

GEORGIA POWER COMPANY  
INSERVICE TEST PROGRAM  
(ISI-P-008)

FOR

VOGTLE ELECTRIC GENERATING PLANT

UNIT 1

PREPARED BY

SOUTHERN NUCLEAR OPERATING COMPANY  
INSPECTION AND TESTING SERVICES GROUP

REV.	DATE	DESCRIPTION	SNC				GPC	
			PREP'D BY (ITS)	REV'D BY (ITS)	APPV. BY (ITS)	APPV. VOGTLE PROJECT NMS	APPV. MGR. TECH. SUPP.	APPR. GEN. MGR.
0	6/30/86	ISSUED FOR PBT/IST INSPECTION						
1	10/21/86	REVISED PER NRC COMMENTS PRESSURE TESTS						
2	5/1/87	GENERAL UPDATE COMMITMENTS						
3	11/8/87	REVISED RHR TESTING PR-82, 83, 84						
4	9/7/88	INCORPORATE PCRS 88-005, 88-006, AND 88-007						
5	2/15/90	REFER TO REVISION 5 SUMMARY OF CHANGES						
6	2/28/91	REFER TO REVISION 6 SUMMARY OF CHANGES						
7	3/22/93	REFER TO REVISION 7 SUMMARY OF CHANGES	DRS	DR2	MB	alpt	JL	NMS

VOGTLE ELECTRIC GENERATING PLANT - UNIT 1  
INSERVICE TEST (IST) PROGRAM

ISI-P-008

Revision 7 Summary of Changes

List of Effective Pages	Revised to indicate the current revision number of each page in the program document. See below for pages affected.
Table 3c-1	Revised to correct a previous typographical error. The system number was changed from 1203 to 1204.
Table 3f-3	Revision # 5 was added to page. Revision number had been omitted in previous issue. The latest revision number for the page is indicated even though this package constitutes Revision 7 to the IST Program document. Editorial correction only.
Table 3g-5	Revision # 5 was added to page. Revision number had been omitted in previous issue. The latest revision number for the page is indicated even though this package constitutes Revision 7 to the IST Program document. Editorial correction only.
Page 4-28	Revised to add valve 1-1208-U6-124.
Page 4-30	Revised to change valve type for HV 8220.
Page 4-39	Safety position was changed to O/C and disassembly was added to confirm reverse flow closure and reference to Relief Request RR-23 was added for valve 1301-U4-006.  Safety position was changed from O/C to O for valve 1301-U4-404.
Page 5-14	Relief Request RR-14 was revised to change frequency for disassembly and manual exercising from every outage to every other outage for valves 1206-U6-015 and 016.
Page 5-23	Relief Request RR-23 was revised to include valve 1301-U4-006.
Page 5-28	Added Relief Request RR-28 for testing valve 1208-U6-124.
Page 6-31	Cold Shutdown Justification CS-31 was revised to delete valve 1301-U4-006. Testing for this valve has been added to Relief Request RR-23.

VEGP-1 ISI-P-008

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Table 3c-1

SAFETY INJECTION PUMPS  
(1-1204-P6-003, -004)

Quantity	2		
Model/Type	Pacific model 3-in. JHF, 11 stages		
	<u>Shutoff</u>	<u>Design</u>	<u>Runout</u>
Design Flowrate (gal/min)	0	440	660
Max. Differential Head (ft)	3745	2880	1860
Min. Differential Head (ft)	3545	2680	1660
NPSH Required (ft)	NA	17	25
Design Pressure (psig)	1750		
Design Temperature (°F)	300		
Driver	Westinghouse electric motor (frame 5809 H)		
hp	450		
rpm	3600		
Power supply	4160 V/3 phase/60 Hz		
Project Class	212		
Outline Drawing	1X6AG02-10, -13, -15		
Instruction Book	1X6AG02-016		
Location	Auxiliary building, level B Rooms R-B15 & R-B19		
P&ID	1X4DB121		
Test Procedure Number	14804-1		

Table 3f-3

Test Parameter Table For Pump 1-1208-P6-003

<u>Parameter</u>	<u>Test Frequency</u>	<u>Instrument Utilized</u>	<u>Reference Values</u>	<u>Comments</u>
Speed (N)	NA	NA	NA	Speed measurement required only on variable speed motors
Inlet Pressure (Pi)	Quarterly (1)	PI-8892	NA	Pi $\geq$ 7 psig
Outlet Pressure (Po)	Quarterly	PI-9119	NA	
Differential Pressure (dP)	Quarterly	NA (dP=Po-Pi)	dPr(2)	
Flowrate (Q)	Quarterly	FI-10121	Qr(2)	
Vibration Amplitude (V)	Quarterly	Note 3	Vr(2)	
Proper Lubricant Level or Pressure (LL)	Quarterly	NA	NA	Observe lubricant level
Bearing Temperature (Tb)	NA	NA	NA	Relief requested - See PR-1

## General Comments:

At the discretion of Georgia Power Company instrumentation other than that listed above may be used for measuring inservice test quantities.

