

**SIMULATOR CERTIFICATION
NRC SUBMITTAL DOCUMENT
FOR THE
PLANT REFERENCED SIMULATOR
AT THE
CALVERT CLIFFS NUCLEAR POWER PLANT**

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Operations Instructor Nuclear

Reviewed By: *C Andrews* Date: 12/21/90
Supervisor - Simulator Support

Reviewed By: *JR Hill* Date: 12/27/90
Assistant General Supervisor
Operations Training

Approved By: *JF Metman* Date: 1/7/91
General Supervisor - Nuclear Training

SIMULATOR CERTIFICATION
NRC SUBMITTAL DOCUMENT

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SIMULATOR CERTIFICATION TEST DOCUMENT

i.

SCOPE

The intent of this document is to be an overview of the simulator certification. Documentation in this submittal document is supported by the Simulator Certification Test Documents for Calvert Cliffs, Units One and Two. This document contains all the necessary forms needed to certify the Unit One Reference Plant Simulator for use on Unit One and Unit Two at Calvert Cliffs per ANS 3.5, 1985 and Reg. Guide 1.149.

NRC FORM 474

LIST OF EXCEPTIONS

Unit 1

SIMULATION FACILITY CERTIFICATION

INSTRUCTIONS. This form is to be filed for initial certification, recertification (if required), and for any change to a simulation facility performance testing plan made after initial submittal of such a plan. Provide the following information, and check the appropriate box to indicate reason for submittal.

FACILITY Calvert Cliffs Nuclear Power Plant, Unit One **DOCKET NUMBER**
50-317

CONSEE Baltimore Gas and Electric Company **DATE** 12/27/90

This is to certify that: 1. the above named facility licensee is using a simulation facility consisting solely of a plant-referenced simulator that meets the requirements of 10 CFR § 55.46; 2. the simulation facility meets the guidance contained in ANSI/ANS 3.5, 1988, as endorsed by NRC Regulatory Guide 1.148; and 3. documentation is available for NRC review in accordance with 10 CFR § 55.46(b). If there are any exceptions to the certification of item 2 above, check here and describe fully on additional pages as necessary.

NAME (or other identification) AND LOCATION OF SIMULATION FACILITY
Calvert Cliffs Nuclear Power Plant, Lusby, Maryland 20657

SIMULATION FACILITY PERFORMANCE TEST ABSTRACTS ATTACHED. (For performance tests conducted in the period ending with the date of this certification.)

DESCRIPTION OF PERFORMANCE TESTING COMPLETED (Attach additional page(s) as necessary, and identify the item description being continued)

See Section II of this Submittal Document.

SIMULATION FACILITY PERFORMANCE TESTING SCHEDULE ATTACHED. (For the conduct of approximately 25% of performance tests per year for the four year period commencing with the date of this certification.)

DESCRIPTION OF PERFORMANCE TESTING TO BE CONDUCTED (Attach additional page(s) as necessary, and identify the item description being continued)

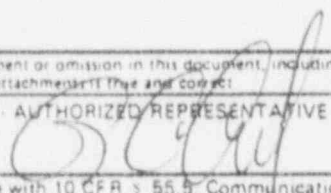
See Section III of this Submittal Document.

PERFORMANCE TESTING PLAN CHANGE. (For any modification to a performance testing plan submitted on a previous certification.)

DESCRIPTION OF PERFORMANCE TESTING PLAN CHANGE (Attach additional page(s) as necessary, and identify the item description being continued)

RECERTIFICATION. (Describe corrective actions taken, attach results of completed performance testing in accordance with 10 CFR § 55.45(b)(5)(iv). Attach additional page(s) as necessary, and identify the item description being continued.)

Any false statement or omission in this document, including attachments, may be subject to civil and criminal sanctions. I certify under penalty of perjury that the information in this document and attachments is true and correct.

SIGNATURE - AUTHORIZED REPRESENTATIVE  **TITLE** Vice President, Nuclear Energy **DATE** 1-11-91

In accordance with 10 CFR § 55.5, Communications, this form shall be submitted to the NRC as follows:
BY MAIL ADDRESSED TO Director, Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555 **BY DELIVERY IN PERSON TO THE NRC OFFICE AT:** 7920 Norfolk Avenue
Bethesda, MD

LIST OF EXCEPTIONS / CALVERT CLIFFS / REFERENCE PLANT SIMULATOR

- ANS 3.5 Section 3.1.1 (6) Normal Plant Evolutions: "Load Changes."

Manual load changes were performed IAW section 3.1.1 (2) and 3.1.1 (8) GE has no automatic turbine operation and reactor auto control is disabled at reference plant and on simulator.

- ANS 3.5 Section 3.1.1 (7) Normal Plant Evolutions:
"Startup, shutdown and power operations with less than full reactor coolant flow."

Technical specifications do not allow power operation with less than full reactor coolant flow.

- ANS 3.5 Section 3.1.2 (25) Plant Malfunction for "RCS pressure control system failure including turbine bypass failure (BWR)."

Reference Plant is a Pressurized Water Reactor.

- ANS 3.5 Appendix B UNIPLOT records have a minimum resolution of 1 second vice 0.5 second required by appendix B.

- FSAR Event "Turbine Generator Overspeed Incident" has no malfunction.

The FSAR analysis was performed to determine if a missile would enter the control spaces.

- FSAR Event "Waste Evaporator Incident" has no malfunction.

The effects of this incident are similar to the effects of the waste gas incident, which has an associated malfunction, and was not specifically simulated.

- FSAR Event "Maximum Hypothetical Accident" has no malfunction.

This accident can be simulated through a combination of malfunctions. Since this is considered incredible, it was not specifically simulated.

- Section IV.H. Simulator Operating Limits

Conditions of events beyond known plant behavior are currently being investigated under SMR# 1702. These limits do not currently exist on the simulator and we are taking an exception to ANS 3.5 until these limits can be incorporated. This SMR is scheduled for completion in the 1st quarter of 1991.

- Calvert Cliffs is a dual unit, mirror-imaged, control room. BG & E takes exception to the Unit Two portion of the control room per the Unit Two submittal.

TEST ABSTRACTS

TEST ABSTRACTS INDEX

- A. Real Time Test
 - Central Processing Unit Utilization Test
 - Operational Check of Real Time Simulation
- B. Cold Shutdown to Hot Standby.
- C. Core Performance Tests
- D. Plant Operations in Hot Standby
- E. Nuclear Startup from Hot Standby to 10% Rated Thermal Power.
- F. Turbine Startup and Generator Synchronization
- G. Nuclear Startup from 10% Rated Thermal Power to 100% Rated Thermal Power.
- H. Plant Shutdown from 100% Rated Thermal Power to Hot Standby and Cooldown to Cold Shutdown Conditions.
- I. Reactor Trip Followed by Recovery to Rated Power.
- J. 25% Steady State Check
- K. 75% Steady State Check
- L. 100% Steady State Check
- M. Steady State 100% Power Conditions Drift Check
- N. Malfunctions
 - 002 Wide Range Nuclear Instrument Channel High Voltage Power Supply Failure
 - 003 Wide Range Nuclear Instrument Channel Pre-amp Output Fails Low
 - 004 Wide Range Nuclear Instrument Channel Start-Up Rate Degradation
 - 008 Power Range Safety or Control Channel Detector Output Fails
 - 010 Power Range Safety or Control Channel Output From Power Summer Fails High
 - 011 Power Range Safety or Control Channel Output From Power Summer Fails Low
 - 012 Power Range Safety or Control Channel Linear Amp Fails High
 - 016 RPS Channel B Bistable Trip Relay Contact Fails to Open on Trip
 - 017 Reactor Protection System Logic Matrix Relay AB-1 Coil
 - 018 Failure of Automatic Reactor Trip
 - 019 Failure of Manual Reactor Trip
 - 020 PRS Logic Matrix Power Supply Failure
 - 021 Failure of CEA Withdrawal Interlocks to Block Rod Withdrawal
 - 023 Uncontrolled Withdrawal of Individual Control Element Assembly or Group of Control Element Assemblies
 - 024 Uncontrolled Insertion of Individual Control Element Assembly or Group of Control Element Assemblies
 - 025 Uncontrolled Withdrawal of a Single Control Element Assembly
 - 026 Uncontrolled Insertion of a Single Control Element Assembly
 - 027 Uncoupled Control Element Assembly
 - 028 All Control Element Assemblies Fail to Move on Demand (Manual)
 - 029 Control Pulses Sent but Control Element Assembly Doesn't Move. Control Element Assembly is Trippable.
 - 030 Stuck Control Element Assembly. Will Not Trip
 - 031 Failure of Control Element Assembly to Move
 - 032 Dropped Control Element Assembly
 - 033 Individual Control Element Assembly Reed Switch Position Indication Fails
 - 034 Rupture of CEDM Housing (Control Element Assembly #1)
 - 035 Reactor Trip
 - 036 Control Element Drive Motor Generator Trips
 - 037 Inadvertent Opening of a Single Reactor Trip Breaker
 - 038 Loop 12B Double-ended Rupture of RCS Cold Leg
 - 039 Reactor Coolant System Leak into Containment
 - 042 Failure of Reactor Vessel Level Detector

Malfunctions (continued)

- 043 Reactor Coolant Pump Trip
- 045 Locked Rotor on Reactor Coolant Pump 11B
- 047 RCP Oil Lift Pump Failure
- 048 Failure of Reactor Coolant Pump First Stage Seal
- 049 Failure of RCP Second Stage Seal
- 050 Failure of RCP Third Stage Seal
- 054 Pressurizer Spray Valve 100E Fails Open
- 059 Power Operated Relief Valve Leakage
- 060 Pressurizer Power Operated Relief Valve ERV-402 Leaks
- 061 Pressurizer Safety Valve Leakage
- 062 Pressurizer Pressure Control Fails Hi/Lo
- 064 Low Range Pressurizer Pressure Transmitters Fail Hi/Lo
- 065 Pressurizer Level Control Fails Hi/Lo
- 068 Leak in Letdown Line Inside Cntmt (Between Check Valve & 1-TE-221)
- 069 Leak in Letdown Line in Pen Room 070 Loss of Flow from Charging Pump
- 070 Loss of Charging Pump Due to Broken Shaft
- 073 Loss of Normal Letdown Due to 1-CVC-516 Failing Closed
- 075 Loss of Component Cooling to the Non-Regenerative Heat Exchanger
- 078 Failure of Boronmeter
- 079 Inadvertent Boration
- 082 Failure of Boric Acid Pump
- 083 Volume Control Tank Level Transmitter Fails Hi/Lo
- 086 Leakage Through Letdown Line Relief Valve
- 087 Charging Pump Primary Packing Leak
- 091 Steam Generator Tube Leakage
- 092 Steam Generator Gross Tube Failure
- 093 Main Steam Isolation Valve Stuck @ 90% of Full Open
- 094 Main Steam Isolation Valve Fails Closed
- 095 Steam Generator Level Control System Transmitter Fails Hi/Lo
- 096 Steam Generator Level Transmitter for Protection Channels Fails Hi/Lo
- 098 Steam Generator Pressure Transmitter Fails High or Low
- 100 Steam Generator Differential Pressure Transmitter Fails High or Low
- 102 Inadvertent Slow Closure of Main Steam Isolation Valve
- 103 Turbine Bypass Valve's Fail Open (Any Combination)
- 104 Steam Line Rupture Inside Cntmt
- 105 Steam Line rupture Outside Cntmt
- 108 Turbine Bypass Valves Fail Closed
- 109 Turbine Bypass Valve Controller fails in Auto Mode
- 110 Failure of Steam Flow Transmitter Hi/Lo
- 112 Atmospheric Dump Valve Controller Fails While in Automatic Mode
- 113 Main Steam Safety Valve's Fail Open
- 114 Turbine Trip (U-1)
- 115 Failure of Automatic Turbine Trip
- 116 Turbine Control Valve fails Open (U-1)
- 131 Turbine High Vibration Trip
- 135 MSR Relief Valve Fails Open (U-1)
- 137 Main Generator Trip (U-1)
- 138 Load Rejection (U-1)
- 140 Auto Volt Regulator Maloperation (U-1)
- 141 Loss of Stator Liquid Cooling
- 149 Loss of Off-site Power

Malfunctions (continued)

150	Loss of 13 KV Service Transformer
151	Loss of 13 KV Bus
153	Loss of 4 KV Bus
154	Loss of 480 V Bus
155	Loss of 480 V Reactor Motor Control Center
156	Loss of a Turbine Motor Control Center
157	Loss of Pressurizer Heater Motor Control Centers
158	Loss of Non-vital 120/208 VAC Instrument Bus
159	Loss of 120 Vital Instrument Bus
160	Loss of 250 Vdc Emergency DC Bus
161	Failure of Emergency Diesel Generator to Start
162	Loss of 125 Vital DC Bus
163	Loss of Condenser Vacuum
164	Hotwell Level Control Problems
165	Gross Condenser Tube Leakage
166	Loss of Condensate Pump
167	Loss of Condensate Booster Pump
170	Steam Generator Feed Pump Trip
171	Feed Regulating Valve Falls Full Open or Closed in Auto Control
173	Erratic Operation of Feed Regulating Valve
174	Feed Regulating Valve Differential Pressure Transmitter Falls Hi/Low
175	Feedwater Line Rupture Inside the containment; Before Check Valve
176	Feedwater Line Rupture Inside the Containment; After the Check Valve
177	Feed Line Rupture Outside of the Containment
180	Loss of Heater Drain Pump
181	Feed Flow Transmitter Input to Control Channel Fails
183	Loss of Auxiliary Feedwater Pump
185	Auxiliary Feedwater Pipe Rupture
186	Failure of Auxiliary Feedwater Actuation Signal to actuate
188	Failure of High Pressure Safety Injection Pump
189	Failure of Low Pressure Safety Injection Pump
190	Failure of Containment Spray Pump
191	High Pressure Safety Injection Valves Fail as is
196	Failure of Safety Injection Actuation Signal to Actuate on Auto Demand
197	Failure of Safety Injection Actuation Signal Manual Initiation
199	Failure of Containment Spray Actuation Signal Signal to Actuate on Auto Demand
200	Failure of CSAS Manual Initiation
203	Failure of RAS Signal to Actuate on Auto Demand
204	Failure of Diverse Scram Contactors to Open
205	Spurious CIS Signal
207	Failure of Containment Cooling Fans
213	Failed Fuel Equivalent to 1 Fuel Pin
216	Accidental Release of Gaseous Waste
219	High Radiation Alarms on Process Radiation Monitors
223	Loss of Component Cooling Pump
224	Loss of Service Water Pump
225	Loss of Salt Water Pump
226	Loss of Service Water to Turbine Building
227	Loss of Instrument Air
228	Loss of Instrument Air in containment

Malfunctions (continued)

- 233 Loss of Component Cooling Water to Containment
- 234 Loss of Motor Driven Aux Feed Pump
- 238 Core Exit Thermocouple (CET) Meter Falls
- 239 Core Exit Thermocouple (CET) Detector Falls

O. Annual Operability Tests

- 25% Power Heat/Mass Balance
- 50% Power Heat Balance
- 75% Power Heat/Mass Balance
- 100% Power Heat Balance
- Reactor Trip
- Simultaneous Trip of Both Main Feedwater Pumps
- Simultaneous Closure of Both MSIVs
- Simultaneous Trip of all Four Reactor Coolant Pumps
- Trip of #11A Reactor Coolant Pump
- Main Turbine Trip Below 15% Power
- Maximum Rate of Power Ramp 100% to 75% to 100%
- Maximum Size Loss of Coolant Accident with Loss of Offsite Power
- Unisolable Main Steam Line Break in Containment
- Slow Depressurization of the Reactor Coolant System without High Pressure Safety Injection

P. Simulator Training Capabilities

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: CPU UTILIZATION TEST

ANS-3.5, 1985 Requirement: APP A.3.1 Malfunction #: VARIOUS

Test Document Section Number: I.B.1 Date 10/3/90

Description of Test: EXECUTION TIME CHECK OF CPUS
WITH NO MALFUNCTIONS AND WITH MALF 38, MALF 149,
MALF 227, MALF 104 UNDER SEPARATE RUNS

Component Tested: 1 Severity: 100%

Initial Conditions: 100% POWER, MOC, EQUIL. XENON

Transient Initiator: MALF 38, 149, 227, 104

Duration of Test: 2 Hours

Parameters plotted:

NONE

Termination Criteria: ALL DATA COLLECTED

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate

Similar Plant Data FSAR

Reference: (ISD) CPU UTILIZATION TEST RUN BY INFORMATION
SYSTEMS DEPARTMENT (SOFTWARE)

Test Results

SAT UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

NONE

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: J. L. HARRIS

Simulator Instructor

Reviewed By: C. Drew S

Simulator Instructor

Approved By: C. Drew S

Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: OPCHECK OF REAL TIME SIMULATION

ANS-3.5, 1985 Requirement: APP A 3.1 Malfunction #: 222, 104

Test Document Section Number: I. B. 4 Date 12/12/90

Description of Test: CHECK REAL TIME SIMULATION BY PERFORMANCE OF MW TURBINE ACCELERATION AND CEA INJECTION VIA STOPWATCH, WITH AND WITHOUT MALFUNCTIONS

Component Tested: 1 Severity: 100%

Initial Conditions: 9% POWER, MEC, EQUIL XE / 100% POWER, MEC, EG, XE

Transient Initiator: MALFUNCTIONS 222 AND 104

Duration of Test: 1 Hours

Parameters plotted:

NONE

Termination Criteria: ALL DATA COLLECTED

Acceptance Criteria (Baseline Data):

- Plant Data RETRAN Best Estimate
- Similar Plant Data FSAR

Reference: GE TURBINE TRAINING MANUAL, CEDI SYSTEM DESCRIPTION

Test Results SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

none

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: *Edward Chynoweth*

Simulator Instructor

Reviewed By: *Chynoweth*

Simulator Instructor

Approved By: *Chynoweth*

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: COLD SHUTDOWN TO HOT STANDBY

ANS-3.5, 1985 Requirement: 3.1.1 (1) Malfunction #: N/A

Test Document Section Number: I.C.1 Date 5/21-29/90

Description of Test: MANEUVER THE SIMULATOR FROM COLD SHUTDOWN CONDITIONS TO HOT STANDBY CONDITIONS USING PLANT PROCEDURES INCL BKR LINEUP VERIF, VALVE POS VERIF, LOCKED VALVE VERIF, PER PROCEDURES LISTED IN "REFERENCE"

Component Tested: N/A Severity: N/A

Initial Conditions: 140° DRAINED TO MIDDLE OF HOT LEG

Transient Initiator: N/A

Duration of Test: 20 Hours

Parameters plotted: POWER, RCS TEMPERATURES, PRESSURIZER PARAMETERS, STEAM GEN LEVEL/PRESSURE, CONTAINMENT PRESS/TEMP, SOC TEMP

Termination Criteria: HOT STANDBY CONDITIONS (532° AND 2250 PSIA)

Acceptance Criteria (Baseline Data):

- Plant Data RETRAN Best Estimate
- Similar Plant Data FSAR

Reference: OP-1, STP-0-90, STP-0-62-1, STP-0-93-1
(PLANT STARTUP FROM COLD SHUTDOWN TO HOT STANDBY) (BKR LINEUP VERIFICATION) (VALVE POSITION VERIFICATION) (LOCKED VALVE VERIFICATION)

Test Results **SAT**/UNSAT (Circle One)

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

PLANT COMPUTER POINTS (C) WRONG / TURBINE BEARING TEMPS AND
ALARMS OOS / SIK HIGH LEVEL TRIP RESET AUTOMATICALLY.

SMR #: 1658/1659 Completed _____

Date

SMR #: 1490 Completed 9-5-90

Date

SMR #: 1603 Completed 11-5-90

Date

Comments:

SMR - 1658/1659 Awaiting RANNING.
PLANT COMPUTER POINTS ARE LABELED WRONG
WHILE PANEL INDICATIONS WERE OKAY. ~~IDENTICAL~~
THIS DID NOT AFFECT PERFORMANCE OF THE TEST.

Performed By: Edward Chymura
Simulator Instructor

Reviewed By: Chris
Simulator Instructor

Approved By: Chris
Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: CORE PERFORMANCE TEST

ANS-3.5, 1985 Requirement: 3.1.1(9) Malfunction #: N/A

Test Document Section Number: I.C.2 Date 8/13/85

Description of Test: CORE RELOAD PROCEDURE (MSP 116 SECTION 3.8.7) IN ORDER TO TUNE THE SIMULATOR CORE TO REF PLANT IN TERMS OF BANK WORTHS, MTC, ITC AND CRITICAL BORON

Component Tested: N/A Severity: N/A

Initial Conditions: TEST ON DEVELOPEMENT - MOVE TO TRAINING DATA BASE

Transient Initiator: N/A

Duration of Test: 1 1/6 Hours

Parameters plotted: REACTIVITY, CEA POSITION, BORON CONCENTRATION

Termination Criteria: DATA COLLECTED

Acceptance Criteria (Baseline Data):
 Plant Data RETRAN Best Estimate
 Similar Plant Data FSAR

Reference: U-1 CYCLE & MOC DATA FROM NEOGS, PSTP-2 (NUCLEAR FUEL UNIT)
(NUCLEAR ENG. OPERATION GUIDELINES) (POST SURVEILLANCE TEST PROC)

Test Results SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: JIM STEELMAN

Simulator Instructor

Reviewed By: Chris

Simulator Instructor

Approved By: Chris

Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: OPERATION IN HOT STANDBY

ANS-3.5, 1985 Requirement: 3.1.1 (5) Malfunction #: N/A

Test Document Section Number: I.C.3 Date 6/5/90

Description of Test: CONDUCTED OPERATIONS SURVEILLANCE TEST PROCEDURES WHILE IN HOT STANDBY; DIESEL GENERATOR TESTING, MSIV PARTIAL STROKE TEST, AUX FEED SYSTEM TEST.

Component Tested: N/A Severity: N/A

Initial Conditions: HOT STANDBY CONDITIONS FROM TEST I.C.1.

Transient Initiator: N/A

Duration of Test: 2 1/2 Hours

Parameters plotted:

POWER, RCS TEMPERATURES, PRESSURIZER PARAMETERS, STEAM GENERATOR LEVEL/PRESSURE, CONTAINMENT PRESS/TEMP.

Termination Criteria: COMPLETION OF SURVEILLANCE TEST PROC.

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate
 Similar Plant Data FSAR

Reference: STP-0-1-0 (DIESEL GENERATOR TESTING) STP-0-47-1 (MSIV PARTIAL STROKE TEST) STP-0-5-1 (AUXILIARY FEED SYSTEM TEST)

Test Results

SAT / UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

DIESEL GENERATOR VOLT METERS OUT OF CALIBRATION
13 AFW PP HEAD SLIGHTLY HIGHER THAN STP VALUE

SMR #: 1541 Completed 11-5-90
Date
SMR #: 1604 Completed _____
Date
SMR #: _____ Completed _____
Date

Comments:

SMR 1604 AWAITING PLANNING.

STUDENT WOULD NOT KNOW THE DIFFERENCE
IN HEAD.

Performed By: Edward Chyranowski
Simulator Instructor

Reviewed By: C. A. New S
Simulator Instructor

Approved By: C. A. New S
Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: HOT STANDBY TO 10% POWER

ANS-3.5, 1985 Requirement: 3.1.1 (2) Malfunction #: N/A

Test Document Section Number: I.C. 4 Date 6/5/90

Description of Test: NUCLEAR STARTUP TO 10% POWER IN ORDER TO PERFORM TURBINE STARTUP & GENERATOR SYNCHRONIZATION.

Component Tested: N/A Severity: N/A

Initial Conditions: HOT STANDBY CONDITIONS FROM TEST I.C. 3

Transient Initiator: N/A

Duration of Test: 8 1/6 Hours

Parameters plotted:

POWER, RCS TEMPERATURES, PRESSURIZER PARAMETERS, STEAM GENERATOR LEVEL / PRESSURE, CONTAINMENT PRESS / TEMP

Termination Criteria: 10% POWER - COMPLETION OF OP-2 TO STEP H.9

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate

Similar Plant Data FSAR

Reference: OP-2 (PLANT STARTUP FROM HOT STANDBY TO MINIMUM LOAD)

Test Results

SAT / UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

21 EXCITER BREAKER DOES NOT SWITCH CHECK
ALARM WINDOW L2 HANGING FOR NO REASON
HDV 198 LABELED WR'NG IN REMOTE FUNCTION DIRECTORY

SMR #: 1578 Completed 10-4-90
Date
SMR #: 1557 Completed 10-4-90
Date
SMR #: 1580 Completed _____
Date

Comments:

SMR-1580 SCHEDULED FOR SPIN 90-13
SMR'S did not affect test results

Performed By: Edmund Chynoweth, Jr.
Simulator Instructor
Reviewed By: C. Drew S.
Simulator Instructor
Approved By: C. Drew S.
Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: TURBINE STARTUP AND GEN. SYNCHRONIZATION

ANS-3.5, 1985 Requirement: 3.1.1(?) Malfunction #: N/A

Test Document Section Number: I.C.5 Date 6/14/90

Description of Test: STARTUP OF MAIN TURBINE AND GENERATOR
SYNCHRONIZATION TO MINIMUM LOAD.

