Pumps are not
sufficient to exercise these valves due to pres-
sure of the Primary Coolant System.

ALTERNATE TESTING: Full stroke exercise these valves during refuel-
ing when the reactor head is removed utilizing the
Safety Injection System.



VALVE RELIEF REQUEST NO. 10

SYSTEM: Safety Injection and Shutdown Cooling

COMPONENTS: SIV523 and SIV533

P&ID & COORDINATES: SIP-002 @ F-2 and F-10

CATEGORY: A, C

CLASS: 1

FUNCTION: Valves open to provide a flowpath for the HPSI system to the shutdown cooling lines.

TEST REQUIREMENTS: Full stroke exercise test every three months

BASIS FOR RELIEF: These valves can only be exercised by initiation of flow through the valves and into the Reactor Coolant System. Safety Injection Pumps are not sufficient to exercise these valves due to pressure of the Primary Coolant System.

ALTERNATE TESTING: Full stroke exercise test these valves during the refueling mode when the reactor head is removed utilizing the Safety Injection System.



VALVE RELIEF REQUEST NO. 11

SYSTEM: Auxiliary Feedwater

COMPONENTS: AFV015, AFV024, AFV079, and AFV080

P&ID & COORDINATES: AFP-001, E-5, C-6, E-1, C-1

CATEGORY: C

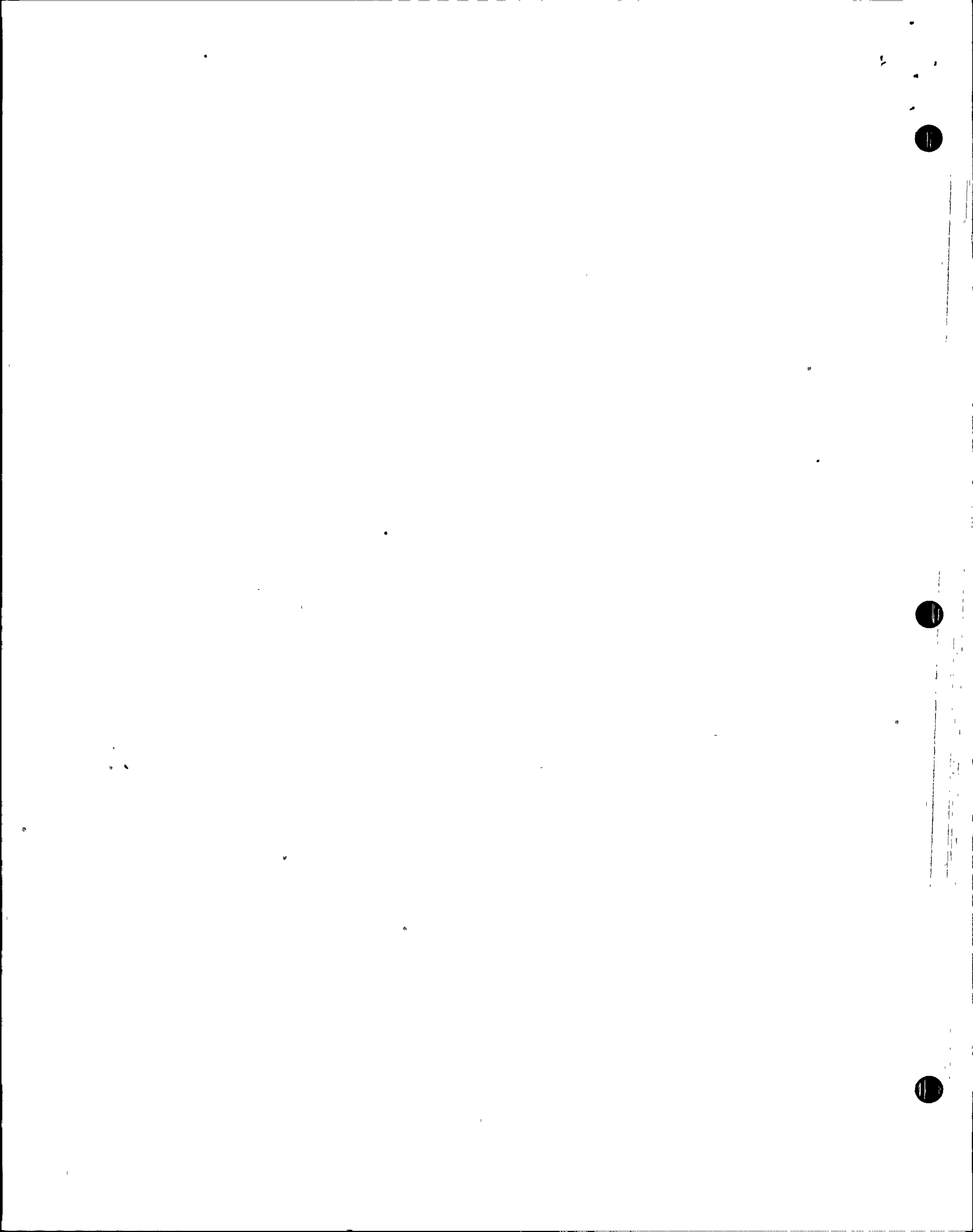
CLASS: 2, 3

FUNCTION: Valves open to provide a flowpath for auxiliary feedwater to the Steam Generators.

TEST REQUIREMENTS: Full Stroke Test every 3 months or Partial Stroke Test every 3 months and Full Stroke Test during Cold Shutdown.

BASIS FOR RELIEF: Stroking these valves during power operation would require injection of cold Auxiliary Feedwater into a hot steam generator. In addition to possibly causing an unwarranted plant transient, this reduces the quality of steam exiting the steam generator.

ALTERNATE TESTING: Full stroke test at cold shutdown.



