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ROBERT C. MECREDY
Vice President
Nuclear Operations

February 15, 1995

Director, Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: Simulator Facility Certification Four Year Report
R.E. Ginna Nuclear Power Plant
Docket No. 50-244

Dear Mr. Johnson:

In accordance with 10CFR55.45(b)(5), we hereby submit the R.E. Ginna Nuclear Power Plant Simulator Four Year Certification Report.

Very truly yours,

Robert C. Mecredy

GAH\365
Enclosures

xc: Mr. Allen R. Johnson (Mail Stop 14D1)
Project Directorate I-3
Washington, D.C. 20555

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R.E. GINNA NUCLEAR POWER PLANT SIMULATOR FOUR YEAR REPORT

- I. Pursuant to 10CFR55.45 (b) (5) (ii) all test failures have been corrected.
- II. Pursuant to 10CFR55.45(b)(5)(vi) the following is a description of the performance testing completed:

Annual Performance testing was conducted in accordance with ANSI/ANS 3.5 1985 Section 5.4 "Simulator Testing" and Appendix A Section A3 "Simulator Tests" as follows:

1. Computer Real Time Test (ANSI 3.5 Appendix A Section A 3.1)
2. Steady state and normal operations (ANSI 3.5 appendix A3.2 and Appendix B section B2.1)

The following tests were conducted annually:

<u>TEST #</u>	<u>TITLE</u>
14.4.2	Normal Operations Acceptance Test
14.4.3.1	100% BOL Steady State Accuracy Test
14.4.3.2	100% Power Steady State Drift Check
14.4.3.4	Initial Conditions Stability Check
14.4.4.1	NSSS-BOP Energy Balance Test
14.4.5.1	NSSS-Mass Balance Test
14.4.5.2	BOP-Mass Balance Test
3.	Transient tests (ANSI 3.5 Section 5.4.2, Appendix A Section A3.3, and Appendix B, Section B.2.2)

The transient tests listed below were conducted annually. The transient test parameters were compared with reference plant data where available, or best engineering estimate when plant data was not available, by a Transient Review Committee.

<u>TEST #</u>	<u>TITLE</u>
14.4.8 BE 1	Manual Reactor Trip
14.4.8 BE 2	Simultaneous Trip of All Feedwater Pumps
14.4.8 BE 3	Simultaneous Closure of Both MSIVs
14.4.8 BE 4	Simultaneous Trip of both RCPs
14.4.8 BE 5	Single RCP Trip
14.4.8 BE 6	Main Turbine Trip
14.4.8 BE 7	Maximum Rate Power Ramp
14.4.8 BE 8	Maximum Size RCS Rupture with Loss of all Offsite Power
14.4.8 BE 9	Maximum Size Unisolable main Steam Line Rupture
14.4.8 BE 10	Slow RCS Depressurization Using PORV or Safety (Activation of ECCS Inhibited)

4. Malfunction tests (ANSI 3.5 Section 4.2.2, Section 3.1.2, Appendix A Section A3.4) were performed at the 25% per year rate in accordance with the NRC form 474 submittal of February 15, 1991.
5. The reference plant modifications, listed below, were implemented in the simulator during the previous four (4) year reporting period. Acceptance test procedures were performed for each modification with satisfactory results in accordance with ANSI 3.5, Section 5.4.1 prior to turn over to training.