Component Tested: N/A Severity: N/A

Initial Conditions: 10% POWER FROM TEST I.C.4

Transient Initiator: N/A

Duration of Test: 3 Hours

Parameters plotted:

POWER, RCS TEMPERATURES, PRESSURIZER PARAMETERS, STEAM
GENERATOR LEVEL/PRESSURE, CONTAINMENT PRESS/TEMP.

Termination Criteria: TURBINE GENERATOR AT MINIMUM LOAD

Acceptance Criteria (Baseline Data):

Plant Data ETRAN Best Estimate
 Similar Plant Data FSAR

Reference: OF 43A REV 19 SECTION II. B. (MAIN TURBINE
AND GENERATOR/EXCITER)

Test Results

SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

CONTROL VALVES OPEN FULLY VICE PARTIALLY ON SHELL WARMING
OIL TRIP TEST ~~WHAPE~~ OIL TRIP OCCURS OUT AT WRONG RPM

SMR #:	<u>1649</u> 4152A	Completed	<u>11/26/90</u>
			Date
SMR #:	<u>1040</u>	Completed	<u>9-25-90</u>
			Date
SMR #:	<u> </u>	Completed	<u> </u>
			Date

Comments:

SMR's did not affect the test results.

Performed By: *Edward Chynoweth*
Simulator Instructor

Reviewed By: *C Andrews*
Simulator Instructor

Approved By: *C Andrews*
Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: NUCLEAR STARTUP 10% TO 100% LOAD

ANS-3.5, 1985 Requirement: 3.1.1(2) Malfunction #: N/A

Test Document Section Number: I.C. 6 Date _____

Description of Test: COMPLETION OF NUCLEAR S/U TO 100% LOAD TEST IN STANDARD, INCLUDES PERFORMANCE OF SURVEILLANCE TEST PROCEDURES AT 100% POWER: RCS LEAK EVALUATION.

Component Tested: N/A Severity: N/A

Initial Conditions: 10% RATED POWER FROM TEST I.C. 5

Transient Initiator: N/A

Duration of Test: 8 1/4 Hours

Parameters plotted:

POWER, RCS TEMPERATURES, PRESSURIZER PARAMETERS, STEAM GENERATOR LEVEL/PRESSURE, CONTAINMENT PRESS/TEMP

Termination Criteria: 100% RATED THERMAL POWER (2695 MWTH)

Acceptance Criteria (Baseline Data):

- Plant Data RETRAN Best Estimate
- Similar Plant Data FSAR

Reference: OP-2, STP-0-27-1, OP-3 (NORMAL POWER OPERATION)
(PLANT STARTUP FROM HOT STANDBY TO MINIMUM LOAD) (RCS LEAKAGE EVALUATION)

Test Results SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: *Edward Chyconski*
Simulator Instructor

Reviewed By: *C. Andrews*
Simulator Instructor

Approved By: *C. Andrews*
Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: 100% RATED POWER TO COLD SHUTDOWN

ANS-3.5, 1985 Requirement: 3.1.1 (a) Malfunction #: N/A

Test Document Section Number: I.C.8 Date 6/21/90

Description of Test: PLANT SHUTDOWN FROM RATED POWER TO HOT STANDBY AND RCS COOLDOWN TO COLD SHUTDOWN CONDITIONS, RCS DRAINED TO MIDDLE OF HOT LEG

Component Tested: N/A Severity: N/A

Initial Conditions: 100% POWER FROM TEST I.C. 6

Transient Initiator: N/A

Duration of Test: 25 1/2 Hours

Parameters plotted:

POWER, RCS TEMPERATURES, PRESSURIZER PARAMETERS, STEAM GENERATOR LEVEL/PRESSURE, CONTAINMENT PRESS/TEMP, SOC

Termination Criteria: CET TEMP 142°, RCS @ MID PLANE OF HOT LEG

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate
 Similar Plant Data FSAR

Reference: OP-3 (NORMAL POWER OPERATION), OP-4 AND OP-5 (PLANT SHUTDOWN FROM HOT STANDBY TO COLD SHUTDOWN)

Test Results

SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

COULD NOT ACQUIRE SUFFICIENT RES VENT PATH AS REQUIRED
BY OP-5

SMR #: 1172 Completed _____
Date _____
SMR #: _____ Completed _____
Date _____
SMR #: _____ Completed _____
Date _____

Comments:

SMR- 1172 Scheduled SPIN 90-13.

CONDITIONS DO NOT PREVENT PERFORMANCE OF TASKS,
IT TAKES A WHILE TO SEE THE DISCREPANCY

Performed By: Edmund Chyankin
Simulator Instructor
Reviewed By: CPrews
Simulator Instructor
Approved By: CPrews
Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: 100% REACTOR TRIP AND RECOVERY

ANS-3.5, 1985 Requirement: 3.1.1 (4) Malfunction #: 35 N/A

Test Document Section Number: J.C. 9 Date 9/11/90

Description of Test: REACTOR TRIP FROM 100% TO MODE 3 WITH NUCLEAR STARTUP FROM HOT STANDBY TO 100% RATED POWER, IN ORDER TO FAILURE CONTINUITY IN PERFORMANCE.

Component Tested: N/A Severity: N/A

Initial Conditions: 100% POWER, MOC, EQUIL XENON

Transient Initiator: MALEFUNCTION 3.5 (REACTOR TRIP)

Duration of Test: 4.5 Hours

Parameters plotted: POWER, RCI TEMPERATURES, PRESSURIZER PARAMETERS, STEAM GENERATOR LEVEL/PRESSURE, CONTAINMENT PRESS/TEMP

Termination Criteria: RETURN TO 100% POWER CONDITIONS

Acceptance Criteria (Baseline Data):

- Plant Data
- RETRAN
- Best Estimate
- Similar Plant Data
- FSAR

Reference: EOP-0 (LAST TRIP IMMEDIATE POWER), EOP-1 (REACTOR TRIP), OP-2 AND OP-3 (PLANT STARTUP FROM HOT STANDBY TO MINIMUM LEVEL) AND OP-3 (NORMAL POWER OPERATION)

Test Results SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

FIRST 170 PRESS FEEDBACK OSCILLATES IN AUTO
PRESSURIZER LEVEL GOES BELOW 80" ON TRIP
SIC LEVEL IS ERRATIC DURING RECOVERY W/CONSTANT FEED

SMR #: 1700 Completed _____

Date

SMR #: 1606 Completed 11-5-90

Date

SMR #: 1612 Completed _____

Date

Comments:

SMR- 1700 Scheduled SPIN 90-13.

SMR- 1612 Scheduled SPIN 90-13.

SMR's did not affect test results.

Performed By: Edward Chymanski

Simulator Instructor

Reviewed By: Chris Reuss

Simulator Instructor

Approved By: Chris Reuss

Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: 25% Steady State Check

ANS-3.5, 1985 Requirement: 4.1 Malfunction #: N/A

Test Document Section Number: 1.E.1 Date 10-4-90

Description of Test: Recorded plant indications at 25% power (all control board indicators). Took same logs on simulator at 25% power. Compared results to insure critical parameters agreed within 2% all others within 10%

Component Tested: N/A Severity: N/A

Initial Conditions: 25% Power MOC Equal Xenon

Transient Initiator: N/A

Duration of Test: 3 Hours

Parameters plotted:

None

Termination Criteria: _____

Acceptance Criteria (Baseline Data):

Plant Data _____ RETRAN _____ Best Estimate

_____ Similar Plant Data _____ FSAR

Reference: Plant logs taken on 10-4-90

Test Results

SAT / UNSAT (Circle One)

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

- 1) Turbine Inlet Oil Pressure reads hi
- 2) Letdown H.X. outlet temperature ~~reads low~~ reads low
- 3) Feedwater heater levels different from plants
- 4) Old Calibrated Pressure gauge reads hi

SMR #: 1880 Completed _____
 Date _____

SMR #: 1881 Completed _____
 Date _____

SMR #: _____ Completed _____
 Date _____

Comments: ~~Only one critical~~ ^{RB} No critical parameters were outside 2%
 Feedwater heater levels didn't agree with plants because plant was
 having problems with cycling dump valves.

Performed By: E Chyank
 Simulator Instructor

Reviewed By: E Chyank
 Simulator Instructor

Approved By: C Andrews
 Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

- 1) Generator Magnets 2) Turbine Ang oil Pressure reads hi 3) 11 1/2 MSR Drain Tank level reads Hi
 4) 11 1/2 MSR 1st stage Drain tank level reads hi 5) Letdown HX outlet temperature reads low 6) 11 1/2 MSR
 2nd stage Drain tank level reads ~~low~~^{hi} 7) Cold Calibrated Passwizer Level Reads hi 8) 12-4KV Bus Amps read hi
 9) 12A 480V Bus Amps read hi

SMR #: 1879 Completed _____
 Date

SMR #: 1880 Completed _____
 Date

SMR #: 1881 Completed _____
 Date

SMR #: 1882 _____
 Date

Comments:

Only one "critical parameter" was outside the 2% band but was in 10%
 and other deviations were small and ^{not} detrimental to training.
 JK

Performed By: RBur

Simulator Instructor

Reviewed By: CPrews

Simulator Instructor

Approved By: CPrews

Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: 100% Power Steady State Check

ANS-3.5, 1985 Requirement: § 4.1 Malfunction #: N/A

Test Document Section Number: 1E.3 Date 10-16-90

Description of Test: Recorded plant indications at 100% Power. (All control board indications). Took same logs on simulator at 100%. Compare results to insure critical parameters agreed within 2% and all others within 10%

Component Tested: N/A Severity: N/A

Initial Conditions: 100% MOC Equil Xenon

Transient Initiator: no

Duration of Test: 2 3 Hours

Parameters plotted:
None

Termination Criteria: _____

Acceptance Criteria (Baseline Data):

Plant Data _____ RETRAN _____ Best Estimate
 Similar Plant Data _____ FSAR

Reference: Plant logs taken 10-16-90

Test Results

SAT UNSAT (Circle One)

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

1) Turbine Inj Oil Pressure reads hi 2) 12 MSR Drain Tank level reads hi 3) 11 & 12 1st Stage MSR Drain tank levels read hi 4) 11 & 12 2nd Stage MSR Drain Tank reads hi 5) Letdown Regenerative H.X. outlet temp reads low 6) Cold Calibrate Pressurizer level reads hi 7) 12-4K Bus Amps read hi 8) 15-480V Bus Amps read hi 9) 12-480V Bus Amps read hi 10) 11-480V Bus Amps read low.

SMR #: 7879-1882 Completed _____
 Date _____

SMR #: 1880 Completed _____
 Date _____

SMR #: 181 Completed _____
 Date _____

Comments: The deviations from plant readings were small and were confined to non critical parameters.

Performed By: RBent

Simulator Instructor

Reviewed By: CPrews

Simulator Instructor

Approved By: CPrews

Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: 100% Power Drift Check

ANS-3.5, 1985 Requirement: 4.1 Malfunction #: N/A

Test Document Section Number: I.E.4 Date 7-24-90

Description of Test: 100% Conditions established on simulator with machine in freeze. Logged all parameters indicated on control boards. Placed simulator in run to 4.0 min then froze. Took logs again. Verified <2% drift in readings.

Component Tested: N/A Severity: N/A

Initial Conditions: 100% Power moc Equilibrium

Transient Initiator: no transient

Duration of Test: 10 Hours

Parameters plotted:

All indicators in control room.

Termination Criteria: Completion of logs after 1 hr run.

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate
 Similar Plant Data FSAR

Reference: PLANT DATA TAKEN

Test Results

SAT UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

none

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: RBH

Simulator Instructor

Reviewed By: Edward Chymanski

Simulator Instructor

Approved By: CAH

Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: RPS Wide Range Low Channel High Voltage Power Supply Failure Low

ANS-3.5, 1985 Requirement: 3.1.2(21) Malfunction #: 2

Test Document Section Number: FG Date 1/10/85

Description of Test: Channels A-D Tested individually, Panel
Data Verified each Time.

Component Tested: Channels A-D Severity: Fixed

Initial Conditions: 50% Power (max) / Tc = 53.2°C / 925 ppm Boron

Transient Initiator: Malfunction 2

Duration of Test: .5 Hours

Parameters plotted:
None

Termination Criteria: Panel Data Verified

Acceptance Criteria (Baseline Data):
 Plant Data RETRAN Best Estimate
 Similar Plant Data FSAR

Reference: Model Specifications - MS-009 NI Technical Manual
ESAC Technical Specifications

Test Results

SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #: _____ Completed _____
Date
SMR #: _____ Completed _____
Date
SMR #: _____ Completed _____
Date

Comments:

Performed By: Dennis B. Kinc
Simulator Instructor
Reviewed By: _____
Simulator Instructor
Approved By: K. J. Tietjen
Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: RPS wide Range Low Channel Pre-Amp CATAT Fails Low

ANS-3.5, 1985 Requirement: 31.2(21) Malfunction #: 3

Test Document Section Number: FL Date 1/10/85

Description of Test: 10⁻⁴ (50% Power) "driven" to 10⁻⁴ % Power using Plant

Procedures. Malfunctions inserted for each channel individually. Panel data

Verified

Component Tested: Channels A-D Severity: Fixed

Initial Conditions: 10⁻⁴ % Power / mac / 532-Tc /

Transient Initiator: Malfunction 3

Duration of Test: 15 Hours

Parameters plotted:

None

Termination Criteria: Panel Data Verified

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate

Similar Plant Data FSAR

Reference: Model Specifications - MSC-009, NI Technical manual,

FSAR Technical Specifications

Test Results

SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Dennis B. Kise

Simulator Instructor

Reviewed By: _____

Simulator Instructor

Approved By: K. J. Tietjen

a Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: RPS Wide Range Log Channel Start up Rate Output Fault

ANS-3.5, 1985 Requirement: 3.1.2(21) Malfunction #: 4

Test Document Section Number: 16 Date: 1/4/85

Description of Test: 5% Power 10 "droven" to 10⁻⁴ % Power using plant procedures. At 10⁻⁴ Ch A then Ch. B Tested. Ch. C + 2 Ch D Then tested together to Verify Reactor trip.

Component Tested: All Channels A-D Severity: Fixed

Initial Conditions: 10⁻⁴ % Power / 1000 / TC = 50000

Transient Initiator: Malfunction 4

Duration of Test: 0.75 Hours

Parameters plotted:
NONE

Termination Criteria: _____

Acceptance Criteria (Baseline Data):
 Plant Data RETRAN Best Estimate
 Similar Plant Data FSAK

Reference: MSC-009, NI Technical Manual, FSAK

Test Results SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Dennis B. King

Simulator Instructor

Reviewed By: _____

Simulator Instructor

Approved By: K. J. Tietjen

Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Power Range Safety or Control Channel / detector out of PUT fails Low

ANS-3.5, 1985 Requirement: 3.1.2 (21) Malfunction #: 8

Test Document Section Number: F6 Date 1/2/85

Description of Test: Safety Ch A + Control Ch x upper and lower
Tested individually + Panel Indicators Verified

Component Tested: Safety Ch A upper + low Control Ch x upper + lower Severity: Fixed

Initial Conditions: 100% Power / MAC / Tc = 502°F / 610 ppm

Transient Initiator: Malfunction 8

Duration of Test: 5 Hours

Parameters plotted:
None

Termination Criteria: Panel Data Verified

Acceptance Criteria (Baseline Data):
 Plant Data RETRAN Best Estimate
 Similar Plant Data FSAR

Reference: Model Specifications MSC-009, N1 Technical Manual,
FSAR

Test Results SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Denou B. King

Simulator Instructor

Reviewed By: _____

Simulator Instructor

Approved By: K. J. Tietzen

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Power Range Safety or Control Channel Power Sensor Fault High

ANS-3.5, 1985 Requirement: 3.1.2(21) Malfunction #: 10

Test Document Section Number: FG Date 1/10/85

Description of Test: All channels tested, Panel Indications Verified

Component Tested: Ch A-D Safety Ch Ch X+Y Control Severity: Fixed

Initial Conditions: 100% Power / PWR / T_e = 542°C / 610 ppm Boron

Transient Initiator: Malfunction 10

Duration of Test: .5 Hours

Parameters plotted:

None

Termination Criteria: Panel data Verified

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate

Similar Plant Data FSAR

Reference: model specification MSC-009, NI Technical Manual
FSAR

Test Results

SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: *Dennis B. King*

Simulator Instructor

Reviewed By: _____

Simulator Instructor

Approved By: *K. J. Tietjen*

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Safety or Control Ch. Power Summer fails Low

ANS-3.5, 1985 Requirement: 3.1.2(21) Malfunction #: 11

Test Document Section Number: FG Date 1/9/85

Description of Test: All Channels (Power range A-D Control Ch. X+Y) Tested
Panel Indications Verified

Component Tested: Safety Ch A-D Control Ch X, Y Severity: Fixed

Initial Conditions: 100% Power / MCC / Te = 5470F / 610 ppm Boron

Transient Initiator: Malfunction (1)

Duration of Test: 25 Hours

Parameters plotted:
None

Termination Criteria: Panel Data Verified

Acceptance Criteria (Baseline Data):
 Plant Data RETRAN Best Estimate
 Similar Plant Data FSAR

Reference: model Specification - MSC-889, NI Technical Manual,
FSAR

Test Results SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Dennis B. King

Simulator Instructor

Reviewed By: _____

Simulator Instructor

Approved By: K. J. Tipton

Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Power Range Safety on Control Channel Linear Amp fails high

ANS-3.5, 1985 Requirement: 3.1.2(21) Malfunction #: 12

Test Document Section Number: F6 Date 11-7-90

Description of Test: Failure causes either the upper or lower channel to read 50% higher than originally and ASI to move according with all the associated alarms

Component Tested: Safety Channel A upper/lower channel X Severity: fixed

Initial Conditions: 50% Power MOC equal Xenon

Transient Initiator: malfunction 12

Duration of Test: 3 Hours

Parameters plotted:

None

Termination Criteria: Verification of Proper Alarms & indication

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate

Similar Plant Data FSAR

Reference: ALARM MANUAL, SYSTEM DESCRIPTION #59, REACTOR PROTECTIVE SYSTEM

Test Results

SAT UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

_____ *None* _____

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: *Shut*

Simulator Instructor

Reviewed By: *C. Andrews*

Simulator Instructor

Approved By: *C. Andrews*

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: RPS CH B Trip Relay Contact fails

ANS-3.5, 1985 Requirement: 3.12(11) Malfunction #: Q16

Test Document Section Number: FL Date 1/4/85

Description of Test: TEST OF ^① AB, ^② BC, ^③ BD matrices tested

each test uses matrix hold to prevent trip and Verify that the logic
relays fail to energize & Trip

Component Tested: AB, BC, BD Severity: Fixed

Initial Conditions: 100% Power / max / Tc = 54.2°C / 610 ppm Bacon

Transient Initiator: malfunction Q16

Duration of Test: 0.5 Hours

Parameters plotted:
NONE

Termination Criteria: Panel Data Verified

Acceptance Criteria (Baseline Data):
 Plant Data RETRAN Best Estimate
 Similar Plant Data FSAR

Reference: Model Specification MSC-487 Rps Technical Manual
FSAR (Final Safety Analysis Report)

Test Results SAT / UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Dennis B. King

Simulator Instructor

Reviewed By: _____

Simulator Instructor

Approved By: K. J. Tietjen

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Reactor Protection System Logic Matrix Relay AB-1 CoilANS-3.5, 1985 Requirement: _____ Malfunction #: 17Test Document Section Number: F6 Date 11-8-90Description of Test: Failure of the AB-1 relay causes reactor trip path 1 and IC15 to trip. Verify TCB-11/TCB-15 alarm comes on and the AB-1 matrix light goes outComponent Tested: AB-1 Severity: fixedInitial Conditions: 100% Power MCR Equil XenonTransient Initiator: malfunction 17Duration of Test: 1 Hours

Parameters plotted:

NoneTermination Criteria: Verification that AB-1 relay is the only one tripped

Acceptance Criteria (Baseline Data):

 Plant Data RETRAN Best Estimate Similar Plant Data FSARReference: SYSTEM DESCRIPTION #59, REACTOR PROTECTIVE SYSTEM.

Test Results

 SAT UNSAT (Circle One)

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Reut

Simulator Instructor

Reviewed By: C. Andrews

Simulator Instructor

Approved By: C. Andrews

Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Failure of Automatic Reactor Trip

ANS-3.5, 1985 Requirement: 3.1.2 (24) Malfunction #: 18

Test Document Section Number: F6 Date 12-19-90

Description of Test: Manually Tripped the turbine the reactor did not trip because the K1 + K2 fail to deenergize allow the rods to remain energized.

Component Tested: K1 + K2 Relays Severity: fixed

Initial Conditions: 100% Power BOL Equil Xenon

Transient Initiator: Mal 18

Duration of Test: .1 Hours

Parameters plotted:
None

Termination Criteria: _____

Acceptance Criteria (Baseline Data):

- Plant Data
- RETRAN
- Best Estimate
- Similar Plant Data
- FSAR

Reference: EOP-0 Reactor Trip - POST TRIP IMMEDIATE ACTIONS

Test Results SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: RBW

Simulator Instructor

Reviewed By: E. Chynoweth

Simulator Instructor

Approved By: C. H. Crews

Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: FAILURE OF MANUAL REACTOR TRIP

ANS-3.5, 1985 Requirement: 3.1.2 (24) Malfunction #: 19

Test Document Section Number: F.6 Date 12/19/90

Description of Test: DEPRESS MANUAL TRIP PUSHBUTTONS AT
ICOT AND ICIT AND VERIFY REACTOR DOES NOT TRIP

Component Tested: TCB, 1&5, 2&6 Severity: FIXED

Initial Conditions: 10% POWER, MOC, EQUIL XENON

Transient Initiator: MALFUNCTION 19

Duration of Test: 1/2 Hours

Parameters plotted:

NONE

Termination Criteria: VERIFICATION OF PANEL RESPONSE

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate

Similar Plant Data FSAR

Reference: EOP-0 (POST TRIP IMMEDIATE ACTIONS)

Test Results

SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

NONE

SMR #: _____ Completed _____
Date

SMR #: _____ Completed _____
Date

SMR #: _____ Completed _____
Date

Comments:

Performed By: *E. Chynoweth*

Simulator Instructor

Reviewed By: *C. A. Crews*

Simulator Instructor

Approved By: *C. A. Crews*

Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: RPS Logic Matrix Power Supply Failure

ANS-3.5, 1985 Requirement: 3.1.2 (11) Malfunction #: 20

Test Document Section Number: FL6 Date 1/2/85

Description of Test: EACH Matrix (A,B,C + D) tested individually for response to failure of 50% Power

Component Tested: A,B,C + D Matrices Severity: Fixed

Initial Conditions: 50% Power / MCC (5400V To / 719 = Boron ppm)

Transient Initiator: Malfunction 20

Duration of Test: 5 Hours

Parameters plotted:
None

Termination Criteria: Panel data Verified

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate

Similar Plant Data FSAR

Reference: MSC-999 model Specification

Test Results

SAT / UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

NONE

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Dennis B. King

Simulator Instructor

Reviewed By: _____

Simulator Instructor

Approved By: K. J. Tiersen

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Failure of CEA Withdrawal Interlocks to Block Rod Withdrawal.

ANS-3.5, 1985 Requirement: _____ Malfunction #: 21

Test Document Section Number: F6 Date 11-7-90

Description of Test: Raised power from 10% to 26% until an overpower

trip creates a rod block condition, rods pulled to verify interlock failure. A single
rod withdrawn to create a rod block situation and then withdrawal continues
to verify interlock has failed.

Component Tested: N/A Severity: fixed

Initial Conditions: 10% Power max Equil Xenon.

Transient Initiator: Malfunction 21

Duration of Test: 1.0 Hours

Parameters plotted:
None

Termination Criteria: Verification of fail of rod withdrawal interlocks.

Acceptance Criteria (Baseline Data):
 Plant Data RETRAN Best Estimate
 Similar Plant Data FSAR

Reference: FSAR CHAPTER 7

Test Results SAT / UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Ebut

Simulator Instructor

Reviewed By: C. Crews

Simulator Instructor

Approved By: C. Crews

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Uncontrolled Withdrawal of Individual CEA or Group of CEAs.

ANS-3.5, 1985 Requirement: 3.1.2 (12) Malfunction #: 23

Test Document Section Number: F6 Date 11/6/84

Description of Test: This test verifies simulator response during an uncontrolled withdrawal of a single CEA and an uncontrolled withdrawal of a group of CEAs.