VALVE RELIEF REQUEST NO. 12

SYSTEM: Chemical and Volume Control

COMPONENTS: CHV431, CH-HV203, CH-HV205

P&ID & COORDINATES: CHP-001 @ G11, H12, G12

CATEGORY: C, B, B

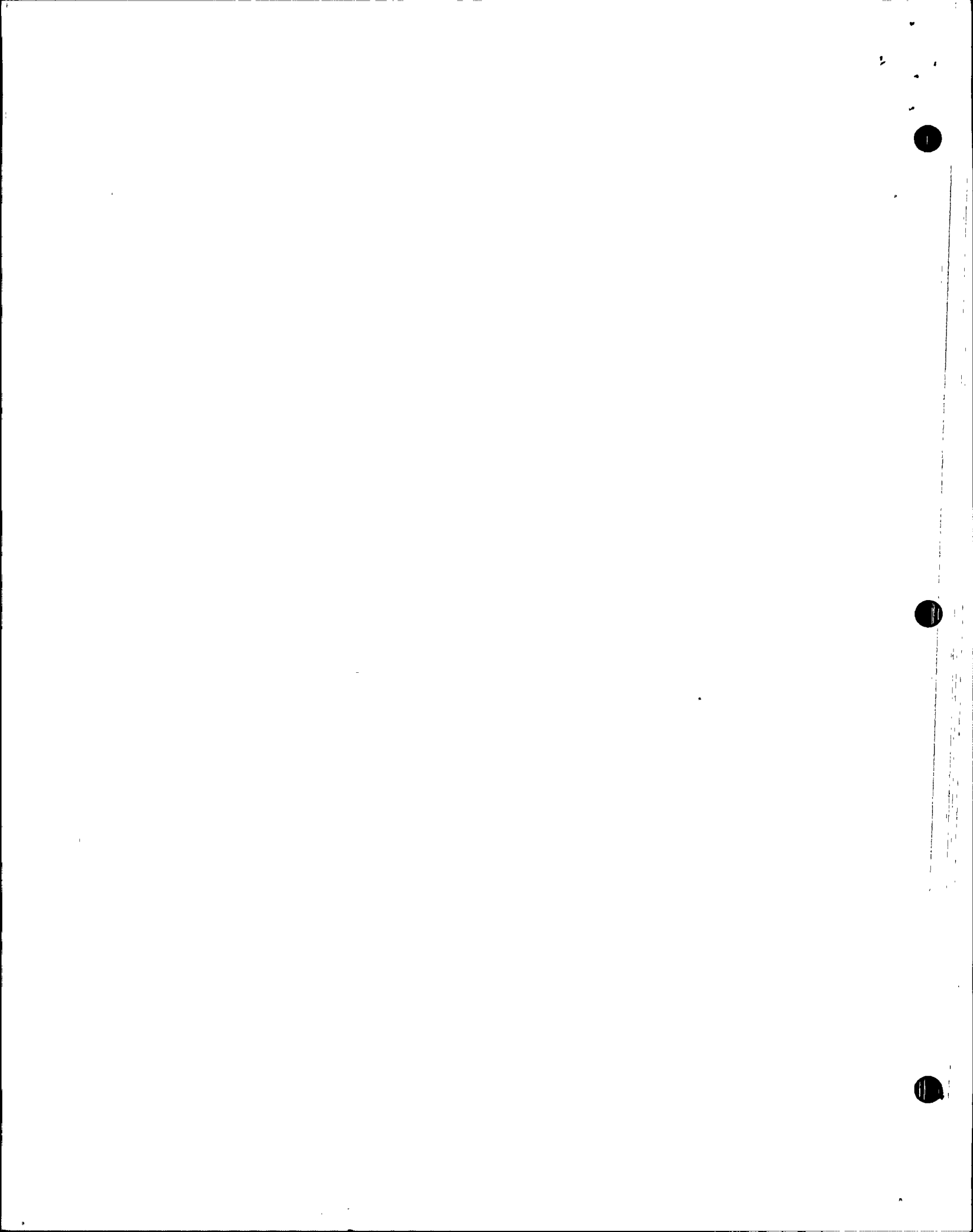
CODE CLASS: 1, 2, 1

FUNCTION: Valves open to provide a flow path for Auxiliary Spray to the pressurizer.

TEST REQUIREMENTS: Full stroke exercise every 3 months or partial stroke exercise every 3 months and full stroke test during cold shutdown.

BASIS FOR RELIEF: Exercising these valves is not possible during power operation. Their function is to protect the charging system from Reactor Coolant System pressure during normal operation and to provide auxiliary spray to cool the pressurizer when the RCS pressure has dropped below the pressure required to use the reactor coolant pumps.

ALTERNATE TESTING: Full stroke test at cold shutdown.