<u>MOD #</u>	<u>TITLE</u>
91-063	Reactor Overpressurization
91-064	Steam Dome Pressure Monitoring
91-065	Off-Site Electric Reconfiguration
91-066	D/G Fuel Oil Supply System
91-067	GSU Transformer Data Acquisition
91-068	MOV-856 Control Power
91-069	ADFCS-Simulator Phase II
91-070	Time Delay Relay Setpoints
91-071	Transfer DC NON-1E Loads
91-072	Instrument Air Solution Valve
91-073	MOVATS-Valves 825A/B
91-074	MCB Key Switch controls
91-083	SAS/PPCS Updates (builds 91.2,91.3 & Phase 1
92-01	Radiation Monitor Upgrade
92-07	PPCS Build 92.1 Installation
92-12	SFP Cooling
92-13	ADFCS (Also PCC-92-19 Setpoints)
92-14	TDR Setpoints
92-15	UVPS Mods
92-16	MOV-856 Control Power
92-17	D/G Raise/Lower Switch Response
92-18	Outside Condensate Storage Tank Transfer Line
92-19	MSIV Limit Switch Rewiring
92-20	Condensate Low Pressure Alarm Setpoints (PCC-
92-21	Loop TE-439 Recalibration (PCC-92-11)
92-22	FTS-2000 Phone System
92-23	ADFCS Response Modification
92-24	Meteorological Tower Upgrade (PCC-92-28)
92-27	Installation of Blank Flange Downstream of V4
92-28	Scalar Timer for NIS
93-01	Generator Exciter Voltage Regulator Replacement
93-02	Recorder Replacement
93-03	Removal of Rod Drop Turbine Runback
93-04	ADFCS Logic Changes
93-05	Adjustment of Filter TM401M
93-06	PPCS build 92.2
93-07	SASS SDS System
93-08	CD Booster Pump Start Permissive Jumper
93-17	PORV 430 and 431C Indication Modification

93-18	PICO-AMPERE Source
93-19	Relief Valves 861 and 1817 Setpoint Change
93-20	Main FW Pump Suction Relief Valve Setpoint CH
93-27	Voltage Regulator Setpoint changes
93-28	CRFC Coil Replacement & Instrumentation
93-29	RHR Redundant Flow Loop
93-30	AMSAC Software for Variable Timer Lock-in
93-31	PPCS Builds 93.2 & 93.3
93-39	Control Room Radio System
93-41	Control Room Ceiling Tiles
94-01	PPCS Upgrade
94-02	B.A. Concentration Reduction
94-06	RK-3, RCS Cold Leg Recorder
94-07	Steam Line Monitors
94-16	SASS Upgrade
94-18	PPCS Build 93.4
94-20	SAS Builds 94.3 & 94.4
94-27	EH System Low Low Level Lockout Switch
94-30	SASS Upgrade 94-4,94-5,94-6

6. Simulator enhancements, listed below, were implemented during the previous four (4) year reporting period to improve the simulator as a training tool. Acceptance test procedures were performed for each enhancement with satisfactory results in accordance with ANSI 3.5 Section 5.4.1 prior to turnover to training.

<u>MOD #</u>	<u>TITLE</u>
91-020	Enhancement for Instrument Noise Simulation
91-021	Add LOA to Drain CCW Surge Tank to Waste Hold
91-022	Enhance Scope of Simulation for AUX Steam Sys
91-024	Malfunctions for Uncoupled/Misaligned Rods
91-025	Enhancement for Inadvertent CVI
91-031	Status Light Indications from "Ginsetup"
91-044	Add Malf for Failure of Auto Bus Transfer
91-045	Model Control Power for Motor Operated Valves
91-046	Add Inward Direction to Failure of Rod Stop M
91-047	Add LOA to Provide Capability to Provide Sing
91-049	Add Plant Performance Variables to Simulate L
91-050	Add LOA to operate AOV 966 (Hot Leg Sample)
91-061	Add Malfunction for Failure of FW Header Pres
91-084	Cross Tie Simulator with EOF/TSC PPCS & SAS
92-02	Malfunction for Pressurizer Breaks
92-03	Malfunction to Fail ADFCS to Manual
92-04	Modification to Malfunction FDW-7
92-05	Add LOA for Disconnect of RVLIS
92-06	Add LOA for Mudsucker Pump
92-09	MDAFW AC Oil Pump Modeling
92-10	Instrument Noise for RAD Monitors with Active
92-11	Add Malfunction for Stuck Open SW Pump Discha