## Notes:

- (1) Measure before pump startup and during test
- (2) Reference values determined per IWP-3110
- (3) Portable vibration instruments used.

Table 3g-5

Test Parameter Table For Pump 1-1302-P4-003

<u>Parameter</u>	<u>Test Frequency</u>	<u>Instrument Utilized</u>	<u>Reference Values</u>	<u>Comments</u>
Speed (N)	NA	NA	NA	Speed measurement required only on variable speed motors
Inlet Pressure (Pi)	Quarterly (1)	PI-5129A	NA	Pi $\geq$ 7.4 psig (17 ft)
Outlet Pressure (Po)	Quarterly	PI-5141A	NA	
Differential Pressure (dP)	Quarterly	NA (dP=Po-Pi)	dPr(2)	
Flowrate (Q)	Quarterly	FI-15102	Qr(2)	
Vibration Amplitude (V)	Quarterly	Note 3	Vr(2)	
Proper Lubricant Level or Pressure (LL)	Quarterly	NA	NA	Observe lubricant level
Bearing Temperature (Tb)	NA	NA	NA	Relief requested - See PR-1

## General Comment:

At the discretion of Georgia Power Company instrumentation other than that listed above may be used for measuring inservice test quantities.

## Notes:

- (1) Measure before pump startup and during test
- (2) Reference values determined per IWP-3110
- (3) Portable vibration instruments used.

VEGP Unit No. 1

Valve Test List

System:

Chemical and Volume Control - System No. 1208

008 REV 7

Sheet 3 of 4

Valve Number	Class		P&ID (Coord.)	Valve			Act. Type	Position			Act. or Pass.	Relief					Req. or C. S. Just.	Description and Notes
	ISI	Proj.		Cat	Size (in.)	Type		Norm	Fail	Safety		PI	EI	SI	FSV	LI		
LV 0112D	2	212	1X40B116-2 (E-2)	B	8.00	GA	MO	C	AI	O/C	A	Y	CS	CS			CS-14 RR-2	RWST Isolation
LV 0112E	2	212	1X40B116-2 (D-2)	B	8.00	GA	MO	C	AI	O/C	A	Y	CS	CS			CS-14 RR-2	RWST Isolation
U4 021	2	212	1X40B114 (D-3)	AC	0.75	CK	S	C	N/A	C	P					R		CVCS Seat Backflush Check - Penetration No. 49 (Note 1)
U4 140	2	212	1X40B116-2 (G-6)	C	2.00	CK	S	C	N/A	O	A		Q					CCP Miniflow
U4 147	2	212	1X40B116-2 (C-6)	C	2.00	CK	S	C	N/A	O	A		Q					CCP Miniflow
U6 032	2	212	1X40B114 (G-3)	AC	3.00	CK	S	O	N/A	O/C	A		R Q			R	RR-2,16	CVCS to Regenerative HX - Penetration No. 50 (Note 1)
U6 124	2	212	1X40B116-1 (E-4)	C	4.00	CK	S	O	N/A	C	A		R				RR-2,28	VCT Outlet Check
U6 142	2	212	1X40B116-2 (G-6)	C	4.00	CK	S	C	N/A	O/C	A		PQR				RR-2,12	CVCS Pump Out Check
U6 149	2	212	1X40B116-2 (C-6)	C	4.00	CK	S	C	N/A	O/C	A		PQR				RR-2,12	CVCS Pump Out Check
U6 189	2	212	1X40B116-2 (E-2)	C	8.00	CK	S	C	N/A	O	A		PCS R				RR-2,17	RWST to CVCS Check
U6 436	2	212	1X40B122 (F-8)	C	8.00	CK	S	C	N/A	O	A		PCS R				RR-2,17	CVCS Charge Pump Suction from