Component Tested: CEDS Severity: FIXED

Initial Conditions: 10⁻⁴% PWR/MOC/T_c = 531°F / 993 PPM BORON

Transient Initiator: Malfunction 23

Duration of Test: 1/2 Hours

Parameters plotted:

N/A

Termination Criteria: Panel indications verified

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate

Similar Plant Data FSAR

Reference: MSC-005, CEDM Technical Manual,
CEDM System Description, AOP-1B (CEA Malfunction).

Test Results

SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

SMR #: _____ Completed _____
Date

SMP #: _____ Completed _____
Date

SMR #: _____ Completed _____
Date

Comments:

Performed By: Dennis B. King
Simulator Instructor

Reviewed By: _____
Simulator Instructor

Approved By: K. G. Tietjen
Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Uncontrolled Insertion of Individual CEA or Group of CEAs

ANS-3.5, 1985 Requirement: 3.1.2(12) Malfunction #: 24

Test Document Section Number: F6 Date 11/6/84

Description of Test: This test verifies simulator response during an uncontrolled insertion of a single CEA and an uncontrolled withdrawal of a group of CEAs

Component Tested: CEDS Severity: FIXED

Initial Conditions: 100% PWR / MOC, T_c = 547°F / 610 PPM BORDN

Transient Initiator: Malfunction 24

Duration of Test: 1/2 Hours

Parameters plotted:

N/A

Termination Criteria: Panel indications verified

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate

Similar Plant Data FSAR

Reference: MSC-005, CEDM Technical Manual,
CEDM System Description, ADP-1B (CEA Malfunction)

Test Results

SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Dennis B. King
Simulator Instructor

Reviewed By: _____
Simulator Instructor

Approved By: K. G. Tietjen
Supervisor Simulator Support

[Handwritten signature]

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Uncontrolled Withdraw of any Single CEA

ANS-3.5, 1985 Requirement: 3.1.2(12) Malfunction #: 25

Test Document Section Number: F6 Date 11/6/84

Description of Test: This test verifies simulator response during an uncontrolled withdrawal of a single CEA. Three different CEAs are tested.

Component Tested: Individual CEAs Severity: Fixed

Initial Conditions: 10⁻⁴% BWR/MOC/Tc = 531°F/933 PPM BORON

Transient Initiator: Malfunction 25

Duration of Test: 1/2 Hours

Parameters plotted:

N/A

Termination Criteria: Panel indications verified

Acceptance Criteria (Baseline Data):

- Plant Data RETRAN Best Estimate
- Similar Plant Data FSAR

Reference: M3C-005, CEDS Technical Manual
AOP-1B (CER Malfunction)

Test Results

SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Dennis B. King
Simulator Instructor

Reviewed By: _____
Simulator Instructor

Approved By: K.G. Tietjen
Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Uncontrolled Insertion of a Single CPA

ANS-3.5, 1985 Requirement: 3.1.2(12) Malfunction #: 26

Test Document Section Number: F5 Date 4-11-88

Description of Test: This test verifies simulator response to an uncontrolled insertion of a single CPA. Three different CPA's are tested.

Component Tested: Individual CPA's Severity: Fixed

Initial Conditions: 100% PWR/MOC/Tc = 542°F/610 RPM BOPAN

Transient Initiator: Malfunction 26

Duration of Test: 1/2 Hours

Parameters plotted:

N/A

Termination Criteria: Panel indication verified

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate

Similar Plant Data FSAR

Reference: MSC-005, CEDS Technical Manual

AOP-1B (CPA Malfunction)

Test Results

SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Dale E. Theobald

Simulator Instructor

Reviewed By: _____

Simulator Instructor

Approved By: C.J. Andrews

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Uncoupled Control Element Assembly (CEA)ANS-3.5, 1985 Requirement: 3.1.2(12c) Malfunction #: 27Test Document Section Number: F6 Date 10-31-90Description of Test: At 100% Power at 3 different times in life (different flux conditions) Uncoupled a single rod. Received alarms for dropped rod and an imbalance in core flux. Calculated the ΔT_{rod} to insure it was consistent with the location of the dropped rod.Component Tested: 5, 32, 53 Severity: FixedInitial Conditions: 100% Power Equil Xenon BOC, MOC & EOCTransient Initiator: malfunction 27Duration of Test: 1 Hours

Parameters plotted:

NoneTermination Criteria: Calculation of Quadrant Power Tilt

Acceptance Criteria (Baseline Data):

 Plant Data RETRAN Best Estimate Similar Plant Data FSARReference: PLANT LOGS, INCORE PRINTOUTS

Test Results

 SAT UNSAT (Circle One)

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

Uncoupled
Cont Rod should indicate 3" after being
tripped into the core since the extension shaft won't align
with the control element

SMR #:	<u>1875</u>	Completed	<u> </u>
			Date
SMR #:	<u> </u>	Completed	<u> </u>
			Date
SMR #:	<u> </u>	Completed	<u> </u>
			Date

Comments:

THIS MALFUNCTION ADDED AS PART OF ANS
 REVIEW PROCESS. THIS MALFUNCTION TESTED
 AS PART OF ATP 449.
 RESPONSE TO MALFUNCTION DOES NOT DETRACT
 FROM TRAINING. NEEDS MODIFICATION FOR
 IMPROVED RESPONSE. *EL*

Performed By: *RBert*

Simulator Instructor

Reviewed By: *E. Chy...*

Simulator Instructor

Approved By: *C. Andrews*

Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: All CEA's Fail To Move on Demand (MANUAL control)

ANS-3.5, 1985 Requirement: 3.1.2 (13) Malfunction #: 28

Test Document Section Number: FC Date 1/29/85

Description of Test: This test verifies simulator response during a failure of CEA manual control. This test is performed for various CEDS modes and directions.

Component Tested: CEDS Severity: FIXED

Initial Conditions: 10% PWR/MOC/T_c = 531°F/923 RPM BORON

Transient Initiator: Malfunction 28

Duration of Test: 1/2 Hours

Parameters plotted:

N/A

Termination Criteria: Panel indications verified

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate

Similar Plant Data FSAR

Reference: MSC-005, CEDS Technical Manual,
FSAR, APP-13 (CEA Malfunction)

Test Results

SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Dennis B. King
Simulator Instructor

Reviewed By: _____
Simulator Instructor

Approved By: C. J. Andrews
Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: CEA Maloperation (Trippable)

ANS-3.5, 1985 Requirement: _____ Malfunction #: 29

Test Document Section Number: _____ Date 1/29/85

Description of Test: CEA withdrawal (magnetic jack) failure causes CEA #35 to "slip" 20 inches while being withdrawn, Manual withdrawal causes another 20" slip. Reactor is then tripped + CEA's fully inserts.

Component Tested: _____ Severity: Fixed

Initial Conditions: 50% Reactor Power / MIC / Tc = 532°F / 925 ppm Boron

Transient Initiator: Malfunction 29

Duration of Test: 0.5 Hours

Parameters plotted:

None

Termination Criteria: Panel data Verified

Acceptance Criteria (Baseline Data):

Plant Data _____ RETRAN _____ Best Estimate

_____ Similar Plant Data _____ FSAR

Reference: ADP-1B CEA Malfunctions, CED's Technical Manual

Model Specification - MSE-0005, FSAR Technical Specification

Test Results

SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Dennis B. King

Simulator Instructor

Reviewed By: _____

Simulator Instructor

Approved By: K.J. Tietjen

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: STuck CPA

ANS-3.5, 1985 Requirement: 3.1.2(12) Malfunction #: 30

Test Document Section Number: F6 Date 1/7/85

Description of Test: This test verifies simulator response to a stuck CPA. This test also verifies that this malfunction cannot be overridden by malfunctions 32 and/or 35.

Component Tested: CPDS Severity: FIXED

Initial Conditions: 10⁻⁴% Power/MOC/Tc = 531°F/933 PPM BORON

Transient Initiator: MALFUNCTION 30

Duration of Test: 1/2 Hours

Parameters plotted:

N/A

Termination Criteria: Panel indications verified

Acceptance Criteria (Baseline Data):

- Plant Data
- RETRAN
- Best Estimate
- Similar Plant Data
- FSAR

Reference: 1150-005, AOP-B (CPA Malfunctions)
CPDS Technical Manual, FSAR

Test Results

SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: DENNIS KING

Simulator Instructor

Reviewed By: _____

Simulator Instructor

Approved By: C. Brewster

Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Failure of Control Element Assembly (CEA) to Move

ANS-3.5, 1985 Requirement: _____ Malfunction #: 31

Test Document Section Number: F6 Date 11-7-90

Description of Test: moved the group with the selected rod. Verified and did not move by microscope indication. Continued until CEA deviation alarm received. Performed actions of AOP for stuck rod. Tripped R to insure rod was still trippable.

Component Tested: 1 Severity: fixed

Initial Conditions: 25% power moc Equil Xenon

Transient Initiator: Malfunction 31

Duration of Test: .3 Hours

Parameters plotted:

None

Termination Criteria: _____

Acceptance Criteria (Baseline Data):

Plant Data _____ RETRAN _____ Best Estimate
_____ Similar Plant Data _____ FSAR

Reference: AOP-1A CEA MALFUNCTIONS

Test Results

SAT / UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: RBent

Simulator Instructor

Reviewed By: CDrews

Simulator Instructor

Approved By: CDrews

Supervisor Simulator Support:

**ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT**

TEST TITLE: DROPPED CEA

ANS-3.5, 1985 Requirement: 3.1.2 (12) Malfunction #: 32

Test Document Section Number: F.6 Date 5/30/85

Description of Test: VERIFY SIMULATOR RESPONSE FOR TWO
DIFFERENT CEA AT 3 DIFFERENT TURBINE NO OPERATOR
ACTION IS TAKEN

Component Tested: 5, 53, 49 Severity: FIXED

Initial Conditions: 100% POWER, 100, EQUIL XE / 100% POWER 100, EQUIL XENON /
100% POWER, 800, EQUIL XENON

Transient Initiator: MALEFUNCTION 32

Duration of Test: 1 Hours

Parameters plotted:

LINEAR RANGE NTC, PRESSURIZER PRESS/LEVEL, RCI TEMPERATURES
CEA, 5, 53, 49 POSITIONS, S/G LEVELS, TURBINE 1ST STG PRESSURE

Termination Criteria: EQUILIBRIUM CONDITIONS ACHIEVED

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate

Similar Plant Data FSAR

Reference: 1006 REFORM MANUAL, POP-13 (CEA MALFUNCTION)

Test Results

SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

NONE

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: DEANUS KING

Simulator Instructor

Reviewed By: _____

Simulator Instructor

Approved By: Andrew S

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Rod Position Indication Reed Switch Failure

ANS-3.5, 1985 Requirement: 3.1.2(12) Malfunction #: 33

Test Document Section Number: FL6 Date 8-7-90

Description of Test: Insertion of the malfunction causes erratic indication of the selected rod and actuation of rod position deviation alarms.

Component Tested: 6, 26 & 34 Severity: Fixed

Initial Conditions: 50% Power MOC Equil Xenon

Transient Initiator: malfunction 33

Duration of Test: .2 Hours

Parameters plotted:
None

Termination Criteria: After verification of rod indications and appropriate alarms.

Acceptance Criteria (Baseline Data):
 Plant Data RETRAN Best Estimate
 Similar Plant Data FSAR

Reference: TOP 18 CEA MALFUNCTIONS
STR-0-29-1 CEA OPERABILITY

Test Results SAT / UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: RBert

Simulator Instructor

Reviewed By: CArews

Simulator Instructor

Approved By: CArews

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: EJECTED CONTROL ELEMENT ASSEMBLY (CEA)ANS-3.5, 1985 Requirement: FSAR Malfunction #: 34Test Document Section Number: F.6 Date 12-18-90Description of Test: Rupture of CEA housing nozzle
in an ejected control rod. Three cases were
run ① NPT (2250 #/s), ② SHUTDOWN Low Press (350 #/s)
and ③ Low power NPT.Component Tested: #34 Severity: FIXEDInitial Conditions: ① 100% MOL, ② 10% MOL Pressure = 2250 #/s,
③ on SDC with a bubble in pressurizer

Transient Initiator: _____

Duration of Test: 1/2 Hours

Parameters plotted:

reactivity, core power, RCS pressure, pressurizer level,
S/G level + pressure, loop temperatures and ^{Containment} temp + pressTermination Criteria: ① ③ Reactor trip, stable conditions
> 10 min, ② RCS pressure decreases.

Acceptance Criteria (Baseline Data):

 Plant Data RETRAN Best Estimate Similar Plant Data FSARReference: EOP-5, LOSS OF COOLANT ACCIDENT.

Test Results

 SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

none

SMR #: _____ Completed _____
Date
SMR #: _____ Completed _____
Date
SMR #: _____ Completed _____
Date

Comments:

Performed By: *R. BEST*

Simulator Instructor

Reviewed By: *E. Chapman*

Simulator Instructor

Approved By: *C. Asprell*

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Reactor Trip

ANS-3.5, 1985 Requirement: 3.1.2(19) Malfunction #: 85

Test Document Section Number: FL Date 8/2/90

Description of Test: All R₁ Trip switchgear Breakers closing, Causes R₁ Trip (Malfunction Cause), Simulator Facility Tested against Real Plant Reactor Trip

Component Tested: N/A Severity: Fixed

Initial Conditions: 100% Power / 100% Flow / 547°F = T₁ / 610ppm Boron

Transient Initiator: Malfunction 35

Duration of Test: ~25 Hours

Parameters plotted:

Nuclear Power / Por Press level / R₁ Trip / Loop 11012 T₁ + T₂ / AT Power /

SG 11+R { Pressure, ^{Level} ~~Temp~~, main/auxiliary feedwater flow, steam flow } / charging flow / cooldown flow

Termination Criteria: Panel indicators Verified

Acceptance Criteria (Baseline Data):

- Plant Data
- RETRAN
- Best Estimate
- Similar Plant Data
- FSAR

Reference: EOP-0, EOP-1 Model Specifications @ MSC-945
(POST TRIP IMMEDIATE ACTION) (REACTOR TRIP)

Test Results SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Donna B. King
Simulator Instructor

Reviewed By: _____
Simulator Instructor

Approved By: K. J. Tietzen
a Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Central Element Drive (CEDM) Motor Generator (MG) TripsANS-3.5, 1985 Requirement: _____ Malfunction #: 36Test Document Section Number: F6 Date 11-7-90Description of Test: Fail exists causes the MG to trip. Tested each one individually to verify proper alarms and panel indication. Tested simultaneously to verify CEDM lost power and fall into the coreComponent Tested: 11 & 12 Severity: fixedInitial Conditions: 100% Power MOC Equil Xenon

Transient Initiator: _____

Duration of Test: 2 HoursParameters plotted:

_____Termination Criteria: Reactor Trip occurs when both MG sets trip

Acceptance Criteria (Baseline Data):

 Plant Data _____ RETRAN _____ Best Estimate Similar Plant Data _____ FSARReference: ALARM MANUAL

Test Results

 SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: RBH

Simulator Instructor

Reviewed By: CA Lewis

Simulator Instructor

Approved By: CA Lewis

Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Inadvertent Opening of a Single Reactor Trip Breaker

ANS-3.5, 1985 Requirement: _____ Malfunction #: 37

Test Document Section Number: F6 Date 11-7-90

Description of Test: Tested each trip circuit breaker individually.
Verified breaker could not be reclosed until malfunction removed.

Component Tested: 1-8 TCBs Severity: fixed

Initial Conditions: 100% Power MOC Equil Xenon

Transient Initiator: mal 37

Duration of Test: .4 Hours

Parameters plotted:

none

Termination Criteria: Trip breaker reclosure

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate

Similar Plant Data FSAR

Reference: ALARM MANUAL, SYSTEM DESCRIPTION
#59, REACTOR PROTECTIVE SYSTEM.

Test Results SAT/UNSAT (Circle One)

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

~~Event~~ Sequence of Events printout is not triggered
by opening a Reactor Trip BKR.

SMR #:	<u>S-0067</u>	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

SMR- S-0067 is waiting for additional
disk drive to be installed.

NOTED IN SIMULATOR /REFERENCE PLANT DIFFERENCES

Performed By: But

Simulator Instructor

Reviewed By: Chew

Simulator Instructor

Approved By: Chew

Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Loop 12 B Double-Ended Rupture of Res Condens

ANS-3.5, 1985 Requirement: 312(a) PRA FAR Malfunction #: 38

Test Document Section Number: EG Date 7-30-86

Description of Test: Malfunction inserted, Simulator Response tested
Against anticipated Panel indications

Component Tested: 12B Loop (RC) Severity: Fixed

Initial Conditions: 100% Power / Moc (Tc=577° / 610 ppm Boron)

Transient Initiator: malfunction 38

Duration of Test: 0.5 Hours

Parameters plotted:

Nuclear Power / AT Power / Press. Pressure, Prc level, Trst 1112, Tc 1112, 1112 5/6 S

Press. level 3, Control Room and temperature, Secondary, Rv level, Rv level, LPSI/HPI Flows
Rx Vessel Head and Condensate Concentration

Termination Criteria: Panel Indications Verified

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate
 Similar Plant Data FSAR

Reference: model 3, initiator - Msp-107 / SOP-5 Loss of Coolant Accident /

FSAR GEN-128

Test Results SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: C. Andrews
Simulator Instructor

Reviewed By: _____
Simulator Instructor

Approved By: C. Andrews
Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: RES LEAK INTO CONTAINMENT AT DRAIN NOZZLE

ANS-3.5, 1985 Requirement: 31.2 (1) Malfunction #: 39

Test Document Section Number: I.F.6 Date 12/13/90

Description of Test: 100 GPM LEAK INTO CONTAINMENT WITH 3 CHARGING PUMPS (40 GPM EACH) OPERATING

Component Tested: 1 Severity: 100 GPM

Initial Conditions: 100% POWER, MOC, EQUIL XENON

Transient Initiator: MALEFUNCTION 39

Duration of Test: 1 Hours

Parameters plotted:

PRESSURIZER LEVEL / PRESS, CONTAINMENT PARAMETERS, VCT LEVEL, CHARGING / LETDOWN FLOW,

Termination Criteria: SUFFICIENT TIME TO GET LEAKRATE DATA

Acceptance Criteria (Baseline Data):

- Plant Data RETRAN Best Estimate
- Similar Plant Data FSAR

Reference: STP-0-27, REACTOR COOLANT SYSTEM LEAKAGE EVALUATION

Test Results

SAT / UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

NONE

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Edmund Czerniak
Simulator Instructor

Reviewed By: C. Drew
Simulator Instructor

Approved By: C. Drew
Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Failure of Reactor Vessel Level Detector

ANS-3.5, 1985 Requirement: _____ Malfunction #: 42

Test Document Section Number: F6 Date 11-20-90

Description of Test: The 8 level indicating lites for each train were failed on when they were not required and failed off when required ie during LOCA when vessel empties.

Component Tested: All 16 lites Severity: 2 PA Fixed

Initial Conditions: 100% Power MOC Equal Xenon

Transient Initiator: Malf 38 (large break LOCA)

Duration of Test: .5 Hours

Patameters plotted: None

Termination Criteria: Verification of indicating lite status

Acceptance Criteria (Baseline Data):
 Plant Data _____ RETRAN _____ Best Estimate
 Similar Plant Data _____ FSAR

Reference: ALARM MANUAL 1006 (6-9 THRU 11) - OI II Rev 1
SECTION II ABNORMAL OPERATION (REACTOR VESSEL LEVEL MONITORING SYSTEM)

Test Results SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

none

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: P. Bet

Simulator Instructor

Reviewed By: Edward Chapman

Simulator Instructor

Approved By: C. Andrews

Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: TRIP OF A Reactor Coolant Pump

ANS-3.5, 1985 Requirement: 3.1.2(04) LOR FSAR Malfunction #: 43

Test Document Section Number: FG Date 1/4/85

Description of Test: 11A RCP Tripped by malfunction, Simulator Fidelity Tested. Actual Plant data available.

Component Tested: 11ARCP Severity: Fixed

Initial Conditions: 100% Power (msec) 547°F = T_c 1610 ppm B₁₀P₁₀

Transient Initiator: malfunction 43

Duration of Test: .5 Hours

Parameters plotted:

Nuclear Power, RCP 11A Pump motor current, SG 11A Differential pressure

11A+B RWA RPS Core Flow

Termination Criteria: Panel Indicators Verified

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate

Similar Plant Data FSAR

Reference: Model Specification - 042

Test Results SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: C. Andrews

Simulator Instructor

Reviewed By: _____

Simulator Instructor

Approved By: C. Andrews

Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Reactor Coolant Pump (RCP) Locked Rotor

ANS-3.5, 1985 Requirement: 3.1.2(4) Malfunction #: 45

Test Document Section Number: F/a Date 11-20-90

Description of Test: Locked rotor on an RCP causing loss of flow in the affected loop. Tested each pump individually to the point reactor tripped on low flow

Component Tested: all 4 RCP's Severity: fixed

Initial Conditions: 100% mcc Equal Xenon

Transient Initiator: malfunction 45

Duration of Test: .5 Hours

Parameters plotted:
Core power, RCP Motor Current, RCP Motor Speed, RCS Core Flow, Loop T-cold, Loop T-hot

Termination Criteria: 5 minutes elapsed time per test and reactor trip conditions verified.

Acceptance Criteria (Baseline Data):
 Plant Data RETRAN Best Estimate
 Similar Plant Data FSAR

Reference: FSAR CHAP 14 SECTION 14.16 (LOCKED ROTOR SAFETY ANALYSIS)

Test Results SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

Reactor Coolant Pump current rise not consistent with flow
degradation.

SMR #: 1874 Completed _____
Date _____
SMR #: _____ Completed _____
Date _____
SMR #: _____ Completed _____
Date _____

Comments:

SMR-1874 TO BE WORKED 1ST QUARTER '91.

Performed By: Best

Simulator Instructor

Reviewed By: E. Chapman

Simulator Instructor

Approved By: C. P. Green

Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: RCP Oil Lift Pump Failure

ANS-3.5, 1985 Requirement: TRAINING Malfunction #: 47

Test Document Section Number: FL6 Date 5/31/85

Description of Test: Failure of RCP oil lift pump to reach operating pressure
causes low pressure alarm / inhibits startup RCP

Component Tested: 11618 12A18 LIFT PUMP Severity: Variable

Initial Conditions: 0% Power / 100% TC = 302°C / 1340 RPM

Transient Initiator: Malfunction 47

Duration of Test: 0.5 Hours

Parameters plotted:
None

Termination Criteria: Panel Data Verified

Acceptance Criteria (Baseline Data):
 Plant Data RETRAN Best Estimate
 Similar Plant Data FSAR

Reference: MSP-107 model specifications

Test Results SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

NONE

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Dennis B. King

Simulator Instructor

Reviewed By: _____

Simulator Instructor

Approved By: C. ANDREWS

Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: FAILURE OF RCP FIRST STAGE SEAL

ANS-3.5, 1985 Requirement: Training Malfunction #: 48

Test Document Section Number: F6 Date 1/28/85

Description of Test: RCP 11A FIRST STAGE SEAL FAILED, PANELS VERIFIED
FOR CORRECT RESPONSE. (12A=25% failed) ⇒ 11B=25% failed 12A=50% failed
12B=100% failed

Component Tested: RCP 11A 11B 12A+12B SEALS Severity: 0-100%

Initial Conditions: 100% Power / MOE / 547°C / 610 BAR

Transient Initiator: Malfunction 48

Duration of Test: 5 Hours

Parameters plotted:
11A, 12A, 11B, 12B RCPs Upper Middle + Low Seal Pressures And Temperature
And 11A-B, 12A-B RCP Bleedoff Flows

Termination Criteria: Panel data Verified

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate

Similar Plant Data FSAR

Reference: OI 1A REACTOR COOLANT SYSTEMS AND PUMP OPERATIONS

Test Result:

SAT / UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

NONE

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Dale Thoden

Simulator Instructor

Reviewed By: _____

Simulator Instructor

Approved By: C. Andrews

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: FAILURE OF RCP Second Stage Seal

ANS-3.5, 1985 Requirement: TRAINING Malfunction #: 49

Test Document Section Number: F6 Date 9/14/90
4/25/85 ed

Description of Test: RCP 11A → 100% Failed 11B → 25% Failed 12A → 50% Failed
12B → 100% Failed Panel data Verified

Component Tested: 11A+B 12A+B Seals Severity: D-100% Sealed

Initial Conditions: 100% Power / MCC / Tc = 547°F / 610 ppm Boron

Transient Initiator: Malfunction 49

Duration of Test: 0.5 Hours

Parameters plotted:
11&12 A+B Seal Pressure Temperature + bleed off Flow

Termination Criteria: Panel Data Verified.