93-09	Change Malf Stm-4A Options and Make Malf Reco
93-10	Add Malfunction for D/G A & B Fail to Auto St
93-11	Add Failure of Auto Swap Over from BAST to RW
93-12	Add Failure of CCW Pump to Auto Start on Low
93-13	Increase Scope of Simulation for Sping. Model
93-15	ADD Malf RCS19-RCS Leaks Outside Containment
93-21	Add PLP for Turbine Control Valve Leakage (RS
93-22	ADD PLP for EHC Speed Error of +/- 20 ROM (RS)
93-23	Add Constants to Allow Settings of 150/250 FT
93-24	Add XRCS < 0 and OTL
93-26	Replace Rod Step Counters
93-35	Add LOA V-7350 for CAS
93-36	Add Malf for Failure of Inverter A and/or B
94-03	Remove Flux Mapper from Scope of Simulation
94-04	Add LOA for B.A. Reduction MOD
94-10	Add Manual Pump Discharge Valve to SIS
94-15	Remove Flux Mapper From Scope of Simulation
94-17	Enhance Inst. System to allow Remote Operation
94-22	Expand Range of Malf RCS-11, RTD Failure (RSE
94-24	Add Malf/PLP for Accumulator Inleakage (RSE 9
94-26	Add DataPool Variable for Core Exit TC's
94-29	Delete Environmental Parameter 3, ATM.

- III. Pursant to 10CFR55.45(b)(5)(vi), the performance test schedule for the subsequent four (4) year period is provided in attachment 1. The system tests verify the modeling of plant systems at a level of detail greater than the normal operations tests, and also include those surveillance tests conducted by control room operators, in accordance with ANSI/ANS 3.5-1985 3.1.1(10). Additional tests for acceptance of simulator modifications due to plant configuration changes and training enhancements will be conducted as needed.

ATTACHMENT 1

FOUR YEAR TEST PLAN (1995-1998)

A. ANNUAL TESTS

TEST #	TITLE
14.3.1	Instructor System Test
14.3.2	Computer Real Time Test
14.4.1	Operating Limits Monitoring
14.4.2	Normal Operations Acceptance Test
14.4.3.1	100% BOL Steady State Accuracy Test
14.4.3.2	100% Power Steady State Drift Check
14.4.3.3	Instrument Error Certification
14.4.3.4	Initial Conditions Stability check
14.4.4.1	NSSS - BOP Energy Balance
14.4.5.1	NSSS - Mass Balance Test
14.4.5.2	BOP Mass Balance Test
14.4.6.1	Startup Test - Initial Criticality and Low Power Physics
14.4.8 BE 1	Manual Reactor Trip
14.4.8 BE 2	Simultaneous Trip of All Feedwater Pumps
14.4.8 BE 3	Simultaneous Closure of all MSIV's
14.4.8 BE 4	Simultaneous Trip of both RCPs
14.4.8 BE 5	Single RCP Trip
14.4.8 BE 6	Main Turbine Trip
14.4.8 BE 7	Maximum Rate Power Ramp
14.4.8 BE 8	Maximum Size RCS Rupture with Loss of all Offsite Power
14.4.8 BE 9	Maximum Size Unisolable Main Steam Line Rupture
14.4.8 BE 10	Slow RCS Depressurization Using PORV (Activation of ECCS Inhibited)

B. Tests scheduled for 1995

1. System Tests

Item Tests	Title
14.3.3.4	Bistable Handler Test
14.3.3.5	Alarm Handler Test
14.3.4.4	Reactor Coolant System Test
14.3.4.7	RHR System Test
14.3.4.12	EHC, TGA and Main Generator System Test
14.3.4.16	Circulating Water System Test
14.3.4.20	Service Water System Test
14.3.6.1	Electrical Distribution Test

2. Malfunction Tests Code

function Tests	Code	Title
14.4.7.1.2	CRC-2	Loss of Circulating Water
14.4.7.2.3	CLG-3	Non-Regenerative Letdown Hx Tube Leak
14.4.7.2.7	CLG-7	CCW Hx Tube Leak
14.4.7.2.9	CLG-9	SW Pump Discharge Header Check Valve Failure
14.4.7.3.4	CND-4	Condensate Pump Failure
14.4.7.3.8	CND-8	Condensate Pipe Break
14.4.7.4.4	CVC-4	Make-up Control Failure in all Modes
14.4.7.4.8	CVC-8	RCS Filter Plugged
14.4.7.4.12	CVC-12	Charging Pump Trip
14.4.7.4.19	CVC-19	Plugged Seal Injection Filter
14.4.7.4.24	CVC-24	Charging Backpressure Control Valve Failure