VALVE RELIEF REQUEST NO. 13

SYSTEM: Chemical Volume and Control

COMPONENTS: CHV787, CHV802, CHV807, CHV812, CHV866, CHV867,
CHV868, CHV869

P&ID & COORDINATES: CHP-001 @ 1 E-H

CATEGORY: C

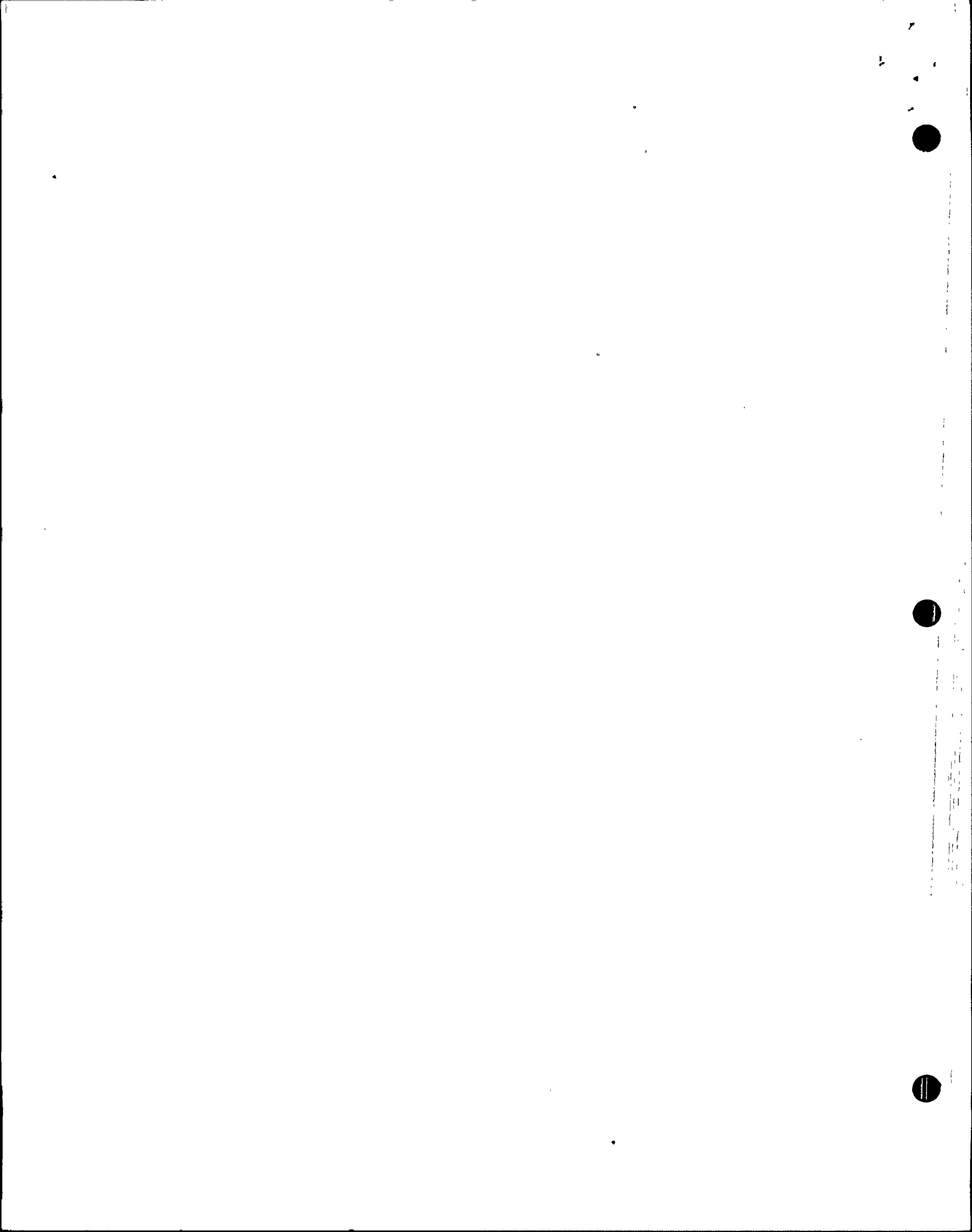
CLASS: 1

FUNCTION: Valves are open to provide a flow path for
seal injection to the reactor coolant pumps.

TEST REQUIREMENTS: Full stroke test every 3 months or partial
stroke test every 3 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
Pump. Stroking these valves would require dis-
continuing seal injection to the pumps and com-
promise Reactor Coolant Pump integrity.