Acceptance Criteria (Baseline Data):
 Plant Data RETRAN Best Estimate
 Similar Plant Data FSAR

Reference: DLIA Reactor Coolant System and Pump Operation

Test Results SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

SMR #: _____ Completed _____
Date

SMR #: _____ Completed _____
Date

SMR #: _____ Completed _____
Date

Comments:

THIS MALFUNCTION WAS TESTED AS PART OF ATP-914
REACTOR COOLANT PUMP SEAL REPLACEMENT.

Performed By: C. ANDREWS

Simulator Instructor

Reviewed By: E. Chynoweth

Simulator Instructor

Approved By: C. Andrews

Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Failure of Reactor Coolant Pump Third stage Seal

ANS-3.5, 1985 Requirement: TRAINING Malfunction #: 50

Test Document Section Number: FG Date 1/28/85

Description of Test: 11A → 12%, 11B → 25%, 12A → 50%, 12B → 100% Panel

Data taken for each test

Component Tested: _____ Severity: 0-100%

Initial Conditions: _____

Transient Initiator: malfunction 50

Duration of Test: .5 Hours

Parameters plotted:

11A+B + 12A+B RCP VPA's middle & lower Seal Pressures & Temperature &

Bleedoff flows

Termination Criteria: Panel Data Verified

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate

Similar Plant Data FSAR

Reference: OJ-1A REACTOR COOLANT SYSTEM AND PUMP OPERATIONS

Test Results

SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Dale Thedens

Simulator Instructor

Reviewed By: _____

Simulator Instructor

Approved By: C. Andrews

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Pressurizer Spray Valve I-CU-100E Fails Open

ANS-3.5, 1985 Requirement: ANS 3.1.7 (a) PSA FSAR Malfunction #: 54

Test Document Section Number: F6 Date 6/17/85

Description of Test: Verifies Simulator Response to Depressurization of Res -> causing Reactor Trip and Safety Injection Initiation

Component Tested: I-CU-100E Severity: Fixed

Initial Conditions: 100% Power / MC / Tc = 547°F / 610 ppm Boron

Transient Initiator: Malfunction 54

Duration of Test: 1.4 Hours

Parameters plotted:
Nuclear Power, Pr Pressure (wide range) Pr level, for Prop HR Burns 11-12 current,
Per Spray Flow, for HR Backup HR Current (11-14 bars)

Termination Criteria: Panel Verification & SIA's initiation

Acceptance Criteria (Baseline Data):
 Plant Data RETRAN Best Estimate
 Similar Plant Data FSAR

Reference: MSC-002

Test Results SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Dennis B. King

Simulator Instructor

Reviewed By: _____

Simulator Instructor

Approved By: K. J. TUTTEN

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Pressurizer Power Operated Relief Valve ERV-404 LeaksANS-3.5, 1985 Requirement: 3.1.2 (1) Malfunction #: 59Test Document Section Number: F6 Date 12-4-90Description of Test: ERV-404 goes full open causing RCS pressure to decrease to Px Trip and safety injection. Test continued until quench tank ruptured and containment temperature and humidity increased.Component Tested: ERV-404 Severity: 0-100% valve openingInitial Conditions: 100% Power mol Equil XenonTransient Initiator: Malfunction 59Duration of Test: .4 Hours

Parameters plotted:

Quench tank pressure, temperature and level; Relief Valve downstream temperatures changing & letdown flow, hot & cold leg temperatures, heater currents containment temperatures.Termination Criteria: Shut ERV-404 block valve and relief valve flow is stopped.

Acceptance Criteria (Baseline Data):

 Plant Data RETRAN Best Estimate Similar Plant Data FSARReference: ALARM MANUAL, AOP-2A, EXCESSIVE RCS LEAKAGE.

Test Results

 SAT/UNSAT (Circle One)

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

The non-relieving relief valve downstream temperatures did not increase.

SMR #: 1610 Completed
Date

SMR #: Completed
Date

SMR #: Completed
Date

Comments:

*indications are available
to aid the operator in
identifying the correct
locking valve.*

a

Performed By: *RBert*

Simulator Instructor

Reviewed By: *E. Ch...*

Simulator Instructor

Approved By: *C. Brown*

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Pressurizer Power Operated Relief Valve ERV-402 LeaksANS-3.5, 1985 Requirement: 3.1.2(1) Malfunction #: 60Test Document Section Number: F6 Date 12-4-90Description of Test: ERV-402 leakage causes RCS pressure to decrease to reactor trip and safety injection. When the quencher tank rupture disc relieves to containment, containment temperature and humidity increases.Component Tested: ERV-402 Severity: 0-100 gpmInitial Conditions: 100% Power, MOC Equil XenonTransient Initiator: malfunction 60Duration of Test: .4 Hours

Parameters plotted:

quencher tank temperature, pressure and level; relief valve downstream temperatures changing and letdown flow, hot + cold leg temperatures, heater currents, containment temperatureTermination Criteria: Shutting ERV-402 block valve stops relief valve flow.

Acceptance Criteria (Baseline Data):

 Plant Data RETRAN Best Estimate Similar Plant Data FSARReference: ALARM MANUAL; AOP-2A EXCESSIVE RCS LEAKAGE

Test Results

 SAT/UNSAT (Circle One)

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

The non relieving relief valve downstream temperatures did not
increase

SMR #: 11610 Completed _____
Date _____
SMR #: _____ Completed _____
Date _____
SMR #: _____ Completed _____
Date _____

Comments:

*sufficient indication to aid
the student in identifying
the correct leaking valve.*

Performed By: *Robert*

Simulator Instructor

Reviewed By: *E. Chynoweth*

Simulator Instructor

Approved By: *E. Shrews*

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Variable Safety Valve LeakageANS-3.5, 1985 Requirement: 3.1.2 (1d) Malfunction #: 61Test Document Section Number: F6 Date 8-21-90Description of Test: At 100% severity RCS pressure decreases until by trip and safety injection; quench tank rupture disc relieves to containment and containment temperature and humidity increase. At 2% severity pressure decreases until heaters engage and pressure stabilizes.Component tested: RV-200Severity: 0-100% of full flowInitial Conditions: 100% Power MOC Equal XenonTransient Initiator: Malfunction 61Duration of Test: .4 Hours

Parameters plotted:

Pressurizer Pressure, Quench tank pressure, temperature & level, Relief valve downstream temperature, letdown flow and pressurizer heater current.Termination Criteria: 100% severity steady conditions stable after safety injection and containment temperature and humidity increasing. At 2% severity pressure stableAcceptance Criteria (Baseline Data): on backup heaters. Plant Data RETRAN Best Estimate Similar Plant Data FSARReference: EOP-5; LOSS OF COOLANT ACCIDENT.

Test Results

 SAT UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

The non relieving relief valve downstream temperatures did not
increase.

SMR #: 1610 Completed
Date
SMR #: Completed
Date
SMR #: Completed
Date

Comments:

Indications to provide the student with the information to determine which relief valve is working.

Performed By: RBut
Simulator Instructor
Reviewed By: E. Chismuth
Simulator Instructor
Approved By: C. S. Drews
Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Pressurizer Pressure Control fails HIGH or LOW

ANS-3.5, 1985 Requirement: 3.1.2(15) Malfunction #: 62

Test Document Section Number: Fl6 Date 7/20/85

Description of Test: Channel x (selected channel); failed high
Then Channel y (selected channel) Failed low

Component Tested: Ch. x (2) CH. y Severity: Fixed HIGH or LOW

Initial Conditions: 100% Power / max / 547°F / 610 PPM

Transient Initiator: malfunction 62

Duration of Test: 1.6 Hours

Parameters plotted:
Nuclear Power, Per Pressure Per fuel Chan X, Per fuel Chan Y, Per Spray Flow,
Per Prop HTR Current (banks 11-12), Per Backup HTR Current Bank 11-14

Termination Criteria: Panel Indications Verified

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate
 Similar Plant Data FSAR

Reference: Model Specification & MSC-002

Test Results

SAT / UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Dennis B. King

Simulator Instructor

Reviewed By: _____

Simulator Instructor

Approved By: K. J. Tietjen

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Low Range Pressurizer Pressure Transmitter Fail High or Low

ANS-3.5, 1985 Requirement: 31.2(07) Malfunction #: 64

Test Document Section Number: FL Date 12/1/84

Description of Test: PT-103 ^① FAILED Low, PT-103-1 ^② Failed High

Component Tested: PT-103 ^①, PT-103-1 ^② Severity: Fixed (High/Low)

Initial Conditions: ① 100% Power / MCC / 542% Te / 610 PPM Airin ② 0% Power / MCC / Te = 135% / 122 PPM Brown

Transient Initiator: Malfunction 64

Duration of Test: .5 Hours

Parameters plotted: None

Termination Criteria: _____

Acceptance Criteria (Baseline Data):

- Plant Data RETRAN Best Estimate
- Similar Plant Data FSAR

Reference: Model Specification: MSC-002

Test Results SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Dennis B. King
Simulator Instructor

Reviewed By: _____
Simulator Instructor

Approved By: K. J. Tietjen
Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: PRESSURIZER Level Control Failure H.I./LOWANS-3.5, 1985 Requirement: 3.1.2 (18) Malfunction #: 65Test Document Section Number: F6 Date 12/21/84Description of Test: This test verifies simulator response following a failure of channel x level transmitter in the high direction AND channel y level transmitter in the low direction.Component Tested: 1-LT-110X, 1-LT-110Y Severity: Fixed, HIGH OR LOWInitial Conditions: 100% PWR / MOC / T_c = 547°F / 610 PPM BORONTransient Initiator: MALFUNCTIONAL 65Duration of Test: 1 Hours

Parameters plotted:

Nuclear PWR, PRZR. PRESS, PRZR. LV. CHX & Y, PRZR. PROP. HTR's 11 & 12, PRZR. BACKUP HTR's 11, 12, 13, 14, charging & shutdown FlowTermination Criteria: Receipt of Ch. X high level ALARM

Acceptance Criteria (Baseline Data):

 Plant Data RETRAN Best Estimate Similar Plant Data FSARReference: MSC-002, OI-07 (Reactor Regulating Sys)

Test Results

 SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: John R. Hill

Simulator Instructor

Reviewed By: _____

Simulator Instructor

Approved By: Charlie J. Andrews

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Letdown Leak Upstream of the Excess Flow Check ValveANS-3.5, 1985 Requirement: cl 3.1.2 (1) Malfunction #: 68Test Document Section Number: F6 Date 12-12-90Description of Test: Tested at 250gpm & 150gpm. Regen Hx outlet temperature increases due to excessive letdown flow. Standby charging pumps inhibit due to P&C level decreasing. After letdown is isolated verify charging pumps sequence off as pressurizer level is restoredComponent Tested: _____ Severity: Variable 0-250gpm.Initial Conditions: 100% Power max. Equil XenonTransient Initiator: Malfunction 68Duration of Test: 4 Hours

Parameters plotted:

CVCS PARAMETERS, PRESSURIZER LEVEL & TEMP.Termination Criteria: As Pressurizer level is restored the backup charging pumps secure

Acceptance Criteria (Baseline Data):

 Plant Data RETRAN Best Estimate Similar Plant Data FSARReference: EOP-4, EOP-5 (LOSS OF COOLANT)
(POST TRIP IMMEDIATE ACTION)

Test Results

SAT/UNSAT (Circle One)

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

Regenerative heat exchanger temperature does not go up quickly enough when the flowrate through the heat exchanger increases.

SMR #: 1853 Completed _____
Date _____
SMR #: _____ Completed _____
Date _____
SMR #: _____ Completed _____
Date _____

Comments:

SMR DOESN'T DETRACT FROM TRAINING
IT TAKES A WHILE TO SEE DISCREPANCY.

Performed By: P Bert

Simulator Instructor

Reviewed By: E Chapman

Simulator Instructor

Approved By: C Andrews

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Letdown leak inside the penetration roomANS-3.5, 1985 Requirement: 3.1.2 (1C) Malfunction #: 69Test Document Section Number: F6 Date 9-26-90Description of Test: Aram leak 250gpm over 30min causing auxiliary building radiation readings to increase. As the leak progresses volume control tank level decreases to the point of chemical volume control system isolation (CVCS)Component Tested: N/A Severity: 0-100 @ 250gpmInitial Conditions: 100% Power MCC Equil XenonTransient Initiator: Malfunction 69Duration of Test: .3 Hours

Parameters plotted:

Pressurizer level and pressure, Charging and letdown Flow, Penetration Room Pressure and Temperature, Aux Building and Plant Vent Radiation levels.Termination Criteria: Verification of CVCS

Acceptance Criteria (Baseline Data):

 Plant Data RETRAN Best Estimate Similar Plant Data FSARReference: AOP-2A - EXCESSIVE RCS LEAKAGE

Test Results

 SAT / UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

Inadequate radiation level response in the auxilliary building

SMR #: 1684 *Cancelled on 12/14/90* Completed _____ Date _____
SMR #: _____ Completed _____ Date _____
SMR #: _____ Completed _____ Date _____

Comments:

CONTACTED RE, HE FEELS THE RESPONSE IS REASONABLE.

Performed By: R But

Simulator Instructor

Reviewed By: Edmond Chapman

Simulator Instructor

Approved By: C A Drew

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Loss of Charging Pump Due to Broken ShaftANS-3.5, 1985 Requirement: 3.1.2(18) Malfunction #: 70Test Document Section Number: F6 Date 12-13-90Description of Test: Charging pump shaft breaks causing flow to go to zero. Letdown reduces in response to Pressurizer level decreasing. Letdown temperatures increase. The standby charging pumps start as pressurizer level decreases.Component Tested: 11, 12 & 13 Severity: FixedInitial Conditions: 100% Power MCR Equil XenonTransient Initiator: Malfunction 70Duration of Test: .5 Hours

Parameters plotted:

Charging Flow, Letdown Flow, Pressurizer Level VCT Level
letdown Temp and charging pump tempsTermination Criteria: After testing all 3 pumps flow goes to zero when their shaft is broken

Acceptance Criteria (Baseline Data):

 Plant Data RETRAN Best Estimate Similar Plant Data FSARReference: ADP-2A, EXCESSIVE REACTOR COOLANT LEAKAGE.

Test Results

 SAT / UNSAT (Circle One)

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

Regenerative heat exchanger letdown out let temperature
does not increase quickly enough when charging is secured

SMR #: 1853 Completed _____
Date _____
SMR #: _____ Completed _____
Date _____
SMR #: _____ Completed _____
Date _____

Comments:

SMR doesn't detract ^a detract
from training, it takes
a while to see discrepancy.

Performed By: RBst

Simulator Instructor

Reviewed By: Andrews

Simulator Instructor

Approved By: Andrews

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Loss of Normal Letdown Due To 1-CVC-516 Failing ClosedANS-3.5, 1985 Requirement: 3.1.2 (08) Malfunction #: 73Test Document Section Number: F6 Date 6/24/85Description of Test: This test verifies simulator response following the closure of CVCs isolation valve 1-CV-516 due to a burned out power relay in the valves control logic.Component Tested: 1-CV-516 Severity: FIXEDInitial Conditions: 100% PWR/MOC/T_c=547°F/610 RPM BIRONTransient Initiator: MALFUNCTION 73Duration of Test: 1/4 Hours

Parameters plotted:

PRR LVL, VCT LVL, letdown & charging flow, letdown press.Termination Criteria: Panel indications verified

Acceptance Criteria (Baseline Data):

 Plant Data RETRAN Best Estimate Similar Plant Data FSARReference: MSC-001

Test Results

 SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Dennis B. King

Simulator Instructor

Reviewed By: _____

Simulator Instructor

Approved By: K. G. Tietjen

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Loss of Component Cooling To The Non-Regenerative Heat ExchangerANS-3.5, 1985 Requirement: 3.1.2 (a) Malfunction #: 75Test Document Section Number: F6 Date 6/25/85Description of Test: This test verifies simulator response following closure of temperature control valve 1-CV-223 due to temperature transmitter 1-TE-223 failing in the low direction.Component Tested: 1-TE-223 Severity: FIXEDInitial Conditions: 100% PWR / MC / T₀ = 547°F / 112 RPM BORONTransient Initiator: malfunction 75Duration of Test: 1/4 Hours

Parameters plotted:

NRHX letdown inlet temp., NRHX letdown outlet temp., VCT Temp. Boronmeter ISO VALVE, JON EXCH. INLET VLV, JON EXCH. OUTLET VLVTermination Criteria: Panel indications verified

Acceptance Criteria (Baseline Data):

 Plant Data RETRAN Best Estimate Similar Plant Data FSARReference: MSC-001

Test Results

 SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

SMR #: _____ Completed _____
Date
SMR #: _____ Completed _____
Date
SMR #: _____ Completed _____
Date

Comments:

Performed By: Dennis B King
Simulator Instructor
Reviewed By: _____
Simulator Instructor
Approved By: K. G. Tietjen
Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: BORONMETER FAILURE

ANS-3.5, 1985 Requirement: SOER Malfunction #: 78

Test Document Section Number: F.6 Date 1/21/89

Description of Test: FAIL THE BORONMETER TO INDICATE
100, 500 AND 2000 ppm WITHOUT CHANGING REACTOR POWER
OR TEMPERATURE AND VERIFY PANEL & COMPUTER INDICATIONS
HERE

Component Tested: LRS-203 Severity: VARIABLE

Initial Conditions: 100% POWER, MOC, EQUIL. XENON

Transient Initiator: MAJFUNCTION 78

Duration of Test: 1/2 Hours

Parameters plotted:

NONE

Termination Criteria: PANEL INDICATIONS VERIFIED

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate

Similar Plant Data FSAR

Reference: SOER 88-02 (UNAMPLIFIED CRITICALITY)

Test Results

SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

NONE

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: *E. Chymerak*
Simulator Instructor

Reviewed By: *C. Drews*
Simulator Instructor

Approved By: *C. Drews*
Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Inadvertant BorationANS-3.5, 1985 Requirement: 3.1.2(17) Malfunction #: 79Test Document Section Number: F6 Date 6/5/85Description of Test: This test verifies simulator response following a failure of I-HS-2514 which causes I-MOV-514 to fail wide open. Also, simulator response is tested with and without a boric acid makeup pump operating.Component Tested: I-CVC-514 Severity: FIXEDInitial Conditions: 100% PWR / MSC / T₁ = 547°F / 110 PPM BORONTransient Initiator: malfunction 79Duration of Test: 1/4 Hours

Parameters plotted:

Nuclear PWR, RCS T-Avg, RCS boron conc, VCT LV6,VST boron conc,Termination Criteria: Panel indications verified

Acceptance Criteria (Baseline Data):

 Plant Data RETRAN Best Estimate Similar Plant Data FSARReference: MSC-001

Test Results

 SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Dennis B. King
Simulator Instructor

Reviewed By: _____
Simulator Instructor

Approved By: K. G. Tietjen
Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Failure of Boric Acid pump

ANS-3.5, 1985 Requirement: 3.1.2(17) Malfunction #: 82

Test Document Section Number: F6 Date 6/25/85

Description of Test: This test verifies simulator response following a failure of the boric acid pumps.

Component Tested: 11 and/or 12 boric acid pump Severity: FIXED

Initial Conditions: 100% PWR/MOL/Tc: 547°F/610 RPM BORON

Transient Initiator: malfunction 82

Duration of Test: 1/4 Hours

Parameters plotted:
conc. boric acid flow, RC MAXAMP: LOW, VCT level

Termination Criteria: Panel indications verified

Acceptance Criteria (Baseline Data):
 Plant Data RETRAN Best Estimate
 Similar Plant Data FSAR

Reference: MSC-001, FSAR

Test Results

SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Dennis B King
Simulator Instructor

Reviewed By: _____
Simulator Instructor

Approved By: H.G. TidTjen
Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: VCT Level TRANSMITTER Fails HI/LOANS-3.5, 1985 Requirement: 3.1.2(e2) Malfunction #: 83Test Document Section Number: F6 Date 11/12/84Description of Test: This test verifies simulator response following the failure of the volume control tank level transmitter in both the high and low directions.Component Tested: 1-LT-226 Severity: Fixed (High or Low)Initial Conditions: 100% RW/MOC/Tc: 547 F/610 PPM TOXONTransient Initiator: MALFUNCTION 83Duration of Test: 1/2 Hours

Parameters plotted:

N/ATermination Criteria: Panel indication verification

Acceptance Criteria (Baseline Data):

 Plant Data RETRAN Best Estimate Similar Plant Data FSARReference: MISC-001

Test Results

 SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

none

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Dennis B. King
Simulator Instructor

Reviewed By: _____
Simulator Instructor

Approved By: K. G. Trietjen
Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Letdown Relief Valve fails open.

ANS-3.5, 1985 Requirement: 3.1.2 (1c) Malfunction #: 86

Test Document Section Number: FL6 Date 8-22-90

Description of Test: Relief valve fails open causing letdown flow and volume control tank (VCT) level and pressure to decrease. 11 Row Receiver Tank level increases as it receives relief valve discharge.

Component Tested: RV345 + 354 Severity: fixed.

Initial Conditions: 100% Power MOC Equil Xenon

Transient Initiator: malfunction 86

Duration of Test: 4 Hours

Parameters plotted:

Letdown flow and temperature, Pressurizer Level, Volume Control Tank level
11 Row Receiver tank level, relief valve flowrate.

Termination Criteria: Verification of VCT level decreasing and 11 Receiver tank increasing from relief valve flow

Acceptance Criteria (Baseline Data):

- Plant Data RETRAN Best Estimate
- Similar Plant Data FSAR

Reference: AOP-2A, EXCESSIVE REACTOR COOLANT LEAKAGE.

Test Results

SAT UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: *But*
Simulator Instructor

Reviewed By: *CAHrews*
Simulator Instructor

Approved By: *CAHrews*
Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: CHARGING PUMP PACKING LEAK

ANS-3.5, 1985 Requirement: 3.1.2 (1d) Malfunction #: 87

Test Document Section Number: F.6 Date 8-22-80

Description of Test: 10 GPM PACKING LEAK CAUSED CHARGING FLOW TO DECREASE ALONG WITH LETDOWN FLOW. LEAKAGE IN AUXILIARY BLOC CAUSED INCREASED READINGS ON PLANT VENT.

Component Tested: 11, 13 CHE CC Severity: 0-100% OF 100PPM

Initial Conditions: 100% POWER, PCC, EQU XENON

Transient Initiator: MALFUNCTION F7

Duration of Test: .5 Hours

Parameters plotted:

PRESURIZER LEVEL & PRESSURE, CHARGING & LETDOWN FLOW, VCT LEVEL, PLANT VENT RADIATION LEVELS

Termination Criteria: PLANT CONDITION STABLE W/ LETDOWN / CHARGING
SPANNED AT LOWER VALUE & PLANT VENT RMS INCREASED.

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate

Similar Plant Data FSAR

Reference: AOP-2A (EXCESSIVE RCS LEAKAGE)

Test Results

SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

- 1- PLANT VENT RADIATION LEVELS INCREASE TOO QUICKLY
- 2- INITIATION OF MALF. CAUSED LEIDOWN FLOW TO DROP TO ZERO FOR APPROX. 3 SECONDS.