Tests Scheduled for 1995 (continued)

Test	Code	Title
14.4.7.5.1	EDS-1	Loss of Off-Site Power
14.4.7.5.5	EDS-5	Loss of DC Bus
14.4.7.6.4	FDW-4	Feedwater Pump Lube oil System Failure
14.4.7.6.5	FDW-5	Feedline Leak Between Flow Element Check Valve
14.4.7.6.9	FDW-9	Feedline Break Inside of Containment
14.4.7.6.13	FDW-13	AFW Pump Suction Line Break
14.4.7.6.17	FDW-17	MFV Pump Failure to Trip
14.4.7.7.4	GEN-4	Diesel Engine Trip
14.4.7.9.9	MIS-9	Turbine Building Fires
14.4.7.10.3	NIS-3	Failure of Source Range Channel Failure to Disconnect
14.4.7.10.6	NIS-6	Power Range Channel Detector Failure
14.4.7.10.9	NIS-9	Source Range High Voltage Failure
14.4.7.11.3	PZR-3	Pressurizer Level Channel Failure
14.4.7.12.1	RCS-1	RCP Thermal Barrier Leak
14.4.7.12.3	RCS-3	RCS DBA Break into CNMT
14.4.7.12.5	RCS-5	RCP Trip
14.4.7.12.9	RCS-9	Wide Range RCS Pressure channel Failure
14.4.7.12.13	RCS-13	RCP #2 Seal Failure
14.4.7.12.16	RCS-16	Fuel Cladding Failure
14.4.7.12.19	RCS-19	RCS Leaks Outside Containment
14.4.7.13.1	RHR-1	RHR Pump Trip
14.4.7.13.5	RHR-5	RHR Bypass Line Leak
14.4.7.15.4	ROD-4	Control Break Rods Fail to Move
14.4.7.15.8	ROD-8	Rod Speed Controller Failure
14.4.7.15.12	ROD-12	Rod Stop Failure
14.4.7.15.16	ROD-16	Misaligned Control Rod Failure
14.4.7.16.2	RPS-2	Inadvertent Control Room Environment Isolation
14.4.7.16.6	RPS-6	Containment Isolation Failure
14.4.7.17.3	SGN-3	Steam Generator Pressure Channel Failure
14.4.7.17.4	SGN-4	Steam Generator Tube Rupture
14.4.7.18.4	SIS-4	RWST Leak
14.4.7.19.2	STM-2	Steamline Break Outside Containment Upstream of MSIVs
14.4.7.19.6	STM-6	Main Steam Header Pressure Transmitter Failure
14.4.7.20.1	TUR-1	Inadvertent Turbine Trip
14.4.7.20.5	TUR-5	Turbine High Vibration
14.4.7.20.9.1	TUR-9	Turbine EHC Failure EHC Leak
14.4.7.20.17	TUR-17	Turbine Stop Valve Failure

C. Tests Scheduled for 1996

1. System Tests

	Title
14.3.3.1	Valve Handler Test
14.3.4.1	Nuclear Instrumentation System Test
14.3.4.9	Component Cooling Water System Test
14.3.4.13	Condensate and Main Feedwater System Test
14.3.4.17	Compressed Air System Test
14.3.4.21	Plant Protection System Test
14.3.6.2	Electrical Interlocks

Tests Scheduled for 1996 (Continued)