ALTERNATE TEST: Full stroke test at cold shutdown



VALVE RELIEF REQUEST NO. 14

SYSTEM: Chemical and Volume Control

COMPONENTS: CH-HV524

P&ID & COORDINATES: CHP-001 @ D16

CATEGORY: A

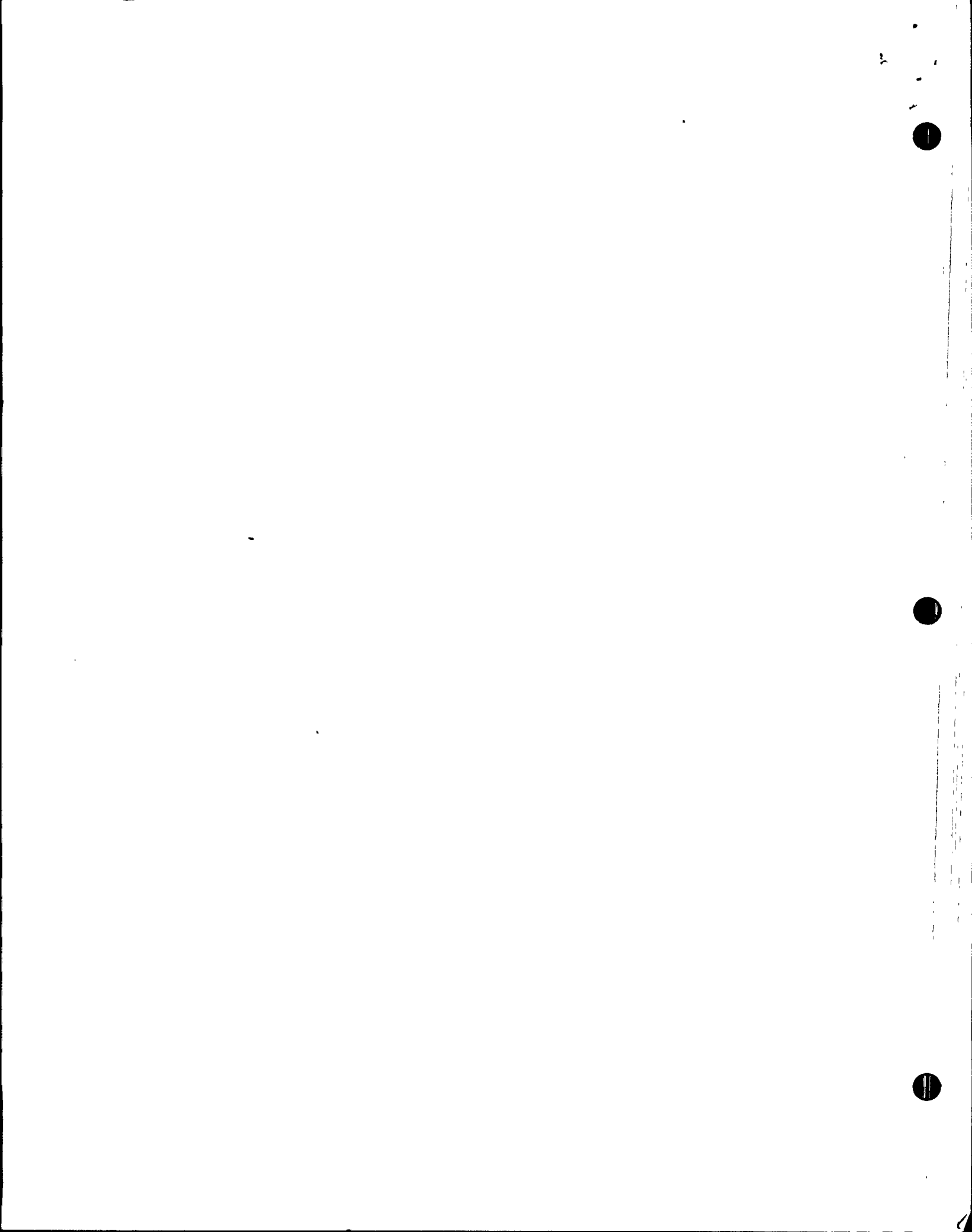
CLASS: 2

FUNCTION: Valve is open to provide a flowpath for the charging flow to the Reactor Coolant System and the pressurizer auxiliary spray.

TEST REQUIREMENTS: Full stroke test every 3 months or partial stroke test every 3 months and full stroke test during cold shutdown.

BASIS FOR RELIEF: This valve is open during normal operation to maintain reactor coolant system chemistry and purity and maintain RCS volume. Stroking this valve during normal operation could upset the chemical balance and cause unwarranted transients.

ALTERNATE TEST: Full stroke test at cold shutdown.



VALVE RELIEF REQUEST NO. 15

SYSTEM:

Nuclear Cooling Water

COMPONENTS:

NCV118, UV401, UV402, UV403

P&ID & COORDINATES:

NCP-003 @ E7

CATEGORY:

A, C

CLASS:

2

FUNCTION:

Valves open to provide a flowpath for nuclear cooling water supply to the reactor coolant pump lube oil coolers.