VEGP Unit No. 1

Valve Test List

System: Nuclear Sampling-Liquid - System No. 1212

008 REV 7

Sheet 1 of 1

Valve Number	Class		P&ID (Coord.)	Valve			Act. Type	Position			Act. or Pass.	Relief					Req. or C. S. Just.	Description and Notes
	ISI	Proj.		Cat	Size (in.)	Type		Norm	Fall	Safety		Tests and Freq.						
HV 3502	2	212	1X4DB140 (E-7)	A	0.50	GL	AO	O	C	C	A	Y	Q	Q	Q	R		Hot Leg Sample Line Penetration No. 24 (Note 1)
HV 3507	2	212	1X4DB140 (G-7)	A	0.50	GL	AO	C	C	C	A	Y	Q	Q	Q	R		Pressurizer Steam Space Penetration No. 67B (Note 1)
HV 3508	2	212	1X4DB6140 (G-7)	A	0.50	GL	AO	C	C	C	A	Y	Q	Q	Q	R		Pressurizer Steam Space Penetration No. 67B (Note 1)
HV 3513	2	212	1X4DB140 (F-7)	A	0.50	GL	AO	C	C	C	A	Y	Q	Q	Q	R		Hot Leg Sample Line Penetration No. 67A (Note 1)
HV 3514	2	212	1X4DB140 (F-7)	A	0.50	GL	AO	C	C	C	A	Y	Q	Q	Q	R		Hot Leg Sample Line Penetration No. 67A (Note 1)
HV 3548	2	212	1X4DB140 (D-8)	A	0.50	GL	MO	O	AI	C	A	Y	Q	Q		R		Reactor Hot Leg Sample Line - Penetration No. 24 (Note 1)
HV 8220	2	212	1X4DB140 (D-7)	A	0.50	GA	ES	C	C	C	A	Y	Q	Q	Q	R		Post-Accident Sampling Penetration No. 24 (Note 1)

VEGP Unit No. 1  
Valve Test List  
System:

Main Steam - System 1301

008 REV 7

Sheet 5 of 5

Valve Number	Class		P&ID (Coord.)	Valve		Act. Type	Position			Act. or Pass.	Tests and Freq.					Relief Req. or C. S. Just.	Description and Notes
	ISI	Proj.		Size Cet (In.)	Type		Norm	Fall	Safety		PI	ET	SI	FSV	LT		
PSV 3015	2	212	1X4DB159-2 (F-5)	C 6.00	SR	S	C	N/A	O/C	A		T					Main Steam Relief
PSV 3021	2	212	1X4DB159-2 (D-3)	C 6.00	SR	S	C	N/A	O/C	A		T					Main Steam Relief
PSV 3022	2	212	1X4DB159-2 (D-4)	C 6.00	SR	S	C	N/A	O/C	A		T					Main Steam Relief
PSV 3023	2	212	1X4DB159-2 (D-4)	C 6.00	SR	S	C	N/A	O/C	A		T					Main Steam Relief
PSV 3024	2	212	1X4DB159-2 (D-5)	C 6.00	SR	S	C	N/A	O/C	A		T					Main Steam Relief
PSV 3025	2	212	1X4DB159-2 (D-5)	C 6.00	SR	S	C	N/A	O/C	A		T					Main Steam Relief
PSV 3031	2	212	1X4DB159-2 (B-3)	C 6.00	SR	S	C	N/A	O/C	A		T					Main Steam Relief
PSV 3032	2	212	1X4DB159-2 (B-4)	C 6.00	SR	S	C	N/A	O/C	A		T					Main Steam Relief
PSV 3033	2	212	1X4DB159-2 (B-4)	C 6.00	SR	S	C	N/A	O/C	A		T					Main Steam Relief
PSV 3034	2	212	1X4DB159-2 (B-5)	C 6.00	SR	S	C	N/A	O/C	A		T					Main Steam Relief
PSV 3035	2	212	1X4DB159-2 (B-5)	C 6.00	SR	S	C	N/A	O/C	A		T					Main Steam Relief
U4 006	3	313	1X4DB159-2 (G-4)	C 4.00	CK	S	C	N/A	O/C	A		PQCS RM				RR-23,2	Auxiliary Feedwater (AFW) Pump Check
U4 008	3	313	1X4DB159-2 (E-4)	C 4.00	CK	S	O	N/A	O/C	A		PQCS RM				RR-23, 2	AFW Pump Check
U4 404	3	313	1X4DB159-2 (E-4)	C 4.00	CK	S	O	N/A	O	A		PQCS				CS-31 RR-2	AFW Pump Check



## RELIEF REQUEST

RR-14

SYSTEM: Containment Spray-System No. 1206

VALVE(S): 1206-U6-015, 1206-U6-016

CATEGORY: AC

CLASS: 2

FUNCTION: Valve opens to allow flow for containment spray. Valve closes to perform containment isolation function.

### QUARTERLY TEST

REQUIREMENT: Verify forward and reverse flow operability per IWV-3522.

BASIS FOR RELIEF: Forward flow operability can be verified only by initiating flow through the valves into the containment structure. The initiation of containment spray into the containment would result in extensive damage to equipment inside containment. The only method available to verify reverse flow closure is valve leak testing during Appendix J, type C, testing at refueling.

ALTERNATE TESTING: One of these valves will be disassembled and manually stroked every other refueling on a staggered test basis. If disassembly reveals that the valve is inoperable, the remaining valve will be disassembled. In addition, reverse flow closure will be verified during Appendix J, type C, testing at refueling.