1- SMR #: 1685 Completed _____
Date _____

2- SMR #: 1842 Completed _____
Date _____

SMR #: _____ Completed _____
Date _____

Comments:

- 1- RESPONSE OF MALFUNCTION REFLECTS WHAT THE STUDENT WOULD SEE ON PANELT. SMR REFLECTS TUNING FOR MORE REALISTIC RESPONSE.
- 2- PROBLEM ADDRESSED BY SMR 1842 IS INTERMITTENT AND UNDER INVESTIGATION

Performed By: R. BEST

Simulator Instructor

Reviewed By: E. Chynoweth

Simulator Instructor

Approved By: C. H. Powell

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: STEAM GENERATOR Tube LeakANS-3.5, 1985 Requirement: 3.12(a) Malfunction #: 91Test Document Section Number: F6 Date 7/9/85Description of Test: This test verifies simulator response following a STEAM GENERATOR Tube Leak of 20 GPM.Component Tested: 11 STEAM GENERATOR Severity: VARIABLE To 100 GPMInitial Conditions: 100% PWR / MOC / T_c = 547°F / 610 PPM BORONTransient Initiator: MALFUNCTION 91Duration of Test: 1/4 Hours

Parameters plotted:

RRR, LVL, VCT, LVL, SG 11 FW FLOW, CHARGING FLOW, LETDOWN FLOW, CONDOR VAC, gp. disch RMS, Blowdown Th. Disb RMS.Termination Criteria: Panel indications verified

Acceptance Criteria (Baseline Data):

 Plant Data RETRAN Best Estimate Similar Plant Data FSARReference: MSP-108, AOP-02A (Excessive RCS leakage)EOX-06 (STEAM GENERATOR Tube Rupture)

Test Results

 SAT / UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #: _____ Completed _____
Date

SMR #: _____ Completed _____
Date

SMR #: _____ Completed _____
Date

Comments:

Performed By: *Dennis B King*
Simulator Instructor

Reviewed By: _____
Simulator Instructor

Approved By: *K G Tistya*
Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Steam Generator Tube Rupture

ANS-3.5, 1985 Requirement: 5.12(d) FSAR Malfunction #: 92

Test Document Section Number: FG Date 7/6/85

Description of Test: Gross rupture of 2 steam generator tubes (12 SA Tested)

Component Tested: 12 SA Severity: 0-10 Tubes

Initial Conditions: 100% Power / 100% / 547°F / 610 ppm Boron

Transient Initiator: 2 minute delay inserts Malfunction 92

Duration of Test: 2.8 Hours

Parameters plotted:

11 SA subcooled margin monitor, level, 11 SA ETH, Te 3, For Pressure, SG 11 SA Pressure, Steam flow, main flow,

Aux feed, narrow wide flow levels, 3 nuclear Reactor Power, Pw level, Enthalpy Pressure, Core Temperature

Charging flow, letdown flow set level

Termination Criteria: Panel indicators Verified

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate

Similar Plant Data FSAR

Reference: EOP-6 Steam Generator Tube Rupture

Test Results SAT U SAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Dennis B. King

Simulator Instructor

Reviewed By: _____

Simulator Instructor

Approved By: K. J. Tietjen

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: M51V stuck at 90% Fuel Open

ANS-3.5, 1985 Requirement: 3.1.2(17) Malfunction #: 93

Test Document Section Number: FL Date 7/15/85

Description of Test: Mechanical Binding Causes M51V to Fail at 90% open
Both valves tested: 11 at 4 minute time delay 12 @ 2 minute time delay (malfunction
105 (steam line break outside containment) initiated after a 2 minute time delay

Component Tested: 11 M51V 12 M51V Severity: Fixed

Initial Conditions: 100% Power / MOC / 547°F TC / 610 ppm Carbon

Transient Initiator: Malfunction 93 (4 min delay) 105 @ 2 minute delay

Duration of Test: 0.25 Hours

Parameters plotted:
11+12 S/P Pressure, Steam Feed Flow, Nuclear Power, 11+12 M51V Position

Termination Criteria: Panel indicators Verified

Acceptance Criteria (Baseline Data):
 Plant Data RETRAN Best Estimate
 Similar Plant Data FSAR

Reference: Model specification MSP-105

Test Results SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Dennis B. King
Simulator Instructor

Reviewed By: _____
Simulator Instructor

Approved By: K J Tietjen
Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: MAIN STM ISOLATION VALVE FAIL CLOSED

ANS-3.5, 1985 Requirement: TEST Malfunction #: 94

Test Document Section Number: F.6 Date _____

Description of Test: BOTH PASSIVE SHUT, STEAM FLOW DECREASED, REACTOR TRIP ON HIGH PRESSURIZER PRESSURE AND CORVY LIFT PARAMETERS RECOVER AFTER REACTOR TRIP

Component Tested: 1,2 Severity: FIXED

Initial Conditions: 100% POWER, MOC, EQUIL XENON

Transient Initiator: MALFUNCTION 94

Duration of Test: 1/2 Hours

Parameters plotted: REACTOR POWER, RCT TEMPERATURES, PRESSURIZER PARAMETERS, STEAM GENERATOR LEVEL/PRESS, STEAM/FEED FLOW, AFW FLOW

Termination Criteria: CONDITIONS STABILIZED

Acceptance Criteria (Baseline Data):

- Plant Data
- RETRAN
- Best Estimate
- Similar Plant Data
- FSAR

Reference: _____

Test Results SAT/UNSAT (circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

none

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

*THIS MALFUNCTION IS PERFORMED AS A PART
OF AN APPENDIX B TEST, CLOSURE OF BOTH
MCI's.*

Performed By: *E. Chyan*
Simulator Instructor

Reviewed By: *E. Chyan*
Simulator Instructor

Approved By: *Andrew S*
Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Steam Generator Level Transmitter 1-LT-1111 or 1-LT-1121 Fails High or LowANS-3.5, 1985 Requirement: TRAINING Malfunction #: 95Test Document Section Number: 16 Date 4-20-88Description of Test: ① Level Transmitter LT-1111 Failed High② Level Transmitter LT-1121 Failed Low (down Commer level monitoringTransmitter selector switch in "LT-1121 Fail" after malfunction to test Simulator
Response to Anticipated Operator Action"Component Tested: LT-1121, LT-1111 Severity: FixedInitial Conditions: 100% Power / MOC / 547°F = T_e / 610 ppm BoronTransient Initiator: Malfunction 95Duration of Test: 1.5 Hours

Parameters plotted:

11:12 3/6 Level, Feed Flow, Steam Flow, 11:12 MFWRD Position

Termination Criteria: _____

Acceptance Criteria (Baseline Data):

 Plant Data RETRAN Best Estimate Similar Plant Data FSARReference: AOP-36 Malfunctions of the main feedwater systems

Test Results

 SAT UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Dale Treders

Simulator Instructor

Reviewed By: _____

Simulator Instructor

Approved By: C. Adams

Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Steam Generator Level Transmitted fails hi or low

ANS-3.5, 1985 Requirement: 3.1.2(11) Malfunction #: 96

Test Document Section Number: F.6 Date 10-31-90

Description of Test: Verified proper alarms from one channel failed and 2 of 4 failing low causing reactor trip and 2 of 4 failing hi causing

Component Tested: L+1113 A thru D Severity: Hi and Lo

Initial Conditions: 100% Power MOL, ARO Boston 610

Transient Initiator: MAJUNCTION 96.

Duration of Test: .2 Hours

Parameters plotted:
None

Termination Criteria: Reactor Trip

Acceptance Criteria (Baseline Data):
 Plant Data RETRAN Best Estimate
 Similar Plant Data FSAR

Reference: FSAR CHAPTER 7, AOP-30 FEEDWATER SYSTEM MALFUNCTIONS

Test Results SAT / UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: *EBW*

Simulator Instructor

Reviewed By: *CAH*

Simulator Instructor

Approved By: *CAH*

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Steam Generator Pressure Transmitter Fails High or Low

ANS-3.5, 1985 Requirement: 3.1.2(1) Malfunction #: 98

Test Document Section Number: E6 Date 11-8-90

Description of Test: Failed one channel hi & one channel low received reactor trip on ASGPT/TM&PT. Failed two, low received SG Isolation signal

Component Tested: P-013A thru D Severity: Hi or Lo

Initial Conditions: 100% Power MOC equal Xenon

Transient Initiator: malfunction 98

Duration of Test: .2 Hours

Parameters plotted:

11 SG Pressure Safety Channel A thru D

Termination Criteria: verified proper channel indications after reactor Trip

Acceptance Criteria (Baseline Data):

- Plant Data RETRAN Best Estimate
- Similar Plant Data FSAR

Reference: ALARM MANUAL

Test Results **SAT**/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST (ABSTRACT)

Deficiency Found:

_____ *None* _____

_____	Completed	_____
		Date
SMR #:	Completed	_____
		Date
SMR #:	Completed	_____
		Date

Comments:

Performed By: *[Signature]*

Simulator Instructor

Reviewed By: *[Signature]*

Simulator Instructor

Approved By: *[Signature]*

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Steam Generator Differential Pressure Transmitter Fails High or Low

ANS-3.5, 1985 Requirement: _____ Malfunction #: 100

Test Document Section Number: F10 Date 11-8-90

Description of Test: When failed low indication for failed channel produces approx 50% when two channels fail low reactor trips on low flow. Verified no actions occurred when channels failed high.

Component Tested: Channels A thru D Severity: Hi and Low

Initial Conditions: 100% Power MOC Equil Xenon

Transient Initiator: Malfunction: 100

Duration of Test: .2 Hours

Parameters plotted:

RCS Core Flow Channels A thru D

Termination Criteria: Reactor Trip on Low Flow

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate

Similar Plant Data FSAR

Reference: ALARM MANUAL REACTOR PROTECTIVE SYSTEM DESCRIPTION, #59.

Test Results

SAT UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: But

Simulator Instructor

Reviewed By: C. Andrews

Simulator Instructor

Approved By: C. Andrews

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Inadvertent slow closure of MSIV

ANS-3.5, 1985 Requirement: 31.2 (17) FSAR Malfunction #: 102

Test Document Section Number: FL Date 7/15/85

Description of Test: Failure of test circuit causes slow closure of an msiv
(may be initiated conditionally based on the "Test" switch for msivs)

12 Tested with Test Switch 11 Tested without.

Component Tested: 11:12 MSIV Severity: Fixed

Initial Conditions: 100% Power / 1000 / 547°F Te / 610 ppm Boron

Transient Initiator: Emergency Time delay inserts malfunction 102

Duration of Test: 25 Hours

Parameters plotted:
11:12 % Pressure, Steam Flow, Nuclear Power, Res Temp, CV-4043 (msiv-11) Position
CV-4048 (msiv-12) Position, ~~TRIP~~ TRIP Pres TRIP Setpoint Ch. A

Termination Criteria: _____

Acceptance Criteria (Baseline Data):
 Plant Data RETRAN Best Estimate
 Similar Plant Data FSAR

Reference: EOP-0 Reactor TRIP / FSAR / model specification MSC-004

Test Results SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Dennis B. King

Simulator Instructor

Reviewed By: _____

Simulator Instructor

Approved By: K. J. Tietjen

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: TURBINE Bypass Valves Fail Open (any combination)

ANS-3.5, 1985 Requirement: 3.1.2 (17) Malfunction #: 103

Test Document Section Number: FL Date 7/15/85

Description of Test: Turbine bypass valves fail open (reactor may trip on Tm/LP depending upon severity) First TBV failed, then all 4 TBVs failed caused by I/P failure of individual TBV

Component Tested: CV3940 [ⓐ] CV3940 → CV3946 Severity: Fixed

Initial Conditions: 100% Power/mec (812% / 610 Boron (both tests))

Transient Initiator: malfunction 103 on 2 minute delay

Duration of Test: 0.25 Hours

Parameters plotted:

1112 S/G Pressure, Steam Feed Flow, Level, 3 RIS Tans, Nucleon Power, Pwr Pressure, TBV 3940, 3942, 3944, 3946 Position

Termination Criteria: Panel indicators Verified

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate

Similar Plant Data FSAR

Reference: FSAR Figure 7-15, Model Specification MSC-0004

Test Results

SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Dennis B. King
Simulator Instructor

Reviewed By: _____
Simulator Instructor

Approved By: K. J. Tietjen
Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: STEAM LINE RUPTURE INSIDE CONTAINMENT

ANS-3.5, 1985 Requirement: 3.1.2(20) FSAR Malfunction #: 104

Test Document Section Number: FL6 Date 7/5/85

Description of Test: STEAM RUPTURE DOWNSTREAM 5/6 STEAM FLOW ELEMENT.
(UPHOLDABLE) Simulator Fidelity Verified Via Checklist.

Component Tested: 115M HDR/100% 125M HDR 25%² Severity: 5-100% Failure

Initial Conditions: 100% Power / MOC / 547°F = T_e / 610 PPM BORON

Transient Initiator: malfunction 104

Duration of Test: 0.5 Hours

Parameters plotted:

SG 11 & 12 \dot{Q} PRESSURE STEAM, MAIN FEED & AFW FLOWS, ³ NUCLEAR POWER, ΔT POWER,

LOOP 11 & 12 \dot{Q} TRT: T_e ? PER PRESSURE, CONTM PRESSURE, CHARGING + Letdown Flow

Termination Criteria: Panel Data Verified

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate

Similar Plant Data FSAR

Reference: EOP-4 Excess STEAM DEMAND Model Specification

MSP-108, FSAR

Test Results

SAT / UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

NONE

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Dennis B. King

Simulator Instructor

Reviewed By: _____

Simulator Instructor

Approved By: K. J. Tietjen

Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Steam line Rupture Outside Containment (isolable)

ANS-3.5, 1985 Requirement: _____ Malfunction #: 105

Test Document Section Number: _____ Date 7/15/85

Description of Test: Steam line Rupture on simulator tested.
Panel Verification ensures proper response

Component Tested: 11 steam headers Severity: D100% Failure

Initial Conditions: 100% Power / moc / Tc: 547°F / 600 ppm

Transient Initiator: Malfunction 105 (2 minute Delay)

Duration of Test: 25 Hours

Parameters plotted:

11:12 SG 2 Pressure, level Steam feed and Aux feed flows 3 Nuclear Power

ΔT Power, Loop 11+12 Th+Tc, Pcr Pressure/level Contant Pressure/ Temperature
Changing + letdown flow

Termination Criteria: Panel Indication Verified

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate

Similar Plant Data FSAR

Reference: FO P 4 Excess Steam Demand / model specification MS-108 /
FSAR

Test Results

SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

NONE

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Dennis B. King

Simulator Instructor

Reviewed By: _____

Simulator Instructor

Approved By: K. J. Tietjen

Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Turbine Bypass Valves Fail Closed

ANS-3.5, 1985 Requirement: _____ Malfunction #: 108

Test Document Section Number: F6 Date 11-8-90

Description of Test: with all turbine bypass valves failed closed and the atmospheric dumps closed manually tripped the turbine. SG pressure increases to the safety valves setpoint and the system stabilizes at a higher than normal post trip SG pressure and RCS temperature

Component Tested: CV 3240, 42, 44 & 46 Severity: Fixed

Initial Conditions: 100% Power MOC Equil Xenon

Transient Initiator: manual Turbine Trip

Duration of Test: 4 Hours

Parameters plotted:
Nuclear Power, SG Pressure, Steam Flow, RCS cold leg temperature and Pressurizer Pressure

Termination Criteria: Plant stabilizes on Main Stem Safety Valves

Acceptance Criteria (Baseline Data):
 Plant Data RETRAN Best Estimate
 Similar Plant Data FSAR

Reference: FSAR CHAPTER 14

Test Results SAT / UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: RBW

Simulator Instructor

Reviewed By: Chrews

Simulator Instructor

Approved By: Chrews

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: TBV CONTROLLER I-PIC-4056 FAILS IN AUTOANS-3.5, 1985 Requirement: 3.12(17) Malfunction #: 109Test Document Section Number: FG Date 7/15/85Description of Test: Verify Simulator Response to 25% Open Signal to TBVs - manual close attempted - Then Reactor Tripped (to test Quick Open feature which Bypasses Failed Controller)Component Tested: PIC-4056 Severity: 0-100% outputInitial Conditions: 100% Power / moc / TC = 547°F / 610 ppmTransient Initiator: Malfunction 109 on 2 minute T. delayDuration of Test: .5 Hours

Parameters plotted:

Nuclear Power, H. SG Press, Steam Flow, feed flow, RCS temp, Per Pressure, Unit 1 Turbine Load, TBV Position TBV-3940-46Termination Criteria: Panel Indications Verified

Acceptance Criteria (Baseline Data):

 Plant Data RETRAN Best Estimate Similar Plant Data FSARReference: Model specification MSC-804 / Cop. 4 EXCESS STEAM Demand

Test Results

 SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Dennis B. King

Simulator Instructor

Reviewed By: _____

Simulator Instructor

Approved By: K. J. Tietzen

Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Failure of The Steam Flow Transmitters HIGH or LOW

ANS-3.5, 1985 Requirement: 3.1.2(17) Malfunction #: 110

Test Document Section Number: FL Date 2/16/85

Description of Test: Verify Simulator response to FE-1011 Failed high
Then FE-1021 Failed low

Component Tested: FE1011/FE1021 Failed HIGH/LOW Severity: Fixed (HIGH/LOW)

Initial Conditions: 51% Power / max / T_e = 540°F / 219 PPM BORON

Transient Initiator: malfunction 110 inserted on 2 minute Time delay

Duration of Test: 2.5 Hours

Parameters plotted:

SG 11+12 Steam Flow + Feed Flow SG 11+12 Level

Termination Criteria: Panel Indications Verified

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate

Similar Plant Data FSAR

Reference: Model Specifications & MSC 4013

Test Results

SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #: _____ Completed _____
Date
SMR #: _____ Completed _____
Date
SMR #: _____ Completed _____
Date

Comments:

Performed By: Dennis B. King
Simulator Instructor

Reviewed By: _____
Simulator Instructor

Approved By: K. J. Tietjen
Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: ADV Controller 1-HIC 4056 Fails in AUTO

ANS-3.5, 1985 Requirement: 3.1.2(17) Malfunction #: 112

Test Document Section Number: F6 Date 7/16/85

Description of Test: AUTO signal on controller HIC 4056 fails,
causing ADV to fail open (full open 100%)

Component Tested: ADV-1-CU-4056 Severity: Full Range 0-100% open

Initial Conditions: 100% Power / mod / 5474 Te / 60ppm Boron

Transient Initiator: Malfunction

Duration of Test: 1.5 Hours

Parameters plotted:
11.12 3/4 pressure, 11.12 SG flow (steam feed), RCS Temp, Press Pressure, 3/4 level,
Nuclear Power, R Linear Range on A, C, ADV 3938, 3939 Position.

Termination Criteria: _____

Acceptance Criteria (Baseline Data):

- Plant Data RETRAN Best Estimate
- Similar Plant Data FSAR

Reference: EOP-4 Excess Steam Demand An

Test Results SAT / UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Dennis B. King
Simulator Instructor

Reviewed By: _____
Simulator Instructor

Approved By: K. J. Tietjen
Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Main Steam Safety Valves Fail open

ANS-3.5, 1985 Requirement: 3.1.2 (17) PRA BWR Malfunction #: 113

Test Document Section Number: FL6 Date: 5/23/85

Description of Test: Any 1 of 16 Safeties may be selected to fail open

Component Tested: RV 3992, Then ALL RV's (RV 3992-4007) Severity: Fixed

Initial Conditions: _____

Transient Initiator: Pushbutton or Time delay, RV 3992 Simultaneous all others

Duration of Test: .25 Hours

Parameters plotted:

X₆ 11+12 Pressure, SG 11+12 Flow (Feed + Steam), SG 11+12 Level, Nuclear Power

Reactor Power, RCS - TAVG PZR Pressure (wide range) Pressure-level

Termination Criteria: Panel Indicators Verified

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate

Similar Plant Data FSAR

Reference: EOP-4 Excess STEAM Demand.

Test Results

SAT / UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

NONE

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Dennis B. King

Simulator Instructor

Reviewed By: _____

Simulator Instructor

Approved By: K. J. Tietjen

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Turbine Trip - Unit 1ANS-3.5, 1985 Requirement: 3.1.2(15) Malfunction #: 114-1Test Document Section Number: F6 Date 5/22/85Description of Test: This test verifies simulator response following a Unit 1 turbine trip (no specific cause).Component Tested: U-1 Turbine Severity: FixedInitial Conditions: 100% PWR/MOC/T₀ = 542°F/610 PPM BORONTransient Initiator: MALEFUNCTION 114Duration of Test: 1 Hours

Parameters plotted:

N/ATermination Criteria: Panel indications verified

Acceptance Criteria (Baseline Data):

 Plant Data RETRAN Best Estimate Similar Plant Data FSARReference: MSC-007, EOP-1 (Reactor Trip)
AOP-07E (Main Turbine Malfunction)

Test Results

 SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #: _____ Completed _____
Date
SMR #: _____ Completed _____
Date
SMR #: _____ Completed _____
Date

Comments:

Performed By: Dennis B. King
Simulator Instructor

Reviewed By: _____
Simulator Instructor

Approved By: K. G. Tietjen
Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Failure of Automatic Turbine Trip

ANS-3.5, 1985 Requirement: _____ Malfunction #: 115

Test Document Section Number: F.6 Date 11-8-90

Description of Test: Manually tripped reactor, verified no turbine trip occurred. Two minutes later manually tripped turbine to insure manual trip was still operational

Component Tested: Unit 1 Severity: fixed

Initial Conditions: 100% Power max Equil Xenon

Transient Initiator: manual reactor trip

Duration of Test: .2 Hours

Parameters plotted:

Nuclear Power, Reactor Coolant Temp, Pressurizer Pressure, Turbine 1st Stage Pressure, HSG Pressure

Termination Criteria: manual turbine trip

Acceptance Criteria (Baseline Data):

_____ Plant Data _____ RETRAN _____ Best Estimate

_____ Similar Plant Data _____ FSAR

Reference: EOP-0, REACTOR TRIP

Test Results

SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: RBert

Simulator Instructor

Reviewed By: CArews

Simulator Instructor

Approved By: CArews

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Turbine Control Valve fails open

ANS-3.5, 1985 Requirement: FSAR Malfunction #: 116

Test Document Section Number: FG Date 11-1-85

Description of Test: Failure of individual Servo or FIC Circuitry Causes Turbine Control Valve to fail open

Component Tested: 6V-2, 6V-4 Severity: Fixed

Initial Conditions: 51% max TC = 510 / 719 ppm Boron

Transient Initiator: Timed 2 minute delay

Duration of Test: .25 Hours

Parameters plotted:

11'12 Steam flow, 11'12 feed flow, 11'12 SG Pressure, 11'12 SG level, Turb 1st SG Press, Generator Power, RCS Temp, Nuclear Power, 2-6V-1 Position, 2-6V-2 position, 2-6V-3 position, 2-6V-4 Position

Termination Criteria: Panel indications Verified

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate
 Similar Plant Data FSAR

Reference: Model Specification MSC-006 AOP-76 Main Turbine Malfunction

Test Results (SAT/UNSAT (Circle One))

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Dennis B. King

Simulator Instructor

Reviewed By: _____

Simulator Instructor

Approved By: K. J. Tietjen

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Unit 2 Turbine High Vibration

ANS-3.5, 1985 Requirement: _____ Malfunction #: 131
F2TT

Test Document Section Number: E6 Date: 7/17/85

Description of Test: This test verifies simulator response
To high turbine vibration caused by excessive journal
bearing wear during operation at 50% power.

Component Tested: bearing #4 Severity: FIXED

Initial Conditions: 50% PWR / MOC / TC = 542°F / 541 PPM TORON

Transient Initiator: Malfunction 121

Duration of Test: 1/2 Hours

Parameters plotted:
Vibration amplitude for Bag #'s 1, 2, 3, 4, 5, 6, Turbine speed
Bag Temp's for Bag #'s 1, 2, 3, 4, 5, 6.

Termination Criteria: Panel indications verified

Acceptance Criteria (Baseline Data):

- Plant Data RETRAN Best Estimate
- Similar Plant Data FSAR

Reference: MSP-112

Test Results SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SYG #:	_____	Completed	_____
			Date

Comments:

Performed By: Dennis B King
Simulator Instructor

Reviewed By: _____
Simulator Instructor

Approved By: K. G. Tietjen
Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: MSR Shell Policy Fails Open

ANS-3.5, 1985 Requirement: 3.1.2 (17) Malfunction #: 135-1

Test Document Section Number: Fl6 Date: 7/17/85

Description of Test: Mechanical failure causes Relief Valve to fail open

Component Tested: RV 4001 RV 4004 Severity: Fixed

Initial Conditions: ① 51% power / 1026 / 510°F / 219 ppm Boron ② 5% Power / 1461 / 532 / 125 ppm Boron

Transient Initiator: ① 2 minute delay inserts malfunction 135 ② 2 minute time delay inserts malfunction 135

Duration of Test: .5 Hours

Parameters plotted:
Generator Power, 1 Condenser Vacuum, Absorber Power, 4-1 11-13 MSR outlet Temp, MSR outlet Pressure

Termination Criteria: Panel Indicators Verified

Acceptance Criteria (Baseline Data):
 Plant Data RETRAN Best Estimate
 Similar Plant Data FSAR

Reference: model specifications - MSR-112

Test Results SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

NONE

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Dennis B. King

Simulator Instructor

Reviewed By: _____

Simulator Instructor

Approved By: K. J. TIERMAN

Q Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Main Generator Trip Unit

ANS-3.5, 1985 Requirement: 3.2.16 Malfunction #: 137-1

Test Document Section Number: F6 Date 1/5/85

Description of Test: Electrical fault causes main generator to Trip

Component Tested: Unit 1 Generator Severity: Fixed

Initial Conditions: 100% Power / MCC / 5474F:Te / 610 ppm

Transient Initiator: 1 minute Time delay inserts malfunction 137-1

Duration of Test: .5 Hours

Parameters plotted:

None

Termination Criteria: _____

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate

Similar Plant Data FSAR

Reference: Coop-4 Reactor Trip Model Specification MSP-114

Test Results

SAT / UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Dennis B. King

Simulator Instructor

Reviewed By: _____

Simulator Instructor

Approved By: K. J. Tietjan

Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Closure of Turbine Control Valve

ANS-3.5, 1985 Requirement: 3.1.2 (17) Malfunction #: 138

Test Document Section Number: F16 Date 9-13-90

Description of Test: with the turbine on "Load Set" with "First Stage Feedback" in; CV-1 goes shut and the other valves open up to maintain 1st stage pressure. Load drops initially and recovers which causes Tave to increase and return almost to normal.