TEST REQUIREMENTS:

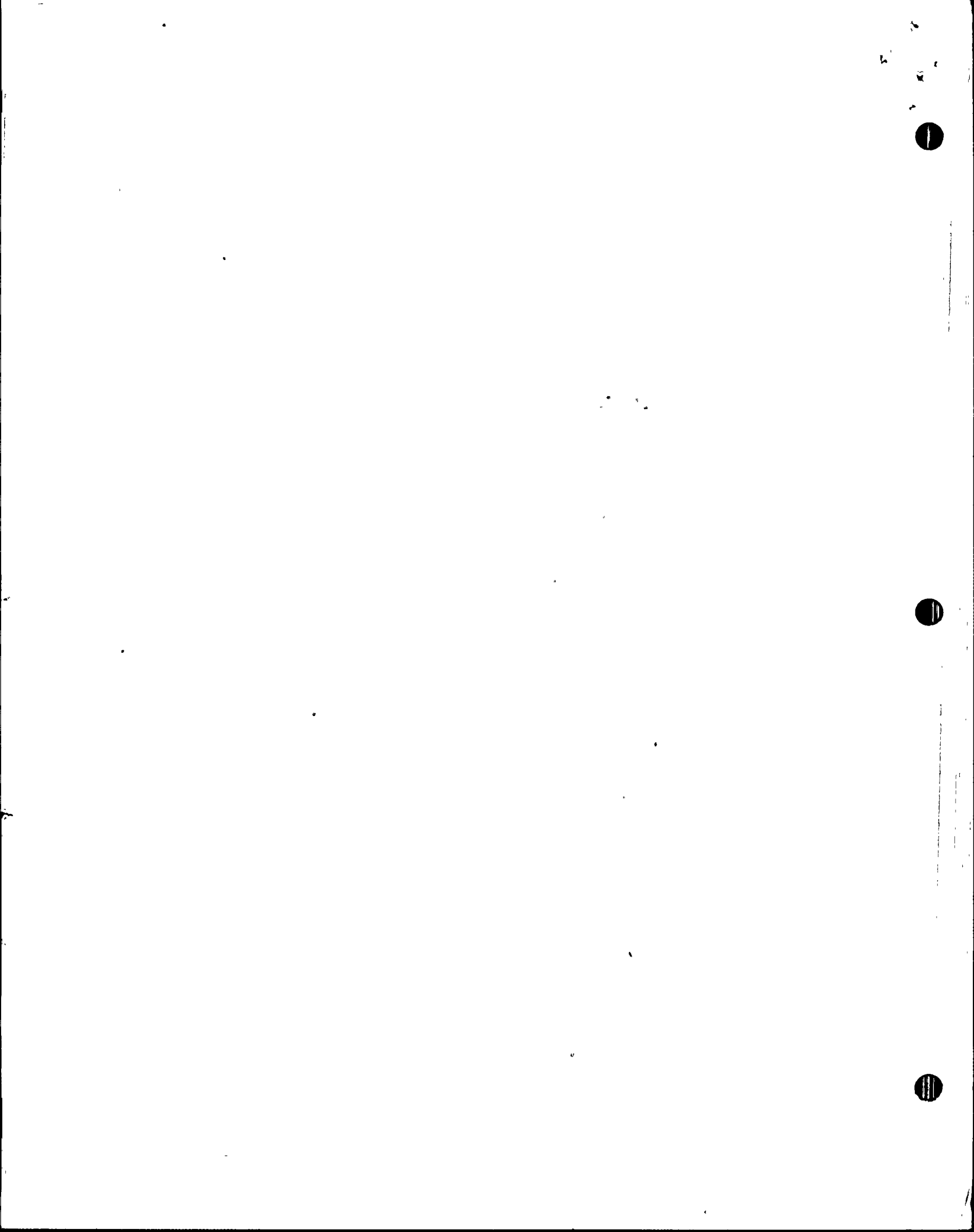
Full stroke tested every 3 months or partial stroke tested every 3 months and full stroke tested at cold shutdowns.