2. Malfunction Tests	Code	Title
14.4.7.1.3	CRC-3	CWS Leaks
14.4.7.2.4	CLG-4	Loss of CCW to RHR Heat Exchanger
14.4.7.2.8	CLG-8	Service Water Leaks
14.4.7.3.1	CND-1	Condensate Booster Pump Trip
14.4.7.3.7	CND-7	Loss of Condenser Vacuum
14.4.7.4.1	CVC-1	Letdown Line Leak Inside Containment
14.4.7.4.5	CVC-5	Loss of CCW to Non-Regenerative Letdown Hx
14.4.7.4.9	CVC-9	VCT Divert Control Valve Failure
14.4.7.4.13	CVC-13	BAT Pump Trip
14.4.7.4.17	CVC-17	RMW to Blender Flow Transmitter Failure
14.4.7.4.21	CVC-21	Boric Acid Storage Tank Leak
14.4.7.4.25	CVC-25	VCT H2 Pressure Control Valve Failure
14.4.7.4.26	CVC-26	VCT Outlet Pipe Ruptures Upstream LCV-112C
14.4.7.5.2	EDS-2	Loss of Station Service Transformer
14.4.7.5.6	EDS-6	Loss of Switchyard (Station Blackout)
14.4.7.6.2	FDW-2	Feedwater Pump Trip
14.4.7.6.6	FDW-6	Feed Flow Transmitter Failure
14.4.7.6.10	FDW-10	Feed Regulating Valve Failure
14.4.7.6.14	FDW-14	AFW Feed Control Valve Failure
14.4.7.7.1	GEN-1	Main Generator Trip
14.4.7.7.5	GEN-5	Diesel Generator Failure
14.4.7.8.3	HTR-3	HDT Level controller Valve Failure
14.4.7.8.4	HTR-4	Feedwater Heater Level Dump Valve Isolation Failure
14.4.7.9.5	MIS-5	Containment Isolation Valve Failure
14.4.7.9.8	MIS-8	Auxiliary Building Fires
14.4.7.10.7.1	MIS-7	Power Range Channel Fails High
14.4.7.10.10	MIS-10	Source Range Blown Fuse
14.4.7.11.4	PZR-4	Pressurizer Master Pressure Controller Failure
14.4.7.11.7	PZR-7	Pressurizer Steam Space Leak
14.4.7.11.9	PZR-9	Pressurizer Instrumentation Line Breaks
14.4.7.12.2	RCS-2	RCS Leak into Containment (LOCA Small Break)
14.4.7.12.6	RCS-6	RCP Shaft Shear
14.4.7.12.10	RCS-10	RCS Loop Flow Transmitter Failure
14.4.7.12.14	RCS-14	RCP #3 Seal Failure
14.4.7.13.2	RHR-2	RHR heat Exchanger Flow Control Valve Failure
14.4.7.13.6	RHR-6	Containment Sump to RHR Pump Screens Foul
14.4.7.15.1	ROD-1	Uncontrolled Rod Motion
14.4.7.15.5	ROD-5	Rod Ejection
14.4.7.15.9	ROD-9	Improper Bank Overlap
14.4.7.16.3	RPS-3	Containment Spray Pump Trip
14.4.7.17.1.1	SGN-1	S/G Level Channel Failure-High
14.4.7.18.1	SIS-1	Inadvertent SIS Actuation
14.4.7.18.5	SIS-5	Accumulator Leak
14.4.7.19.3	STM-3	Steamline Break Outside Containment Downstream of MSIVs
14.4.7.19.10	STM-10	Steam Dump Failure
14.4.7.20.2	TUR-2	Turbine Failure to Trip
14.4.7.20.6	TUR-6	Turbine Lube Oil Temperature Control Valve Failure
14.4.7.20.9.2	TUR-9	Turbine EHC Failure - Load Reference Failure
14.4.7.20.10	TUR-10	AMSAC Failure

1. System Tests

Title

14.3.3.2	Pump Handler Test
14.3.4.5	Pressurizer Relief Tank System Test
14.3.4.8	Safety Injection System Test
14.3.4.10	Containment and Containment Spray Systems Test
14.3.4.14	Feedwater Heaters, Vents, and Drains System Test
14.3.4.18	Diesel Generator System Test
14.3.4.22	Steam Dump Control System Test
14.3.6.3	Electrical Loading Test