Component Tested: CV-1 Severity: 0 to 100%

Initial Conditions: 100% Power moc Equil Xenon

Transient Initiator: Malfunction 138

Duration of Test: .1 Hours

Parameters plotted:

Termination Criteria: Plant stable at 100% with the 3 remaining control valves open to maintain input pressure

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate

Similar Plant Data FSAR

Reference: AOP-7F, LOSS OF LOAD, MAIN TURBINE TECH MANUAL

Test Results

SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Bert

Simulator Instructor

Reviewed By: C. A. Crews

Simulator Instructor

Approved By: C. A. Crews

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Automatic Voltage Regulator Maloperation

ANS-3.5, 1985 Requirement: 3.1.2 (a2) Malfunction #: 140-1

Test Document Section Number: Fla Date 12/12/87

Description of Test: Dirty Rheostat Contacts cause auto regulator field
to stall to malfunction

Component Tested: U-1 Generator Severity: Fixed

Initial Conditions: 100% Power / mode / 5470°F = T_c / 100 ppm

Transient Initiator: 1 minute Timed Delay Relay

Duration of Test: .5 Hours

Parameters plotted:

None

Termination Criteria: _____

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate

Similar Plant Data FSAR

Reference: ROP-7E Main Turbine Malfunctions

Test Results SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Dennis B. King

Simulator Instructor

Reviewed By: _____

Simulator Instructor

Approved By: K. J. Tietjan

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Loss of Stator Cooling Pumps

ANS-3.5, 1985 Requirement: 5.12 (17) Malfunction #: 141

Test Document Section Number: FG Date 7/16/85

Description of Test: Breaker Malfunction Causes a Loss of Stator
Liquid Cooling Pumps

Component Tested: 11:12 SCC PPS Severity: Fixed

Initial Conditions: 100% Power / 1mcc / 542°F T₆ / 610 mm Barium

Transient Initiator: 1 minute Time Delay (inserts Malfunction 141 for 11 pump)
3 minute Time Delay (inserts malfunction 141 for 12 pump)

Duration of Test: 0.5 Hours

Parameters plotted:

Termination Criteria: Reactor Trip on Pressurizer Pressure High or 5% level (low)

Acceptance Criteria (Baseline Data):

- Plant Data
- RETRAN
- Best Estimate
- Similar Plant Data
- FSAR

Reference: Model Specification - MSC-006

Test Results SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Dennis B. King

Simulator Instructor

Reviewed By: _____

Simulator Instructor

Approved By: K J Trejan

Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Loss of Offsite Power

ANS-3.5, 1985 Requirement: 2.1.2 (3) Malfunction #: 149

Test Document Section Number: F6 Date 10-29-90

Description of Test: Loss of Transmission Lines 5051 & 5052 results in turbine and reactor trip. Safeguards electrical buses are powered by the emergency diesel and natural circulation is reestablished

Component Tested: _____ Severity: Fixed

Initial Conditions: 100% Power incl Equil Xenon

Transient Initiator: Malfunction 149

Duration of Test: 1 Hours

Parameters plotted:

REACTOR POWER, RCS TEMPERATURES, PRESSURIZER PARAMETERS, COND STEAM TANK LEVELS, SUBCOOLED MARGIN, S/G PRESS/LEVEL

Termination Criteria: Power restored to normal with offsite lines reenergized

Acceptance Criteria (Baseline Data):

Plant Data _____ RETRAN Best Estimate
_____ Similar Plant Data _____ FSAR

Reference: EOP-1 EOP-2 (LOSS OF OFFSITE POWER)
(FAST TRIP IMMEDIATE ACTION)

Test Results

SAT UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comment=:

Performed By: *RB*
Simulator Instructor

Reviewed By: *E. Ch...*
Simulator Instructor

Approved By: *C. ...*
Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Loss of 500 KV / 13KV Service Transformers

ANS-3.5, 1985 Requirement: 3.1.2 (b3) Malfunction #: 150

Test Document Section Number: FL6 Date 10/16/85

Description of Test: Short to Ground Causes Loss of 13 KV Service Transformers (Two Tests One for each Transformer)

Component Tested: 13000-1, 13000-2 ^{Transformers} Severity: Fixed

Initial Conditions: 100% Power / max / TC-SAT / 610 ppm Boron

Transient Initiator: Push button inserts malfunction 150

Duration of Test: 1 Hours

Parameters plotted: None

Termination Criteria: Panel indication Verified

Acceptance Criteria (Baseline Data):
 Plant Data RETRAN Best Estimate
 Similar Plant Data FSAR

Reference: Print 1E-1, ACP-7I - loss of Electrical Buses, Model Specification MSC-713

Test Results SAT / UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: P. Dennis B. King
Simulator Instructor

Reviewed By: _____
Simulator Instructor

Approved By: K. J. Tietzen
Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Loss of 13KV Service Bus

ANS-3.5, 1985 Requirement: 2.1.2 (a) Malfunction #: 151

Test Document Section Number: F6 Date 7/12/85

Description of Test: Ground Fault Causes a Loss of 13KV Service Bus

Component Tested: 13KV Bus 11 13KV Bus 21 Severity: Fixed

Initial Conditions: 100% Power / 10000 / 547.2 Te / 600 ppm Br 20

Transient Initiator: Fish Baiton inserts 100 malfunction 151

Duration of Test: .5 Hours

Parameters plotted:
None

Termination Criteria: Panel Indications Verified

Acceptance Criteria (Baseline Data):

- Plant Data
- RETRAN
- Best Estimate
- Similar Plant Data
- FSAR

Reference: Print 1-E-1 / ADP-71 - Loss of Power to Electrical Buses
Model Specifications WMSC-017

Test Results SAT / UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Dennis King
Simulator Instructor

Reviewed By: _____
Simulator Instructor

Approved By: KJ TURTAN
Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Loss of a 41kV Bus

ANS-3.5, 1985 Requirement: 3.1.2(e3) Malfunction #: 153

Test Document Section Number: FL Date 7/1/85

Description of Test: Ground Fault Causes loss of 4kV Bus

Component Tested: Buses 11, 12, 13, 14, 15, 16 Severity: Fixed

Initial Conditions: 100% Power / max / 547°F / 610 PPM Boron

Transient Initiator: PUSH BUTTON INSERTS malfunctions 157

Duration of Test: 2 Hours

Parameters plotted:
None

Termination Criteria: Panel Indications Verified

Acceptance Criteria (Baseline Data):
 Plant Data RETRAN Best Estimate
 Similar Plant Data FSAR

Reference: Prints IE-5, App-7E loss of Electrical Buses / model
Specification MSL-013

Test Results SAT / UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: K.J. Tietzen

Simulator Instructor

Reviewed By: _____

Simulator Instructor

Approved By: K.J. Tietzen

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Loss of 480 VAC Unit Bus

ANS-3.5, 1985 Requirement: 3.1.2 (43) Malfunction #: 154

Test Document Section Number: _____ Date 7/9/85

Description of Test: Short to Ground Causes Loss of 480V BUS.

Component Tested: 11A, 11B, 12A, 12B, 13A, 13B, 14A, 14B, 15 Severity: Fixed

Initial Conditions: 100% MOE / 5479 Te / 610 ppm Boron

Transient Initiator: Push button inserts malfunction 154

Duration of Test: 2 Hours

Parameters plotted:

NONE

Termination Criteria: Panel Indications Verified

Acceptance Criteria (Baseline Data):

- Plant Data RETRAN Best Estimate
- Similar Plant Data FSAR

Reference: Print: 1E-9, AOP-7E Loss of Electrical Buses, Mod/Sym/Function 2
MSC-013

Test Results

SAT / UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: K. J. Tieszen

Simulator Instructor

Reviewed By: _____

Simulator Instructor

Approved By: K. J. Tieszen

Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Loss of 480V Reactor MCC

ANS-3.5, 1985 Requirement: ANS 3.1.2.10.3 Malfunction #: 155

Test Document Section Number: FL6 Date 7/4/85

Description of Test: Ground fault causes loss of Reactor MCC

Component Tested: MCC 114, MCC-104 Severity: Fatal

Initial Conditions: 100% Power / MCC / Tc = 547°F / 610 ppm Boron

Transient Initiator: Push button inserts malfunction ISI

Duration of Test: 15 Hours

Parameters plotted:
None

Termination Criteria: Panel Indicators Verified

Acceptance Criteria (Baseline Data):
 Plant Data RETRAN Best Estimate
 Similar Plant Data FSAR

Reference: 1E-13, APP-7E Loss of Electrical Buses, Model Specification - MSC #13

Test Results SAT / UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

NONE.

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: K. J. Tietz

Simulator Instructor

Reviewed By: _____

Simulator Instructor

Approved By: K. J. Tietz

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Loss of Turbine (425V) MCC

ANS-3.5, 1985 Requirement: 3.1.2 (A3) Malfunction #: 156

Test Document Section Number: FG Date 7/9/85

Description of Test: Ground Caused Loss of Turbine MCC
MCC's 101AT, 117T Tested Together (117 supplied from 101AT)

Component Tested: (MCC 101AT, 117T) MCC 101BT, 106T, 116T Severity: Fixed

Initial Conditions: 100% Power / MCC (547°F; Te / 640 ppm)

Transient Initiator: Push button Activates malfunction

Duration of Test: 5⁽⁰⁾ Hours

Parameters plotted:
None

Termination Criteria: _____

Acceptance Criteria (Baseline Data):

- Plant Data RETRAN Best Estimate
- Similar Plant Data FSAR

Reference: AOP-7J Loss of Power to Electrical Buses /
Model Specifications MSC-413

Test Results SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Deann B. King

Simulator Instructor

Reviewed By: _____

Simulator Instructor

Approved By: KJ Tietjen

Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Loss of Pressurizer Heater (440V) MCC

ANS-3.5, 1985 Requirement: ANS 3.12(12) PRA Malfunction #: 157
577a

Test Document Section Number: FC Date 8/1/85

Description of Test: SHORT TO GROUND CAUSES A LOSS OF 440V
PRESSURIZER (MCC) HEATER.

Component Tested: 11, 12, 13, 14 HEATERS Severity: Fixed

Initial Conditions: 100% Power / MCC / T_K = 547°F / 610 ppm BORIC

Transient Initiator: 2, 3, 4, 5 minute delays after each loss of bus.

Duration of Test: 1 Hours

Parameters plotted:
BACK UP HEATER CURRENT / PRESSURIZER PRESSURE

Termination Criteria: DATA TAKEN

Acceptance Criteria (Baseline Data):
 Plant Data RETRAN Best Estimate
 Similar Plant Data FSAR

Reference: AOP-7I (LOSS OF POWER TO ELECTRICAL BUSES)

Test Results SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: DENNIS KING

Simulator Instructor

Reviewed By: _____

Simulator Instructor

Approved By: KEN TIETJEN

Supervisor Simulator Support

ATTACHMENT 3A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Loss of 120/208V AC Bus

ANS-3.5, 1985 Requirement: 3.1.2 (3) Malfunction #: 158

Test Document Section Number: F6 Date 12-3-90

Description of Test: Tested each bus individually. Inserted malfunction verified correct instrumentation was deenergized & receipt of correct alarms

Component Tested: 1Y09 & 1Y10 Severity: Fixed

Initial Conditions: 100% Power max Equil Xenon

Transient Initiator: Malfunction 158

Duration of Test: 1.2 Hours

Parameters plotted: None

Termination Criteria: VERIFICATION OF PANEL RESPONSE

Acceptance Criteria (Baseline Data):
 Plant Data RETRAN Best Estimate
 Similar Plant Data FSAR

Reference: AOP-7I Loss of Power to Electrical Busses
1E-22 DWG

Test Results SAT UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

_____ *None* _____

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: *P Best*
 Simulator Instructor

Reviewed By: *E Chapman*
 Simulator Instructor

Approved By: *C Andrews*
 Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Loss of 120V Vital Instrument Bus 1Y01

ANS-3.5, 1985 Requirement: 3.1.2(3d) Malfunction #: 159(1)

Test Document Section Number: F6 Date 12-1-90

Description of Test: 1Y01 deenergizes causing a loss of power to the Channel A protection instrumentation causing the indication to fail low and the associated bistables to trip resulting in numerous alarms (SG level & Press NIs Pressurizer level & press etc)

Component Tested: 1Y01 Severity: Fixed

Initial Conditions: 100% Power mod Equil Xenon

Transient Initiator: malfunction 159(1)

Duration of Test: .5 Hours

Parameters plotted:
None

Termination Criteria: Verify proper instruments deenergized and that Pressurizer heaters can be reenergized when control selected to "Y Channel" control.

Acceptance Criteria (Baseline Data):

- Plant Data RETRAN Best Estimate
- Similar Plant Data FSAR

Reference: AOP-7I IE-22 (ELECTRICAL PRINTS)

AOP-7I LOSS OF POWER TO ELECTRICAL BUSES

Test Results

SAT (Circle One)
UNSAT

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

Several thermocouples remain energized that should lose power

SMR #:	<u>1697</u>	Completed	<u>12-19-90</u>
			Date
SMR #:	<u>1181</u>	Completed	<u>12-19-90</u>
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

SMR-1697 scheduled for SPIN 90-13.

Performed By: Best

Simulator Instructor

Reviewed By: Edward [Signature]

Simulator Instructor

Approved By: C. Drews

Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Loss of 120V Vital Instrument Bus 1Y02

ANS-3.5, 1985 Requirement: 3.1.2(3d) Malfunction #: 159(2)

Test Document Section Number: F6 Date 12-11-90

Description of Test: 1Y02 deenergizes causing a loss of power to Channel B protection instrumentation, causing the indication to fail low and the associated bistables to trip resulting in numerous alarms (SG level pressure, Pressurizer level, pressure) N2 etc)

Component Tested: 1Y02 Severity: Fixed

Initial Conditions: 100% Power MOC Equil Xenon

Transient Initiator: Malfunction 159(2)

Duration of Test: .5 Hours

Parameters plotted:

None

Termination Criteria: Verify proper instruments deenergized

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate

Similar Plant Data FSAR

Reference: AOP-7I 1E-22 (ELECTRICAL PRINT)

AOP-7I - LOSS OF POWER TO ELECTRICAL BUSES

Test Results

SAT/UNSAT (Circle One)

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

AFW Control FIC-4511A ; FIC 4512A should deenergized. Steam Flow
Feed flow recorder FR 1021/1121 should deenergize.

SMR #:	<u>1672</u>	Completed	<u>12-19-90</u>
			Date
SMR #:	<u>1645</u>	Completed	<u> </u>
			Date
SMR #:	<u> </u>	Completed	<u> </u>
			Date

Comments:

SMR-1645 IN PLANNING STAGE FOR
1ST QUATER OF '91.

SMR doesn't detract from training.

Performed By: RBent

Simulator Instructor

Reviewed By: E. Chapp

Simulator Instructor

Approved By: C. S. Reed S

Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Loss of 120v Vital Instrument Bus 1Y03

ANS-3.5, 1985 Requirement: 3.1.3 (3d) Malfunction #: 159(3)

Test Document Section Number: FB Date 12-12-90

Description of Test: 1Y03 deenergizes causing a loss of power to Channel C protection instrumentation, causing the indication to fail low and the associated bistables to trip resulting in numerous alarms. (SS level pressure, Pressurize level pressure) etc

Component Tested: 1Y03 Severity: fixed

Initial Conditions: 100% Power MOC Equil Xenon

Transient Initiator: Malfunction 159(3)

Duration of Test: .5 Hours

Parameters plotted:

None

Termination Criteria: Verify proper instruments deenergized.

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate

Similar Plant Data FSAR

Reference: AOP-7I 1E-22 (ELECTRICAL PRINT)

AOP-7I - LOSS OF POWER TO ELECTRICAL BUSES

Test Results

SAT UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

12 RCS loop saturation margin monitor indicates "zero" and
should have a valid reading.

SMR #: 1878 Completed _____
Date _____
SMR #: _____ Completed _____
Date _____
SMR #: _____ Completed _____
Date _____

Comments: not critical to the training value of this
malfunction

Performed By: Rbert

Simulator Instructor

Reviewed By: Andrews

Simulator Instructor

Approved By: Andrews

Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Loss of 120v Vital Instrument Bus 1Y04

ANS-3.5, 1985 Requirement: 3.1.2(3d) Malfunction #: 159(4)

Test Document Section Number: F6 Date 12-12-90

Description of Test: Short to ground on 1Y04 causes bus to deenergize, causing loss of power to Channel D Protection Channels causing them to fail to and trip their associated bistables (i.e. level & pressure NIs, flow etc). Several RMS channels also deenergized

Component Tested: 1Y04 Severity: fixed

Initial Conditions: 100% mod Equil Xenon

Transient Initiator: Malfunction 159(4)

Duration of Test: .5 Hours

Parameters plotted:

None

Termination Criteria: Verification of proper alarm response and correct instrumentation deenergized.

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate

Similar Plant Data FSAR

Reference: WR-7I 1E-22A (ELECTRICAL PRINT)

AOP-7I - LOSS OF POWER TO ELECTRICAL BUSES

Test Results

SAT/UNSAT (Circle One)

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

12 RCS Loop Saturation margin Monitor reads 0.0 and should read
normally

SMR #: 1878 Completed _____
Date

SMR #: _____ Completed _____
Date

SMR #: _____ Completed _____
Date

Comments: not critical to the training value of this
malfunction

Performed By: Rbut

Simulator Instructor

Reviewed By: Chrews

Simulator Instructor

Approved By: Chrews

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Loss of 250V Emergency DC Bus

ANS-3.5, 1985 Requirement: 3.1.2 (03) Malfunction #: 160

Test Document Section Number: F-6 Date 11/19/84

Description of Test: Ground fault causes loss of 250V DC Emergency DC Bus (All pumps powered) from bus at start attempted

Component Tested: _____ Severity: Fixed

Initial Conditions: 100% / mac / Tc = 942%

Transient Initiator: Push button inserts malfunction 160

Duration of Test: 0.25 Hours

Parameters plotted:

None

Termination Criteria: Panel Indications Verified

Acceptance Criteria (Baseline Data):

- Plant Data RETRAN Best Estimate
- Similar Plant Data FSAR

Reference: Model Specification - MSC-013 / AOP-7I
Loss of Power to Electrical Buses

Test Results

SAT / UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

NONE

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Dennis B. King

Simulator Instructor

Reviewed By: _____

Simulator Instructor

Approved By: K. J. TERTJAN

Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Failure of an Emergency Diesel Generator to Start

ANS-3.5, 1985 Requirement: ANS 3.1.2 (03) Malfunction #: 161

Test Document Section Number: F6 Date 11/1/85

Description of Test: EACH Diesel Generator Tested. Each Diesel Generator Started, Then Malfunction Trips. Restart is attempted Manually and Automatically (SIRAS AND UV)

Component Tested: 11, 12/21 EDG Severity: Fixed

Initial Conditions: 100% Power / MOE / 5422° Fc / 6.10ppm Boron

Transient Initiator: Forced malfunction.

Duration of Test: 1 Hours

Parameters plotted:

NONE

Termination Criteria: Panel Indications Verified

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate

Similar Plant Data FSAR

Reference: Model Specification # MSC-012

Test Results

SAT / UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None.

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Dennis B. King

Simulator Instructor

Reviewed By: _____

Simulator Instructor

Approved By: K. J. Tietzen

Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Loss of 125VDC Buses

ANS-3.5, 1985 Requirement: 3.1.2 (D3) Malfunction #: 167

Test Document Section Number: F6 Date 10/16/85

Description of Test: 4 individual tests that cause a loss of 11, 12, 13 OR 14 125VDC Buses

Component Tested: 11, 12, 13, 14 125VDC BUS Severity: Fixed

Initial Conditions: 100% Power / max / TC = 54.7°F / 610 ppm

Transient Initiator: Push button inserts malfunction

Duration of Test: ? Hours

Parameters plotted:

None

Termination Criteria: Panel indication Verification

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate

Similar Plant Data FSAR

Reference: Model Spec MSC-013 AOP-TI (LOSS OF POWER TO ELECTRICAL BUSES)
1E-24, 1E-25, 2E-24, 2E-25 (ELECTRICAL PRINTS)

Test Results

SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Dennis B. King
Simulator Instructor

Reviewed By: _____
Simulator Instructor

Approved By: K.J. Tiersan
Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Loss of Condenser Vacuum

ANS-3.5, 1985 Requirement: ANS 3.1.2 (a5) Malfunction #: 163

Test Document Section Number: FG Date 10/16/85

Description of Test: Test (1): 5% of Cond vac pump capacity, No TRIP

Test (2) 150% Condenser Vacuum pump capacity

Component Tested: N/A

Severity: 0-150% Cond. Vac. pp Capacity

Initial Conditions: 100% Power / moc / Te=547°F / 610 ppm Boron

Transient Initiator: AIR LEAKAGE INTO CONDENSER (7 second 2 minute delay)

Duration of Test: .25 Hours

Parameters plotted:

Condenser Vacuum, Condensate Temperature, Generator Power, Nuclear Power, Per Pressure, Per Level, Loop 112 Trist

Loop 112 Te, 11'12 SG Press, 11'12 SG Level, 11'12 S/G Flow, 11'12 Feedwater Flow, Main Turbine Speed, 11'12 SGFP Turbine Controller Output %

Termination Criteria: Conditions Stabilize Reactor TRIP

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate

Similar Plant Data FSAR

Reference: Model Specification: MSP-109 AOP-76 Partial Loss of Condenser Vacuum

Test Results

SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #: _____ Completed _____
Date

SMR #: _____ Completed _____
Date

SMR #: _____ Completed _____
Date

Comments:

Performed By: Dennis B. King
Simulator Instructor

Reviewed By: _____
Simulator Instructor

Approved By: K. J. TETTAN
Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: HOTWELL Level Transmitter I-LT-4405 Fail high or low

ANS-3.5, 1985 Requirement: ANS(PS) Malfunction #: 164

Test Document Section Number: FLC Date 2/16/85

Description of Test: HOTWELL level Transmitter is failed Low,
causing HIGH HOTWELL level, (2) HOTWELL level Transmitter failed high, causing
Low HOTWELL level

Component Tested: N/A Severity: Low/High

Initial Conditions: 100% Power, 1700, 547°F Te, 610ppm Boron

Transient Initiator: 2 minute (timed)

Duration of Test: .5 Hours

Parameters plotted:

Condenser HOTWELL level (I-LT-4405), Actual Level (I-LT-4405), II Condensate Storage Tank,
Condensate Spill Valve Position, Condensate Makeup Valve position,

Termination Criteria: Panel indication Verification

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate
 Similar Plant Data FSAR

Reference: Model Specification - MSC-dp3 / AOP-36

MALEFUNCTIONS OF THE MAIN FEEDWATER SYSTEM

Test Results

SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

NONE

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Dennis B. King

Simulator Instructor

Reviewed By: _____

Simulator Instructor

Approved By: K.J. Tietian

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Condenser Tube Leak Resulting in high Conductivity in Condensate AND Feedwater

ANS-3.5, 1985 Requirement: ? Malfunction #: 165

Test Document Section Number: Fl6 Date 10/16/85

Description of Test: MAJOR Tube failure Tested (Approximately 1000 GPM)

Component Tested: N/A Severity: Fixed (1000 GPM)

Initial Conditions: 100% Power / Max / TC = 54.7°C / 610 ppm BoreN

Transient Initiator: 2 minute delay

Duration of Test: .5 Hours

Parameters plotted:

Condenser Maxwell level, 11 Condensate Storage Tanks, Reactor Power, Condensate Spillover Valve Position, Condenser Tube Leak Flow

Termination Criteria: Panel indication Verification

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate

Similar Plant Data FSAR

Reference: Model Specification: MSP-109 / ACP-10 Abnormal Steam

GENERATOR CHEMISTRY

Test Results

SAT / UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Dennis B. King

Simulator Instructor

Reviewed By: _____

Simulator Instructor

Approved By: K. J. Tietjan

Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: LOSS OF CONDENSATE PUMP

ANS-3.5, 1985 Requirement: 3.1.2 (4)(10) Malfunction #: 166

Test Document Section Number: F.6 Date 1/8/85

Description of Test: COND PUMP BREAKER OPEN (w/ALARM)

AMPS & DISCHARGE PRESSURE DROPS, STANDBY PUMP STARTS.

LOSS OF ALL PUMPS CAUSES REACTOR TRIP ON LOW JFK LEVEL

Component Tested: 1-3 Severity: FIXED

Initial Conditions: 50% POWER, MOC, EQUIL XENON

Transient Initiator: MALFUNCTION 166

Duration of Test: .75 Hours

Parameters plotted:

NONE

Termination Criteria: PANEL INDICATION VERIFICATION

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate

Similar Plant Data FSAR

Reference: AOP 36 (FEEDWATER MALFUNCTIONS)

Test Results

SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

NONE

SMR #: _____ Completed _____
Date

SMR #: _____ Completed _____
Date

SMR #: _____ Completed _____
Date

Comments:

Performed By: DENNIS KINH

Simulator Instructor

Reviewed By: _____

Simulator Instructor

Approved By: KEN TIETJEN

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: TRIP of a Condensate Booster Pump

ANS-3.5, 1985 Requirement: 3.1.2(9)(o) Malfunction #: 167

Test Document Section Number: F6 Date 1/9/85

Description of Test: TRIP of Condensate Booster pump at 50% Power Causes Standby Pump to pick up.