BASIS FOR RELIEF:

This valve is 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 thrust bearing oil coolers, and seal coolers and compromise the integrity of the pumps.

ALTERNATE TESTING:

Full stroke test these valves during cold shutdown.



VALVE RELIEF REQUEST NO: 16

SYSTEM: Main Steam

COMPONENTS: SGV003, SGV005, SGV006, SGV007, SGV642, SGV652,
SGV653, SGV693

P&ID & COORDINATES: SGP-002 @ E10, A10, G10, C10

CATEGORY: C

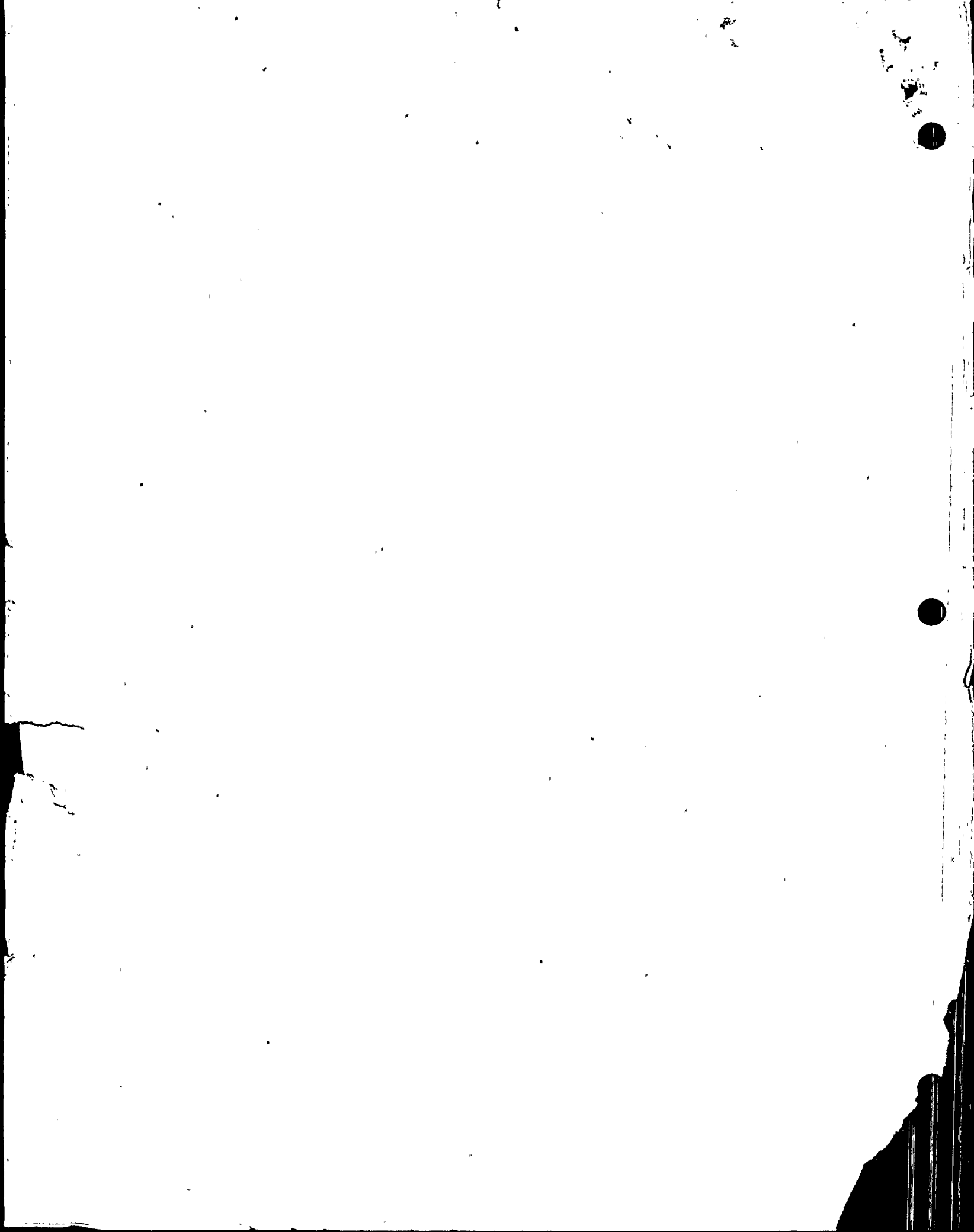
CLASS: 2

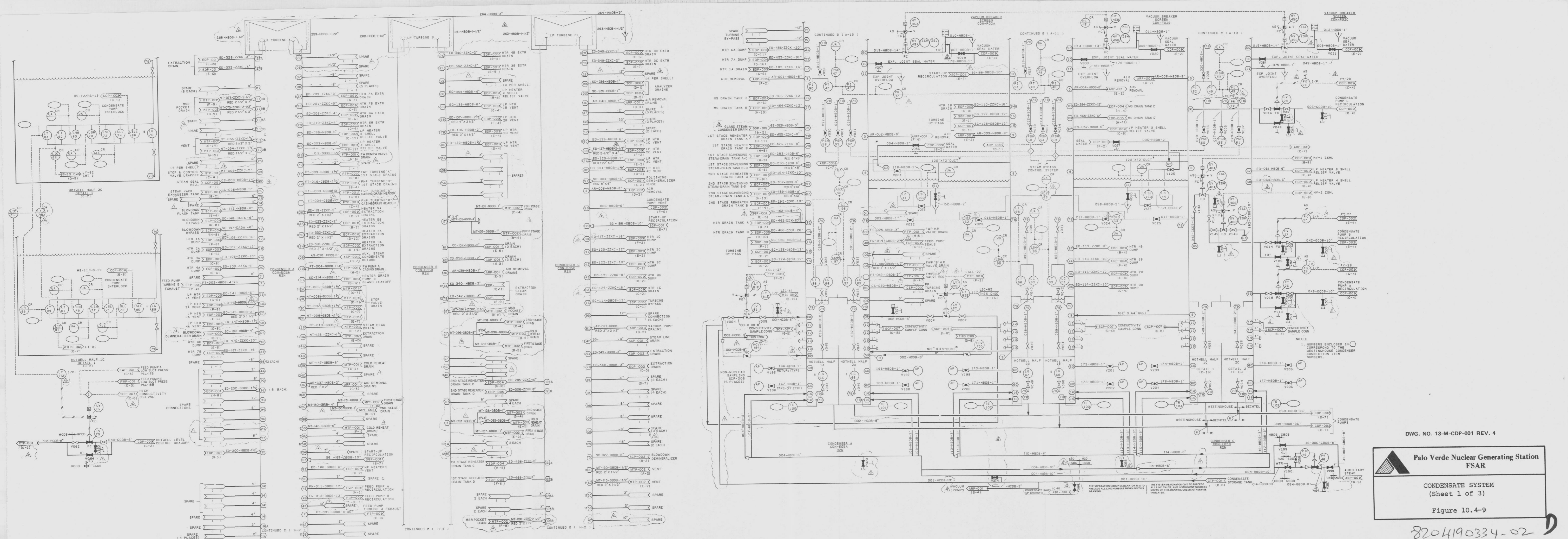
FUNCTION: Valves open to provide a flow path for feed-
water flow to the steam generators.

TEST REQUIREMENTS: Full stroke test every 3 months or partial stroke
test every 3 months and full stroke test during
cold shutdown.

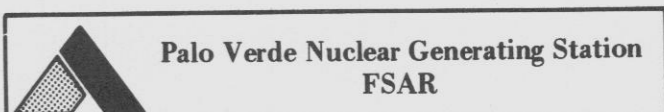
BASIS FOR RELIEF: These valves are in the feedwater inlet lines
to each steam generator and are open during
power operation. Full or partial stroking these
valves during operation could secure feedwater
and cause a reactor trip.

ALTERNATE TESTING: Full stroke test at cold shutdown.





DWG. NO. 13-M-CDP-001 REV. 4



CONDENSATE SYSTEM
(Sheet 1 of 3)

Figure 10.4-9

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