2. Malfunction Tests Code

Title

14.4.7.2.1	CLG-1	Service Water Pump Trip
14.4.7.2.6	CLG-6	Seal Water Heat Exchanger Tube Leak
14.4.7.3.2	CND-2	Main Condenser Tube Leak
14.4.7.3.5	CND-5	Condensate Bypass Valve Failure
14.4.7.3.6	CND-6	Condensate Trim Valve Failure
14.4.7.4.2	CVC-2	Letdown Line Leak Outside Containment
14.4.7.4.6	CVC-6	Letdown Orifice Isolation Valve Failure
14.4.7.4.10	CVC-10	VCT Level Transmitter Failure
14.4.7.4.14	CVC-14	RMWT Pump Trip
14.4.7.4.18	CVC-18	Charging Pump Speed Controller Failure
14.4.7.4.22	CVC-22	Regenerative Letdown Heat Exchanger Tube Leak
14.4.7.5.3	EDS-3	Loss on No. 11 Aux Transformer
14.4.7.5.7	EDS-7	Loss of Instrument Bus Supplies
14.4.7.6.1	FDW-1	Feedpump Suction Header Break
14.4.7.6.7	FDW-7	Feed Regulating Valve Control Failure
14.4.7.6.11	FDW-11	Auxiliary Feedwater Pump Failure
14.4.7.6.15	FDW-15	Standby Auxiliary Feed Pump Failure
14.4.7.6.18	FDW-18	Main Feedwater Header Pressure Failure
14.4.7.6.19	FDW-19	ADFCs Controller Failure to Manual
14.4.7.7.6	GEN-6	Diesel Generator Breaker Trip
14.4.7.9.10	MIS-10	Screen House Fires
14.4.7.9.12	MIS12	Containment Building Fires
14.4.7.10.1	NIS-1	Source Range Channel Failure
14.4.7.10.4	NIS-4	Intermediate Range Channel Failure
14.4.7.10.7.2	NIS-7	Power Range Channel Failure - Low
14.4.7.11.1	PZR-1	Pressurizer Spray Valve Failure
14.4.7.11.5	PZR-5	Pressurizer Relief Valve Failure
14.4.7.11.8	PZR-8	Pressurizer Level Master Controller Failure
14.4.7.12.7	RCS-7	RCP Locked Rotor
14.4.7.12.11	RCS-11	RTD Failure
14.4.7.12.15	RCS-15	RCP High Vibration
14.4.7.12.18	RCS-18	Variable RCS Boron Concentration
14.4.7.13.3	RHR-3	RHR Heat Exchanger Tube Leak
14.4.7.13.7	RHR-7	RHR Pump Suction Line Rupture
14.4.7.14.1	RMS-1	Area Monitor Failure
14.4.7.15.2	ROD-2	Dropped Rod
14.4.7.15.6	ROD-6	Rod Drive MG Set Trip
14.4.7.15.10	ROD-10	Step Counter Failure
14.4.7.15.13	ROD-13	MRPI System Failure
14.4.7.16.1	RPS-1	Inadvertent Containment Isolation
14.4.7.17.1.2	SGN-1	S/G Level Channel Failure - Low
14.4.7.18.2	SIS-2	SIS Failure to Actuate
14.4.7.18.6	SIS-6	Safety Injection Header Leak
14.4.7.19.4	STM-4	Atmospheric Relief Valve Failure

Tests Scheduled for 1997 (Continued)

Test	Code	Title
14.4.7.19.11	STM-11	Steamline Break Upstream of Flow Element (Inside Containment)
14.4.7.20.3	TUR-3	Turbine Lube Oil Failure
14.4.7.20.7	TUR-7	Turbine Thrust Bearing High Wear
14.4.7.20.11	TUR-11	Turbine Control Valve Failure

E. Tests Scheduled for 1998

1. System Tests

	Title
14.3.3.3	Controller Handler Test
14.3.4.2	Incore Instrumentation System Test
14.3.4.3	Control Rod Drive and RPI System Test
14.3.4.6	Chemical and Volume control System Test
14.3.4.11	Main Steam Supply System Test
14.3.4.15	Auxiliary Feedwater System Test
14.3.4.23	Process and Area Radiation Monitoring System
14.3.4.24	PPCS Fidelity Test
14.3.4.25	SASS Fidelity Test