Component Tested: 1,2,3 (1,12,13 pumps) Severity: Fixed

Initial Conditions: 51% Power / moc / Tc=540 / 719 rpm BURON

Transient Initiator: PUSH BUTTON (inserts malfunction)

Duration of Test: .5 Hours

Parameters plotted:

NONE

Termination Criteria: Each pump tested and panel indications Verified

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate

Similar Plant Data FSAR

Reference: Model Specification MSC-003, FOP-3 Loss of Feedwater

Test Results

SAT UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Dennis B King

Simulator Instructor

Reviewed By: _____

Simulator Instructor

Approved By: K. J. Tietgen

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: STEAM GENERATOR FEED PUMP TRIPANS-3.5, 1985 Requirement: 3.1.2(09)(10) Malfunction #: 170Test Document Section Number: FL6 Date 10/16/85Description of Test: SPURIOUS LOW SUCTION PRESSURE TRIP SIGNALComponent Tested: 1,2 (11.12 SGFP) Severity: FixedInitial Conditions: 100% POWER / MOC / T₀ = 547°F / 610 ppm BORONTransient Initiator: SPURIOUS LOW SUCTION PRESSURE TRIPDuration of Test: .25 Hours

Parameters plotted:

11.12 S/G Level, 11.72 Main Feed Water Flow, 11.12 Feed Pump Flow, 11.12 Feed Pump Speed,11.12 Feed Pump discharge pressure, 11.12 RWRV Differential PressureTermination Criteria: Panel indications Verified

Acceptance Criteria (Baseline Data):

 Plant Data RETRAN Best Estimate Similar Plant Data FSARReference: MSC-003, EOP 3 (Loss of Feedwater)

Test Results

 SAT / UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #: _____ Completed _____
Date
SMR #: _____ Completed _____
Date
SMR #: _____ Completed _____
Date

Comments:

Recent Plant change has Low Suction pressure ~~represented~~ Trip Bypassed, To be integrated into Simulator 12/17/90

Performed By: Dennis B King

Simulator Instructor

Reviewed By: _____

Simulator Instructor

Approved By: K. J. Tietjan

Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Failure of FWRY to fail open OR fail closed position

ANS-3.5, 1985 Requirement: 2.1.2 (a) Malfunction #: 171

Test Document Section Number: F6 Date 8/15/85

Description of Test: 11 S/G FWRY (CV-1111) fails open (TEST #1)
12 S/G FWRY (CV1121) fails closed (TEST #2)

Component Tested: 1,2 (CV-1111, CV1121) Severity: open/closed

Initial Conditions: 51% Power, MOC, 540°F, 719 BORAN

Transient Initiator: Time delay (2 minute)

Duration of Test: .1 Hours

Parameters plotted:

11+12 S/G level (narrow range), 11+12 S/G Feedwater flow, 11+12 S/G Steam flow

11+12 S/G Pressure, Nuclear Power, Pressurizer Pressure, 11+12 S/G Fuel Temp, 11+12 FWRY Position
11+12 FWRY Bypass Position

Termination Criteria: Panel indications Verified

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate

Similar Plant Data FSAR

Reference: Model Specifications MSC-0003

Test Results

SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

N/A

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Dennis B. King
Simulator Instructor

Reviewed By: _____
Simulator Instructor

Approved By: T. J. Tietjan
Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Erratic operation of the feed regulating valve in Automatic

ANS-3.5, 1985 Requirement: F6 Malfunction #: 173

Test Document Section Number: 3.1.2(9) Date 8-20-90

Description of Test: Feed regulating valve oscillates $\pm 20\%$ due to noise. The oscillating valve position causing variations in feed flow and levels of the SG.

Component Tested: 11 & 12 Severity: fixed

Initial Conditions: 50% power MFC Equil Xenon.

Transient Initiator: mal 173

Duration of Test: 2 Hours

Parameters plotted: Feedwater Reg Valve Position, SG level,

Termination Criteria: Verification of erratic operation of the feed reg valve by observation of level, valve position etc.

Acceptance Criteria (Baseline Data):
 Plant Data RETRAN Best Estimate
 Similar Plant Data FSAR

Reference: DOP-36, FEEDWATER MALFUNCTIONS.

Test Results SAT/UNSAT (Circle One)

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

none

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: RBert

Simulator Instructor

Reviewed By: Chew

Simulator Instructor

Approved By: Chew

Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Differential Pressure From FRV Delta Pressure fails High or Low

ANS-3.5, 1985 Requirement: 3.1.2 (9) Malfunction #: 174

Test Document Section Number: F-6 Date 7/22/85

Description of Test: Failure of PDIC 4516 High and Low, Failure at PDIC 4517 HIGH and LOW (each test done individually)

Component Tested: 1,2 (PDIC 4516, 4517) Severity: HIGH & LOW

Initial Conditions: 100% Power, MOC, Tc = 547°F, 610 ppm Boron (IC 13)

Transient Initiator: _____

Duration of Test: 1.5 hours

Parameters plotted:

56 11+12 FRV DIFFERENTIAL Pressure, 56 11+12 FRV Position, 11+12 SGFP TURBINE SPEED, 11+12 S/B level, 11+12 Main Feedwater Flow

Termination criteria: Reactor Trip on Low S/B level / INDICATIONS OBSERVED
FAILS HIGH FAILS LOW

Acceptance Criteria (Baseline Data):

____ Plant Data ____ RETRAN Best Estimate

____ Similar Plant Data ____ FSAR

Reference: Model Specification MSC-003

Test Results

SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

none

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Deana B. King
Simulator Instructor

Reviewed By: _____
Simulator Instructor

Approved By: K.J. Tietjan
Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Main Feed Line Rupture in Containment before Check Valve

ANS-3.5, 1985 Requirement: 3.1.2(20) Malfunction #: 175

Test Document Section Number: FL Date 8-20-90

Description of Test: Feed line rupture resulting in the affected SG depressurizing into the containment. Safety injection and containment isolation activation occur after the reactor trips on low level. Main feed MCV is shut after reactor trip and SG level recovers on Auxiliary Feed Water

Component Tested: 11 header Severity: 6 E6 16m/hr.

Initial Conditions: 100% Power mod Equil Xenon.

Transient Initiator: Malfunction 175

Duration of Test: .5 Hours

Parameters plotted:

SG wide range level, pressure and feed flow. Reactor Power, Auxiliary Feed Flow, Reactor Coolant average temperature, Containment Pressure and temperature

Termination Criteria: _____

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate
 Similar Plant Data FSAR

Reference: EOP-4, EXCESSIVE STEAM DEMAND
FSAR - CHAPTER 14

Test Results

SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: RBur

Simulator Instructor

Reviewed By: CAHrews

Simulator Instructor

Approved By: CAHrews

Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Main Feedline Break in Containment downstream of check valve

ANS-3.5, 1985 Requirement: 3.1.2 (20) Malfunction #: 176

Test Document Section Number: F6 Date 9-13-90

Description of Test: Break causes SG to blowdown to containment until dry. The resulting cooldown causes safety injection after the reactor trips. Containment Isolation and Containment Spray occurs on containment pressure. RCS cooldown stops when the SG goes dry

Component Tested: 11 hrs. 4/2 hrs. Severity: 0-02

Initial Conditions: 70% Power MOC Equil Xenon

Transient Initiator: Malfunction 176

Duration of Test: .8 Hours

Parameters plotted:

SG wide range level and pressure, main feedwater flow, auxiliary feed flow, reactor power, reactor coolant average temperature, containment temperature and pressure.

Termination Criteria: RCS cooldown terminated by SG blowing dry

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate

Similar Plant Data FSAR

Reference: EOP-4, EXCESSIVE STEAM DEMAND
FSAR - CHAPTER 14

Test Results

SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: RBent

Simulator Instructor

Reviewed By: Chrus

Simulator Instructor

Approved By: Chrus 12/17/90

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: FEEDWATER LINE RUPTURE OUTSIDE CONTAINMENT

ANS-3.5, 1985 Requirement: 3.1.2 (20) Malfunction #: 177

Test Document Section Number: F.6 Date 12-20-90

Description of Test: REACTOR TRIPS ON LOW STM GEN LEVEL AND
AUXILIARY FEED ACTIVATES TO RECOVER STEAM GENERATOR LEVELS

Component Tested: 1 Severity: 100% (6 EG)
13M/HR

Initial Conditions: 100% POWER, MOC, EQUIL XENON

Transient Initiator: MALEFUNCTION 177

Duration of Test: 1/2 Hours

Parameters plotted:

STM GEN LEVELS/PRESSURES, FEED FLOWS, APW FLOWS, REACTOR POWER
PRESSURIZER LEVEL/PRESSURE, CONTAINMENT PRESSURE

Termination Criteria: PLANT RECOVERING

Acceptance Criteria (Baseline Data):

- Plant Data RETRAN Best Estimate
- Similar Plant Data FSAR

Reference: _____

Test Results SAT UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

NONE

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: E. Chapman
Simulator Instructor

Reviewed By: E. Chapman
Simulator Instructor

Approved By: C. Andrews
Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Loss of Heater Drain Pump

ANS-3.5, 1985 Requirement: 3.1.2 (9)(10) Malfunction #: 150(1)

Test Document Section Number: F6 Date 7/23/85

Description of Test: Loss of 1 Running HEATER drain pump

Component Tested: 1(11 Heater drain pump) Severity: Fixed

Initial Conditions: 100% Power, MOC, 547°F, 610 ppm Boron (16.13)

Transient Initiator: _____

Duration of Test: .3 Hours

Parameters plotted:

11 Heater drain Tank level, 12 Heater drain Tank level, 11 Heater drain Tank

Termination Criteria: Indications in Simulator Verified

Acceptance Criteria (Baseline Data):

- Plant Data RETRAN Best Estimate
- Similar Plant Data FSAR

Reference: EOP-3 Loss of Feed Water

Test Results SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

NA

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Dennis King

Simulator Instructor

Reviewed By: _____

Simulator Instructor

Approved By: KJ. TIETJAN

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Feed Flow Transmitter Input to Control Fails Low

ANS-3.5, 1985 Requirement: 3.1.2(22) Malfunction #: 181

Test Document Section Number: F6 Date 8-27-90

Description of Test: Feed flow fails low, the water level controller responds by opening the feed reg valve (FRV) increasing actual feed flow to 5/6. As SG level increases the level dominance of the system takes control and slows feed flow to control SG level.

Component Tested: 11 Severity: low

Initial Conditions: 50% Power max Equil Xenon

Transient Initiator: malfunction 181

Duration of Test: .3 Hours

Parameters plotted:

SG level, main feedwater flow, Feed Reg Valve position, feedpump speed and suction flow

Termination Criteria: SG level stabil on program after the transient.

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate

Similar Plant Data FSAR

Reference: AOP-3G - MALFUNCTIONS OF MAIN FEEDWATER

Test Results

SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Rbut

Simulator Instructor

Reviewed By: CArews

Simulator Instructor

Approved By: CArews

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Feed Flow Transmitter Input to Control Fails High

ANS-3.5, 1985 Requirement: 3.1.2 (22) Malfunction #: 181

Test Document Section Number: F6 Date 8-27-90

Description of Test: Feed flow fails hi, the water level control system responds by closing the feed reg valve (FRV) causing SG level to decrease rapidly. As level decreases the level dominance of the system causes the FRV to start opening but not fast enough to prevent a low level reactor trip.

Component Tested: 12 Severity: High

Initial Conditions: 50% Power MOC Equil Xenon

Transient Initiator: Malfunction 181

Duration of Test: .3 Hours

Parameters plotted:

SG level, main feed flow, Feed Reg Valve position, feed pump speed and suction flow

Termination Criteria: Reactor Trip on SG low level

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate

Similar Plant Data FSAR

Reference: AOP-36, MALFUNCTIONS OF MAIN FEEDWATER SYSTEM

Test Results

SAT UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: *BBT*

Simulator Instructor

Reviewed By: *C. Andrews*

Simulator Instructor

Approved By: *C. Andrews*

Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: TRIP of a Turbine Driven Auxiliary Feedwater Pump

ANS-3.5, 1985 Requirement: 3.1.2 (10) Malfunction #: 183

Test Document Section Number: F6 Date 7/24/85

Description of Test: Throttle stop Valve fails shut on running
Turbine driven Auxiliary Feedwater pump

Component Tested: 2 (2 AFW Pump) Severity: Fixed

Initial Conditions: 100% Power, Mod, 547°F, 610 ppm Boron

Transient Initiator: _____

Duration of Test: 4 Hours

Parameters plotted:

11 SG Aux Feed Flow (F-4509), 11 SG Aux Feed Flow (F-4524)

12 SG Aux Feed Flow (F-4510), 12 SG Aux Feed Flow (F-4534)

Termination Criteria: Simulator Response Verification

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate

Similar Plant Data FSAR

Reference: FSAR Technical Specifications, Model Specification MSP-113

Test Results

SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #: _____ Completed _____
Date
SMR #: _____ Completed _____
Date
SMR #: _____ Completed _____
Date

Comments:

Performed By: Dennis B King
Simulator Instructor

Reviewed By: _____
Simulator Instructor

Approved By: K. J. Tietan
Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: AUXILIARY FEEDWATER LINE RUPTURE

ANS-3.5, 1985 Requirement: 3.1.2(23) Malfunction #: 185

Test Document Section Number: F.6 Date 12/19/90

Description of Test: STM LEN FEED PUMPS ARE TRIPPED, REACTOR TRIPS ON LOW S/G LEVEL AND AFAI INITIATES. THE MALFUNCTION IS ACTUATED WITH NO FLOW TO THE S/G, EXCESS FLOW ON THE PUMPS WITH DISCHARGE PRESSURE LESS THAN S/G. IF S/G RUPTURE IS UNCONTROLLABLE.

Component Tested: 2 & 3 Severity: FIXED

Initial Conditions: 100% MOC, EQUIL. XENON

Transient Initiator: MALFUNCTION 185

Duration of Test: 1/2 Hours

Parameters plotted:

AFW FLOWS, AFW DISCH PRESSURES, S/G PRESSURES

Termination Criteria: STABILITY AND VERIFICATION OF ISOLABILITY (WHERE APPLICABLE)

Acceptance Criteria (Baseline Data):

- Plant Data
- RETRAN
- Best Estimate
- Similar Plant Data
- FSAR

Reference: _____

Test Results

SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

NONE

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: *R. Hart*

Simulator Instructor

Reviewed By: *E. Chapman*

Simulator Instructor

Approved By: *C. Brown*

Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: FAILURE OF AUX FEED ACTUATION TO ACTUATE

ANS-3.5, 1985 Requirement: 3.1.2 (23) Malfunction #: 106

Test Document Section Number: F.6 Date 11/19/90

Description of Test: TRIP BOTH SG FEED PUMPS AT PANEL, REACTOR TRIPS ON LW S/G LEVEL, "AFAS ACTUATED" ALARM IN B4T COMPONENTS DO NOT ACTUATE ON THE SELECTED TRAIN.

Component Tested: A & B Severity: FIXED

Initial Conditions: 100% POWER, MOC, EQUIL XENON

Transient Initiator: MALEFUNCTION 106

Duration of Test: _____ Hours

Parameters plotted:

STM GENERATOR LEVELS, AFW FLOWS.

Termination Criteria: VERIFICATION OF PANEL INDICATIONS

Acceptance Criteria (Baseline Data):

_____ Plant Data _____ RETRAN Best Estimate

_____ Similar Plant Data _____ FSAR

Reference: _____

Test Results

SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: RBur

Simulator Instructor

Reviewed By: E. Chynoweth

Simulator Instructor

Approved By: CPrews

Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Failure of High Pressure Safety Injection (HPSI) Pump

ANS-3.5, 1985 Requirement: 3.1.2(23) Malfunction #: 188

Test Document Section Number: F6 Date 11-1-90

Description of Test: HPSI pump fails to start due to breaker failure. Ran in conjunction with malfunctions 189, 190, 191, 192 & 193. Tested all three pumps individually.

Component Tested: 11, 12 & 13 Severity: fixed.

Initial Conditions: 100% Power mod Equilibrium

Transient Initiator: LOCA (malfunction 38)

Duration of Test: .6 Hours

Parameters plotted:

None

Termination Criteria: Equipment status verification after safeguards activation

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate
 Similar Plant Data FSAR

Reference: _____

Test Results

SAT / UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: RBent

Simulator Instructor

Reviewed By: E Chymowski

Simulator Instructor

Approved By: CSH New 5

Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Failure of Low Pressure Safety Injection (LPSI) Pump

ANS-3.5, 1985 Requirement: 3.1.2(23) Malfunction #: 189

Test Document Section Number: F6 Date 11-1-90

Description of Test: LPSI pump fails to start due to breaker failure.

Tested in conjunction with malfunctions 188, 190, 191, 192 & 193. Tested both pumps individually

Component Tested: 11 & 12 Severity: fixed

Initial Conditions: 100% Power mol Equil Xenon

Transient Initiator: LOCA (malfunction 38)

Duration of Test: .6 Hours

Parameters plotted:

None

Termination Criteria: Equipment Status Verification after safeguards activation

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate

Similar Plant Data FSAR

Reference: _____

Test Results

SAT / UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: RBert

Simulator Instructor

Reviewed By: E Chyankali

Simulator Instructor

Approved By: CPHew5

Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Failure of Containment Spray Pump

ANS-3.5, 1985 Requirement: 3.1.2(23) Malfunction #: 190

Test Document Section Number: F6 Date _____

Description of Test: Containment Spray Pump fails to start due to breaker failure. Tested in conjunction with malfunctions 188, 189, 191, 192 & 193.

Both pumps test individually

Component Tested: 1C.5.12 Severity: Fixed

Initial Conditions: 100% Power MOC Equil Xenon

Transient Initiator: LOCA (malfunction 38)

Duration of Test: .6 Hours

Parameters plotted:
None

Termination Criteria: Equipment Status Verification after Safeguards actuation

Acceptance Criteria (Baseline Data):
 Plant Data RETRAN Best Estimate
 Similar Plant Data FSAR

Reference: _____

Test Results SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

none

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: RBut

Simulator Instructor

Reviewed By: E Chapman

Simulator Instructor

Approved By: C Andrews

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: High Pressure Safety Injection (HPSI) valves - fail as is

ANS-3.5, 1985 Requirement: 3.1.2(23) Malfunction #: 191

Test Document Section Number: F6 Date 11-1-90

Description of Test: HPSI valves SI-616, 626, 636 & 646 fail as is (Shut) on a safety injection actuation. Verified and open manually either Test run in conjunction with Malfunctions 188, 189, 190, 192 & 193

Component Tested: SI-616, 626, 636 & 645 Severity: fixed

Initial Conditions: 100% Power moc Equil Xenon

Transient Initiator: LOCA Malfunction 38

Duration of Test: 0.6 Hours

Parameters plotted:

None

Termination Criteria: Equipment status verification after safeguards actuation

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate

Similar Plant Data FSAR

Reference: _____

Test Results

SAT / UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: RBert

Simulator Instructor

Reviewed By: E. Chapman

Simulator Instructor

Approved By: C. A. Lewis

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Safety Injection Actuation System (SIAS) Automatic Actuation Fails.

ANS-3.5, 1985 Requirement: 3.1.2(23) Malfunction #: 196

Test Document Section Number: F6 Date 8-20-90

Description of Test: Tested in conjunction failure of manual safety injection Simulated LOCA verified no automatic safety injection occurs

Component Tested: N/A Severity: Fixed

Initial Conditions: 100% Power MOD Equil Xenon

Transient Initiator: Mal 38

Duration of Test: .2 Hours

Parameters plotted:

none

Termination Criteria: Verification of no automatic safety injection

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate

Similar Plant Data FSAR

Reference: EOP ATTACHMENTS) 2

Test Results

SAT UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

none

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: RBur
Simulator Instructor
Reviewed By: CAHewes
Simulator Instructor
Approved By: CAHewes
Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Failure of manual Safety Injection Actuation

ANS-3.5, 1985 Requirement 3.7 (23) Malfunction #: 197

Test Document Section Num. File Date 8-20-90

Description of Test: Tested in conjunction with failure of automatic safety injection. Failed both train A & B; inserted a LOCA and verified pushing the manual safety injection pushbuttons caused nothing to happen. Deleted the malfunction one train at a time and simulated each train manually individually.

Component Tested: Train A & B Severity: fixed

Initial Conditions: _____

Transient Initiator: _____

Duration of Test: .4 Hours

Parameters plotted:

Termination Criteria: Verification of proper equipment being controlled by each train of safety injection.

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate

Similar Plant Data FSAR

Reference: EOP ATTACHMENT (2)

Test Results

SAT / UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

none

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: RBat
Simulator Instructor
Reviewed By: CPHrews
Simulator Instructor
Approved By: CPHrews
Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Automatic Containment Spray Actuation Failure

ANS-3.5, 1985 Requirement: 3.1.2(23) Malfunction #: 199

Test Document Section Number: Flp Date 8-20-90

Description of Test: Tested simultaneously with malfunction 200. Inserted LOCA which causes containment pressure to exceed containment spray actuation setpoint and spray does not occur.

Component Tested: TR Train A's Severity: fixed

Initial Conditions: 100% Power MOC Equal Xenon

Transient Initiator: Malfunction 38

Duration of Test: .1 Hours

Parameters plotted:

none

Termination Criteria: verification automatic containment spray does not occur.

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate

Similar Plant Data FSAR

Reference: EOP- ATTACHMENT (3)

Test Results

SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

none

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: EBert

Simulator Instructor

Reviewed By: Chew

Simulator Instructor

Approved By: Chew

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Manual Containment Spray Actuation FailureANS-3.5, 1985 Requirement: 3.1.2(23) Malfunction #: 200Test Document Section Number: F6 Date 8-20-90Description of Test: Tested simultaneously with malfunction 199. Inserted LOCAno automatic spray actuation occurs verify neither train can be manually actuated.Delete malfunction actuate each train individually verifying proper equipment operationComponent Tested: Train A & B Severity: fixedInitial Conditions: 100% Power MOC Equil XenonTransient Initiator: Malfunction 38Duration of Test: 2 Hours

Parameters plotted:

noneTermination Criteria: verification of proper equipment operation as each train
is actuated individually

Acceptance Criteria (Baseline Data):

 Plant Data RETRAN Best Estimate Similar Plant Data FSARReference: EOP ATTACHMENT (3)

Test Results

SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: RBur

Simulator Instructor

Reviewed By: CPrews

Simulator Instructor

Approved By: CPrews

Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Failure of RAS signal to activate

ANS-3.5, 1985 Requirement: 2.1.2 (23) Malfunction #: 203

Test Document Section Number: F-6 Date 12/19/84

Description of Test: Failure of 2/4 Logic module

Component Tested: 1,2 (RAS CH.A + CH.B) Severity: Fixed

Initial Conditions: 100% Power, Mod, 547°F, 610ppm Boron (#13)

Transient Initiator: Manual Initiation RAS CH.A and CH.B

Duration of Test: .3 Hours

Parameters plotted:

NONE

Termination Criteria: Procedure CHECKLIST Completed

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate

Similar Plant Data FSAR

Reference: FSAR TECHNICAL SPECIFICATIONS Model Specifications Mod-017

Test Results

SAT UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Dennis B King
Simulator Instructor

Reviewed By: _____
Simulator Instructor

Approved By: K J. Tietjan
Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Failure of Diverse Steam Contactors to OpenANS-3.5, 1985 Requirement: _____ Malfunction #: 204Test Document Section Number: F16 Date 10-21-90Description of Test: Automatic reactor trip and power operated relief valves blocked. Pressure raised with heaters to >2450 psia. Steam contactors open on one rod drive motor generator and remains closed on the selected motor generator.Component Tested: 11 Rod Drive Motor Generator Severity: N/A ^{FIXED}Initial Conditions: 100% MOC Equil XenonTransient Initiator: malfunction 18Duration of Test: .4 Hours

Parameters plotted:

noneTermination Criteria: Reactor Manually Tripped by deenergizing 11 Rod Drive Motor Generator set.

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate
 Similar Plant Data FSAR

Reference: PCR 85-1052 PACKAGE, OI 42 SECTION 18 (CEDM OPERATION)

Test Results

(SAT) UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

_____ *none* _____

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: *R Best*
 Simulator Instructor

Reviewed By: *E. Ch...*
 Simulator Instructor

Approved By: *C. Andrew S*
 Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: False Containment Isolation Actuation.