### GENERIC LETTER 89-04 REVIEW:

This relief request complies with the alternative to full flow testing of check valves as described in Position 2 of NRC Generic Letter 89-04. The provisions for extending the disassembly frequency have been reviewed and extension to every other outage is justified.

## RELIEF REQUEST

RR-23

SYSTEM: Main Steam - System No. 1301

VALVE(S): 1301-U4-008, 1301-U4-006

CATEGORY: C

CLASS: 3

FUNCTION: These valves open to allow steam to the AFW pump turbine and close to prevent reverse flow.

### QUARTERLY TEST

REQUIREMENT: Verify forward flow operability and reverse flow closure per IWV-3522.

BASIS FOR RELIEF: Full-stroke exercising these valves during full power operation would require establishing full AFW pump flow into the steam generators. The introduction of cold water into the hot steam generators during full power operation results in a significant thermal shock to the feedwater nozzle. Subjecting the feedwater nozzle to this thermal transient on a quarterly basis decreases the fatigue life of the nozzle and could possibly result in nozzle cracking.

There are no system provisions for utilizing flow or pressure as an indication of reverse flow closure.

ALTERNATE TESTING: These valves are partial-stroke exercised quarterly during the turbine-driven AFW pump test.

These valves will be full-stroke exercised on a cold shutdown frequency by verifying that the AFW pump is delivering the required flow through valves 1302-U4-014, 1302-U4-017, 1302-U4-020, 1302-U4-023 and 1302-U4-026 as discussed in CS-19.

Reverse flow closure will be demonstrated by disassembly and manual full-stroke exercising on a staggered test basis at refueling. Valves will be exercised with flow after reassembly.

### GENERIC LETTER

89-04 REVIEW:

This relief request complies with the alternative to full flow testing of check valves as described in Position 2 of NRC Generic Letter 89-04.

## RELIEF REQUEST

RR-28

SYSTEM: Chemical and Volume Control - System 1208

VALVE: 1-1208-U6-124

CATEGORY: C

CLASS: 2

FUNCTION: Isolate potential leakage path outside containment

### QUARTERLY TEST

REQUIREMENT: Verify reverse flow closure per IWV-3522(a)

BASIS FOR RELIEF: Testing this check valve requires that letdown and Reactor Coolant Pump (RCP) seal water return to the Volume Control Tank (VCT) be isolated, thus, removing the Chemical and Volume Control System (CVCS) from service. The CVCS is required to be in service during normal operation. Therefore, quarterly testing is not possible.

Similarly, performing the test at cold shutdown would require isolating seal water to the RCPs. RCP seal water is typically only isolated during mid-loop operations when the Reactor Coolant System (RCS) level is below the RCP seals thus preventing crud intrusion into the seal packages. There have been numerous undesirable events throughout the industry which have resulted from mid-loop operations, e.g., vortexing/cavitation of the Residual Heat Removal (RHR) pumps due to improper RCS level indication. Mid-loop operation reduces RCS inventory which thereby reduces the plant's margin of safety. Therefore, the safety risks associated with testing this check valve during cold shutdowns are unwarranted.

ALTERNATE TESTING: Reverse flow closure will be verified during each refueling outage by measuring a change in VCT level over time. This test will be performed in conjunction with the Emergency Core Cooling Systems (ECCS) check valve flow tests when the RHR system is providing flow to the suction of the centrifugal charging pumps. This check valve must close to prevent flow diversion to the VCT.

### GENERIC LETTER

89-04 Review: The proposed alternate testing method complies with Position 3 of NRC Generic Letter 89-04.

# COLD SHUTDOWN JUSTIFICATION

CS-31

SYSTEM: Main Steam - System No. 1301

VALVE(S): 1301-U4-404

CATEGORY: C

CLASS: 3

FUNCTION: This valve opens to allow steam to the AFW pump turbine.

## QUARTERLY TEST

REQUIREMENT: Verify forward flow operability per IWV-3522.

## COLD SHUTDOWN

TEST JUSTIFICATION: This valve is partial-stroke exercised quarterly during the turbine-driven AFW pump test. Full-stroke exercising during power operation cannot be performed because the turbine-driven AFW pump is not delivering full flow to the steam generators.

## QUARTERLY PARTIAL STROKE TESTING:

Partial-stroke exercising is performed during the turbine-driven AFW pump test.

COLD SHUTDOWN TESTING: Testing of valves 1302-U4-014, 1302-U4-017, 1302-U4-020, 1302-U4-023, and 1302-U4-026 as discussed in CS-19 verifies that valve 1301-U4-404 opens to perform its safety related function by ensuring that the AFW pump is delivering required flow.

## GENERIC LETTER 89-04 REVIEW:

This cold shutdown justification complies with the full-stroke testing requirements for check valves as described in Position 1 of NRC Generic Letter 89-04.