2. Malfunction Test

	Code	Title
14.4.7.1.1	CRC-1	Circulating Water Pump Trip
14.4.7.2.2	CLG-2	CCW Pump Trip
14.4.7.2.5	CLG-5	CCW Supply Line Break
14.4.7.2.10	CLG-10	CCW Pump Low Pressure Auto Start Failure
14.4.7.3.3	CND-3	Hotwell level Transmitter Failure
14.4.7.4.3	CVC-3	Charging Line Leak Inside Containment
14.4.7.4.7	CVC-7	Letdown Pressure Control Valve Failure
14.4.7.4.11	CVC-11	Charging Line Leak Outside Containment
14.4.7.4.15	CVC-15	Boric Acid Flow Transmitter Failure
14.4.7.4.23	CVC-23	Letdown Line Safety Valve Fails Open
14.4.7.4.27	CVC-27	Charging Pump Suction Line Rupture
14.4.7.5.4	EDS-4	Loss of Emergency Bus
14.4.7.5.8	EDS-8	Failure of 4KV Auto Bus Transfer
14.4.7.5.9	EDS-9	Inverter Failover
14.4.7.6.8	FDW-8	Feedline Break Outside Containment Downstream of Check Valve
14.4.7.6.12	FDW-12	AFW Turbine Driven Pump Speed Control Failure
14.4.7.6.16	FDW-16	AFW Pump Discharge Rupture
14.4.7.7.3	GEN-3	Main Generator Voltage Regulator Failure
14.4.7.7.7	GEN-7	Failure of DG Load Sequencing
14.4.7.7.8	GEN-8	D/G Auto Start Failure
14.4.7.8.2	HTR-2	Heater Drain Tank Pump Trip
14.4.7.9.1	MIS-1	Loss of Instrument Air
14.4.7.9.11	MIS-11	Diesel Generator Building Fires
14.4.7.10.2	NIS-2	Noisy Source Range Channel
14.4.7.10.5	NIS-5	Intermediate Range Gamma Compensation Failure
14.4.7.10.8	NIS-8	Intermediate Range Blown Fuse
14.4.7.11.2	PZR-2	Pressurizer Pressure Channel Failure
14.4.7.11.6	PZR-6	Pressurizer Safety Valve Failure
14.4.7.12.8	RCS-8	RCP Oil Reservoir Failure
14.4.7.12.12	RCS-12	RCS #1 Seal Failure
14.4.7.12.17	RCS-17	RVLIS Transmitter Fails
14.4.7.13.4	RHR-4	Heat Exchanger Bypass Valve Controller Failure
14.4.7.14.2	RMS-2	Process Radiation Monitor Failure
14.4.7.15.3	ROD-3	Stuck Rod

Tests Scheduled for 1998 (Continued)

Test	Code	Title
14.4.7.15.7	ROD-7	T-REF Failure in Rod Control
14.4.7.15.11	ROD-11	RPI Failure
14.4.7.15.15	ROD-15	Uncoupled Control Rod Failure
14.4.7.16.5	RPS-5	Reactor Trip Failure
14.4.7.16.7	RPS-7	Failure of ESF Components to Actuate
14.4.7.16.8	RPS-8	Containment Spray Failure to Actuate
14.4.7.18.3	SIS-3	SI Pump Trip
14.4.7.18.7	SIS-7	BAST-RWST SI Suction Swapover Failure
14.4.7.19.1	STM-1	Steam Flow Channel Failure
14.4.7.19.5	STM-5	Main Steam Isolation Valve Failure
14.4.7.19.9	STM-9	Main Steam Safety Valve Failure
14.4.7.20.4	TUR-4	Turbine High Eccentricity
14.4.7.20.8	TUR-8	TSI Failure
14.4.7.20.12	TUR-12	Reheat Stop/Intercept Valve Failure
14.4.7.20.16	TUR-16	First Stage Pressure Transmitter Failure