ANS-3.5, 1985 Requirement: 3.1.2(23) Malfunction #: 205

Test Document Section Number: F6 Date 8-21-90

Description of Test: False actuation caused by 2 of 4 logic module actuation. Channel A & ch B tested individually. Verified proper alarms and equipment status

Component Tested: CHA & CHB Severity: Fixed

Initial Conditions: 100% Power MAC Equil Xenon

Transient Initiator: Malfunction 205

Duration of Test: .4 Hours

Parameters plotted:
none

Termination Criteria: Verification of Containment Isolation Actuation

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate

Similar Plant Data FSAR

Reference: EOP ATTACHMENT "CIS VERIFICATION"

Test Results

SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

_____ *None* _____

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: *RBW*

Simulator Instructor

Reviewed By: *E. Chapman*

Simulator Instructor

Approved By: *CRB*

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Containment Air Cooler Recirculating Fans Fails

ANS-3.5, 1985 Requirement: 3.1.2(23) Malfunction #: 207

Test Document Section Number: F6 Date 11-1-90

Description of Test: Electrical fault causes fan to trip. Tripped all four fans simultaneously to evaluate temperature rise in containment and its effect on pressurizer and SG levels ^{to} reference leg heatup.

Component Tested: 11, 12, 13 & 14 Severity: fixed

Initial Conditions: 100% Power mod Equil Xenon

Transient Initiator: malfunction 207

Duration of Test: .6 Hours

Parameters plotted:

Letdown Flow, Wet Level, Pwr Level, SG WR & NR Level, Containment Temperature, Pwr Reference leg temperature.

Terminat' Criteria: _____

Acceptance Criteria (Baseline Data):

____ Plant Data _____ RETRAN Best Estimate

____ Similar Plant Data _____ FSAR

Reference: EOP ATTACHMENTS 8 + 9.

Test Results

~~SAT~~/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

Alarm indication for 13 fan is incorrect, does not agree
with schematics.

SMR #:	<u>1589</u>	Completed	<u>12-19-90</u>
			Date
SMR #:	<u> </u>	Completed	<u> </u>
			Date
SMR #:	<u> </u>	Completed	<u> </u>
			Date

Comments:

SMR TO BE CORRECTED IN SPIN 90-13.

Performed By: RBent

Simulator Instructor

Reviewed By: Andrews

Simulator Instructor

Approved By: Andrews

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Fuel Pin FailureANS-3.5, 1985 Requirement: F6 Malfunction #: 213Test Document Section Number: 3.1.2(14) Date 9-13-90Description of Test: Fuel failure occurs while increasing power from 50% to 70% causes RCS activity to increase as indicated on Gross Coolant Activity records.Component Tested: N/A Severity: FixedInitial Conditions: 50% Power MOC Equal XenonTransient Initiator: Malfunction 213Duration of Test: .7 Hours

Parameters plotted:

Termination Criteria: Verification of increased RCS activity on Process Rad Monitor R5202

Acceptance Criteria (Baseline Data):

 Plant Data RETRAN Best Estimate Similar Plant Data FSARReference: AOP-6A, HIGH REACTOR COOLANT ACTIVITY, ALARM MANUAL

Test Results

 SAT/UNSAT (Circle One)

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

Reactor coolant activity increase too quickly.

SMR #: 16806 Completed _____
Date

SMR #: _____ Completed _____
Date

SMR #: _____ Completed _____
Date

Comments:

SMR is based on "unrealistic" increase in RCS activity, students however see a gradual increase in activity on ~~the~~ monitor: a

Performed By: [Signature]

Simulator Instructor

Reviewed By: [Signature]

Simulator Instructor

Approved By: [Signature]

Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Accidental Release of Waste Gas

ANS-3.5, 1985 Requirement: _____ Malfunction #: 216

Test Document Section Number: FL Date 9-26-90

Description of Test: Valve O-RV-2182 fails open releasing waste gas to the plant vent causing plant vent radiation levels to increase to the point of alarming.

Component Tested: RV-2182 Severity: Fixed

Initial Conditions: 100% Power MCC Equil Xenon.

Transient Initiator: Malfunction 216

Duration of Test: .3 Hours

Parameters plotted:

Gaseous Waste Discharge Rms, Gaseous Main Vent Rms,

Termination Criteria: Verification of proper radiation monitoring system response.

Acceptance Criteria (Baseline Data):

_____ Plant Data _____ RETRAN Best Estimate

_____ Similar Plant Data _____ FSAR

Reference: _____

Test Results

SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

Inadequate Plant Vent RMS response.

SMR #: 1877 Completed _____
Date _____
SMR #: _____ Completed _____
Date _____
SMR #: _____ Completed _____
Date _____

Comments:

Performed By: RBut _____

Simulator Instructor

Reviewed By: C Andrews _____

Simulator Instructor

Approved By: C Andrews _____

Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: HIGH RADIATION ALARMS ON PROCESS RADIATION MONITORS

ANS-3.5, 1985 Requirement: 3.1.2(22) Malfunction #: 219

Test Document Section Number: F.6 Date 1/29/85

Description of Test: RADIATION MONITOR FAILS IN CONDITION
SELECTED BY THE INSTRUCTOR

Component Tested: 15 Severity: 150%

Initial Conditions: 100% POWER, MOC, EQUIL XENON

Transient Initiator: MALFUNCTION 219

Duration of Test: .25 Hours

Parameters plotted:

NONE

Termination Criteria: PANEL VERIFICATION COMPLETE

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate

Similar Plant Data FSAR

Reference: _____

Test Results

SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

NONE

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: DENNIS KING

Simulator Instructor

Reviewed By: _____

Simulator Instructor

Approved By: KEN TIEJEN

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: HIGH RADIATION ALARMS ON PROTECTIVE RADIATION MONITORSANS-3.5, 1985 Requirement: 3.1.2(22) Malfunction #: 219Test Document Section Number: F.6 Date 1/29/85Description of Test: RADIATION MONITORS FAIL IN A HIGH
CONDITION CAUSING ALARM WHICH CAN BE BYPASSED AT
1022 H.Component Tested: 1-14 Severity: FIXEDInitial Conditions: 100% MOE, EQUIL VELOWTransient Initiator: MALFUNCTION 219Duration of Test: 1 Hours

Parameters plotted:

NONETermination Criteria: PANEL VERIFICATION COMPLETE

Acceptance Criteria (Baseline Data):

 Plant Data RETRAN Best Estimate Similar Plant Data FSAR

Reference: _____

Test Results

SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

NONE

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: DENNIS KING

Simulator Instructor

Reviewed By: _____

Simulator Instructor

Approved By: KEN TIETJEN

Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: LOSS OF COMPONENT COOLING PUMP

ANS-3.5, 1985 Requirement: 3.1.2 (7) Malfunction #: 223

Test Document Section Number: F 6 Date 8/1/85

Description of Test: COMPONENT COOLING PUMP BREAKER TRIPS
CAUSING ALARM, TEMPERATURES INCREASE ON CCW SUPPLIED
EQUIPMENT UNTIL RESTORED BY A STANDBY PUMP, 2 PUMP
2 HX LINEUP IS ALSO TESTED.

Component Tested: 1-3 Severity: FIXED

Initial Conditions: 100% POWER, MOC, 5&416 XENON

Transient Initiator: MALFUNCTION 223

Duration of Test: 1/2 Hours

Parameters plotted:

COMPONENT COOLING HX OUTLET TEMPERATURES, LETDOWN HX/
REGEN HX OUTLET TEMPS, VCT TEMP, COMP CLB FLOW FROM RCPs

Termination Criteria: PANEL INDICATIONS VERIFIED

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate

Similar Plant Data FSAR

Reference: PANEL INDICATIONS AOP-7C (LOSS OF COMPONENT COOLING)

Test Results

SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

NONE

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: DENNIS KING

Simulator Instructor

Reviewed By: _____

Simulator Instructor

Approved By: KEN TIETJEN

Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: LOSS OF SERVICE WATER PUMP

ANS-3.5, 1985 Requirement: 3.1.2 (6) Malfunction #: 224

Test Document Section Number: F.6 Date 8/1/85

Description of Test: BREAKER TRIP OF SERVICE WATER PUMP
CAUSE ALARM AND LOW PRESSURES AND HI TEMPERATURES
WITH ASSOCIATED ALARMS ON PANELS

Component Tested: 1-3 Severity: FIXED

Initial Conditions: 100% POWER, MOC, EQUIL XENON

Transient Initiator: MALEFUNCTION 224

Duration of Test: .75 Hours

Parameters plotted:

NONE

Termination Criteria: PANEL INDICATIONS VERIFIED

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate
 Similar Plant Data FSAR

Reference: ROP-7B (LOSS OF SERVICE WATER)

Test Results

SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: DENNIS KING
Simulator Instructor

Reviewed By: _____
Simulator Instructor

Approved By: KEW TICTJEN
Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: LOSS OF SALT WATER PUMP

ANS-3.5, 1985 Requirement: 3.1.2 (7) Malfunction #: 225

Test Document Section Number: F.6 Date 8/2/85

Description of Test: BREAKER TRIP OF SALT WATER PUMP
CRUISE ALARM AND LOW PRESSURES AND HI TEMPERATURES
WITH ASSOCIATED ALARMS ON PANELS

Component Tested: 1-3 Severity: FIXED

Initial Conditions: 100% POWER, MOC, EQUIC XENON

Transient Initiator: MALFUNCTION 225

Duration of Test: 1/2 Hours

Parameters plotted:
NONE

Termination Criteria: PANEL INDICATIONS VERIFIED

Acceptance Criteria (Baseline Data):
 Plant Data RETRAN Best Estimate
 Similar Plant Data FSAR

Reference: ROP 7A (LOSS OF SALT WATER)

Test Results SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ALSTRACT

Deficiency Found:

NONE

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: DENNIS KING

Simulator Instructor

Reviewed By: _____

Simulator Instructor

Approved By: KEN TIETJEN

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: LOSS OF SERVICE WATER TO TURBINE BUILDING

ANS-3.5, 1985 Requirement: 3.1.2 (6) Malfunction #: 226

Test Document Section Number: F.6 Date 7/31/85

Description of Test: CVC TO TURBINE BUILDING FAIL CLOSED
CAUSING TEMPERATURE INCREASES ON TURBINE BUILDING
COMPONENTS

Component Tested: 1 Severity: FIXED

Initial Conditions: 100% POWER, MOC, EQUIL XENON

Transient Initiator: MALFUNCTION 226

Duration of Test: 1/2 Hours

Parameters plotted:
NONE

Termination Criteria: PANEL INDICATIONS, PLANT COMPUTER COMPONENT
ALARMS VERIFIED

Acceptance Criteria (Baseline Data):

- Plant Data RETRAN Best Estimate
- Similar Plant Data FSAR

Reference: AOP 2B (LOSS OF SERVICE WATER)

Test Results

SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

NONE

SMP #: _____ Completed _____
Date

SMR #: _____ Completed _____
Date

SMR #: _____ Completed _____
Date

Comments:

Performed By: DENNIS KING

Simulator Instructor

Reviewed By: _____

Simulator Instructor

Approved By: KEN TIETJEN

Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Loss of Instrument Air

ANS-3.5, 1985 Requirement: 3.1.2 (2) Malfunction #: 227

Test Document Section Number: F6 Date 8-23-90

Description of Test: Rupture downstream of 113/2 after filter causes Instrument Air header to depressurize. IA system alarms are verified and air operated valves failing to the correct position are verified.

Component Tested: _____ Severity: Fixed

Initial Conditions: 100% Power mac Equil Xenon.

Transient Initiator: Malfunction 227

Duration of Test: 1.3 Hours

Parameters plotted: none

Termination Criteria: Verification of the air operated valves being in the correct "failed" position

Acceptance Criteria (Baseline Data):
 Plant Data _____ RETRAN _____ Best Estimate
 Similar Plant Data _____ FSAR

Reference: AOP-70, LOSS OF INSTRUMENT AIR, & P&ID's.

Test Results (SAT) UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

11 and 12 component cooling heat exchange saltwater outlet isolation
valves fail incorrectly

SMR #:	<u>1253</u>	Completed	<u> </u> Date
SMR #:	<u> </u>	Completed	<u> </u> Date
SMR #:	<u> </u>	Completed	<u> </u> Date

Comments:

Performed By: P. Best

Simulator Instructor

Reviewed By: C. Andrews

Simulator Instructor

Approved By: C. Andrews

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Loss of Instrument Air in Containment

ANS-3.5, 1985 Requirement: 3.1.2(2) Malfunction #: 228

Test Document Section Number: F6 Date 8-21-90

Description of Test: An instrument air pipe rupture downstream of 1-IA-2080 causes all components of 1-IA-2085 to lose air and go to their fail position. Correct valve position and alarm response is verified.

Component Tested: _____ Severity: Variable

Initial Conditions: 100% Power MOC Equil Xenon

Transient Initiator: malfunction 228

Duration of Test: .4 Hours

Parameters plotted:

none

Termination Criteria: Verification of Air operated valves failing in correct position.

Acceptance Criteria (Baseline Data):

Plant Data _____ RETRAN _____ Best Estimate:

_____ Similar Plant Data _____ FSAR

Reference: AOP-7D - LOSS OF INSTRUMENT AIR,
PE ID's.

Test Results

SAT / UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

none

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: RBH

Simulator Instructor

Reviewed By: Andrew S

Simulator Instructor

Approved By: Andrew S

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Loss of Component Cooling Water to Containment

ANS-3.5, 1985 Requirement: 3.1.2(8) Malfunction #: 233

Test Document Section Number: F.6 Date 10-21-90

Description of Test: Failure of I-CV-3832 control system isolating component cooling to containment causing reactor coolant pump seal and bearing temperatures increase. The valve could be reopened from ICIO.

Component Tested: N/A Severity: ~~N/A~~ FIXED

Initial Conditions: 100% MOC Equil Xenon

Transient Initiator: Malfunction 233

Duration of Test: 2 Hours

Parameters plotted: None

Termination Criteria: Verification of Increasing Temperature on Reactor Coolant Pumps

Acceptance Criteria (Baseline Data):
 Plant Data RETRAN Best Estimate
 Similar Plant Data FSAR

Reference: ALARM MANUAL ICIO, AOP 7C, OI-1A GENERAL

PRECAUTIONS
(REACTOR COOLANT PUMP OPERATIONS)

Test Results SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TF ABSTRACT

Deficiency Found:

None
INFORMATION IN OI 1A GENERAL PRECAUTIONS NOTES THAT IIRG
TEMP SHOULD INCREASE 50° OVER 7min, INCREASE OCCURRED IN 3min

SMR #:	<u>1876</u>	Completed	<u> </u>
			Date
SMR #:	<u> </u>	Completed	<u> </u>
			Date
SMR #:	<u> </u>	Completed	<u> </u>
			Date

Comments:

APPROPRIATE RESPONSE IS GIVEN DURING THE
MALFUNCTION, HOWEVER THE RESULTS ^{CAN} ~~NEED TO~~ BE
MORE REALISTIC.

Performed By: BBT

Simulator Instructor

Reviewed By: E. Chapman

Simulator Instructor

Approved By: C. A. Lewis

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: LOSS OF MOTOR DRIVEN AFW PUMP

ANS-3.5, 1985 Requirement: 3.1.2(10) Malfunction #: 234

Test Document Section Number: F.6 Date 8/6/85

Description of Test: TRIPPED MAIN FW PUMPS UNTIL AUX FEED ACTUATION OCCURS, 12 AFW PP IS TRIPPED AND RESPONSE IS VERIFIED VIA PUMP AMPS AND FLOW.

Component Tested: 12 AFW PP Severity: FIXED

Initial Conditions: 100% POWER, MOC, EQUIL XENON

Transient Initiator: MALFUNCTION 234

Duration of Test: .25 Hours

Parameters plotted: AUX FEEDWATER FLOWS

Termination Criteria: PANEL INDICATIONS VERIFIED

Acceptance Criteria (Baseline Data):

- Plant Data
- RETRAN
- Best Estimate
- Similar Plant Data
- FSAR

Reference: _____

Test Results

SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

NONE

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: DENNIS KING

Simulator Instructor

Reviewed By: _____

Simulator Instructor

Approved By: KEN TIETJEN

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Core Exit Thermocouple (CET) Meter Failure

ANS-3.5, 1985 Requirement: N/A Malfunction #: 238

Test Document Section Number: F6 Date 11-20-90

Description of Test: Failed the CET meters one high one low and one erraticly.
All CETs selected to the failed meters read erroneously while reading
correctly on the plant computer.

Component Tested: TI-131A, 131D, 132C Severity: Variable

Initial Conditions: 100% Power MOC Equil Xenon

Transient Initiator: malfunction 238

Duration of Test: .5 Hours

Parameters plotted:

none

Termination Criteria: Verification of CET meter failure by checking the indication
against value on plant computer.

Acceptance Criteria (Baseline Data):

- Plant Data RETRAN Best Estimate
- Similar Plant Data FSAR

Reference: TECH MANUAL, SYSTEM EXPERT (D. SEHRUMPF)

Test Results SAT / UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: *R Best*

Simulator Instructor

Reviewed By: *E Chapman*

Simulator Instructor

Approved By: *C. Brown S*

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: Cone Exit Thermocouple (CET) Detectors Fail

ANS-3.5, 1985 Requirement: N/A Malfunction #: 239

Test Document Section Number: F6 Date 10-21-90

Description of Test: Failure of CET's one high, one low one erratic. The CET indication erroneous on the meter on ICDS and on the plant computer.

Component Tested: T-116, TB + T-45 Severity: High Low Erratic

Initial Conditions: 100% Power MOC Equil Xenon.

Transient Initiator: Malfunction 239

Duration of Test: .5 Hours

Parameters plotted: None

Termination Criteria: Verification of CET failed indication on ICDS and plant computer.

Acceptance Criteria (Baseline Data):
 Plant Data RETRAN Best Estimate
 Similar Plant Data FSAR

Reference: TECH MANUAL, SYSTEM EXPERT (D. SCHRAMPF)

Test Results SAT / UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

_____ None _____

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Best _____

Simulator Instructor

Reviewed By: E. Chapman _____

Simulator Instructor

Approved By: C. Brown _____

Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: 25% POWER HEAT/MASS BALANCE

ANS-3.5, 1985 Requirement: APP B(B2.1) Malfunction #: N/A

Test Document Section Number: 6.1a Date 9/4/90

Description of Test: USING PLANT PROCEDURES PERFORM
PLANT CALORIMETRIC AND RCS LEAKRATE CALCULATIONS

Component Tested: N/A Severity: N/A

Initial Conditions: 25% POWER, MOC, EQUIL XENON

Transient Initiator: N/A

Duration of Test: 1 Hours

Parameters plotted:

REACTOR POWER, RCS TEMPERATURES, PRESSURIZER PARAMETERS,
STM GEN LEVEL/PRESS, STM FEED FLOW, LEAKRATE PARAMETERS

Termination Criteria: ALL DATA COLLECTED

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate
 Similar Plant Data FSAR

Reference: OS-30, STP-0-27-1 (RCS LEAK EVALUATION)
(NUCLEAR INSTRUMENTATION)

Test Results

SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

NONE

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: *Edward Chyanku*
Simulator Instructor

Reviewed By: *C. Andrews*
Simulator Instructor

Approved By: *C. Andrews*
Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: 50% POWER HEAT BALANCE

ANS-3.5, 1985 Requirement: APP B (B2.1) Malfunction #: N/A

Test Document Section Number: I.6.16 Date 5/11/90

Description of Test: USING PLANT PROCEDURES PERFORM
PLANT CALORIMETRIC CALCULATION.

Component Tested: N/A Severity: N/A

Initial Conditions: 50% POWER, MOC, EQUIL. XENON

Transient Initiator: N/A

Duration of Test: 1 Hours

Parameters plotted:

REACTOR POWER, RCS TEMPERATURES, PRESSURIZER PARAMETERS,
STM GEN LEVEL/PRESS, STM FEED FLOW.

Termination Criteria: ALL DATA COLLECTED

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate
 Similar Plant Data FSAR

Reference: OI-30 (NUCLEAR INSTRUMENTATION)

Test Results

SAT/UNSAT (Circle One)

ATTACHMENT 2A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

NONE

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: *Edward Chy...*
Simulator Instructor

Reviewed By: *C. Drew S*
Simulator Instructor

Approved By: *C. Drew S*
Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: 75% POWER HEAT / MASS BALANCE

ANS-3.5, 1985 Requirement: APP B (D2.1) Malfunction #: N/A

Test Document Section Number: 6.1c Date 12/13/90

Description of Test: USING PLANT PROCEDURES PERFORM PLANT CALORIMETRIC AND RCS LEAK RATE CALCULATIONS.

Component Tested: N/A Severity: N/A

Initial Conditions: 75% POWER, MOC, EQUIL XENO

Transient Initiator: N/A

Duration of Test: 1 Hours

Parameters plotted:

REACTOR POWER, RCS TEMPERATURES, PRESSURIZER PARAMETERS, STEAM GEN LEVEL/PRESSURE, STEAM FLOW, FEED FLOW, LEAKRATE PARAMETERS.

Termination Criteria: ALL DATA COLLECTED

Acceptance Criteria (Baseline Data):

- Plant Data RETRAN Best Estimate
- Similar Plant Data FSAR

Reference: OI30 AND ITP-0-27-1 (RCS LEAK EVALUATION)
(NUCLEAR INSTRUMENTATION)

Test Results

SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

NONE

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: *E. Chynoweth*
Simulator Instructor

Reviewed By: *C. S. Hew 5*
Simulator Instructor

Approved By: *C. S. Hew 5*
Supervisor Simulator Support

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: 100% POWER HEAT BALANCE

ANS-3.5, 1985 Requirement: APPB(BL.1) Malfunction #: N/A

Test Document Section Number: I.6.1d Date 3/13/90

Description of Test: USING PLANT PROCEDURES PERFORM
PLANT CALORIMETRIC CALCULATIONS

Component Tested: N/A Severity: N/A

Initial Conditions: 100% POWER, MOC, EQUIL. XENON

Transient Initiator: N/A

Duration of Test: 1 Hours

Parameters plotted:

REACTOR POWER, RCS TEMPERATURES, PRESSURIZER PARAMETERS,
STM GEN LEVEL/PRESS, STM/FEED FLOW

Termination Criteria: ALL DATA COLLECTED

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate
 Similar Plant Data FSAR

Reference: OJ-30 (NUCLEAR INSTRUMENTATION)

Test Results

SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

NONE

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: *Edward Chymanski*
Simulator Instructor

Reviewed By: *Chris Lee*
Simulator Instructor

Approved By: *Chris Lee*
Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: REACTOR TRIPANS-3.5, 1985 Requirement: BPPB (PL-2-1) Malfunction #: 35Test Document Section Number: J. H. 1 Date 5/15/90Description of Test: PERFORM NORMAL REACTOR TRIP, VERIFY
PANEL INDICATIONS.Component Tested: 1 Severity: FIXEDInitial Conditions: 100% POWER, MOC, EQUIL XENONTransient Initiator: MALFUNCTION 35Duration of Test: 1/2 Hours

Parameters plotted:

REACTOR POWER, RW TEMPERATURES, PRESSURIZER PARAMETERS,
S/L LEVEL/PRESS, STEAM/FEED FLOW, CVCS PARAMETERSTermination Criteria: 30 MINUTES AND STABLE

Acceptance Criteria (Baseline Data):

 Plant Data RETRAN Best Estimate Similar Plant Data FSARReference: EOP-0, EOP-1 (REACTOR TRIP)
(POST TRIP IMMEDIATE ACTION)

Test Results

SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

NONE

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: *Edward Chapman, Jr.*
Simulator Instructor

Reviewed By: *C. H. Crews*
Simulator Instructor

Approved By: *C. H. Crews*
Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: SIMULTANEOUS TRIP OF BOTH MAIN FEEDWATER PUMPS

ANS-3.5, 1985 Requirement: APP B 2.2.2 Malfunction #: 170 (1,2)

Test Document Section Number: I. H. 2 Date 3-16-90

Description of Test: LOSS OF MAIN FEEDWATER WITH AUTOMATIC AUXILIARY FEEDWATER SYSTEM (AFW) ACTUATION

Component Tested: (1,2) BOTH PUMPS Severity: FIXED

Initial Conditions: 100% POWER, MOC, TCS48, BORON 610

Transient Initiator: MAJFUNCTION 170(1,2)

Duration of Test: 1/2 Hours

Parameters plotted:

CORE POWER, PRESSURIZER PRESSURE + LEVEL, LOOP TEMPERATURE, STEAM GENERATOR PRESS + LEVEL, AFW FLOW, FEED FLOW

Termination Criteria: STABLE PLANT RECOVERY CONDITIONS, AT LEAST 30 MIN.

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate

Similar Plant Data FSAR

Reference: EOP-0 EOP-1
(POST TRIP IMMEDIATE ACTION) (REACTOR TRIP)

Test Results

SAT UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

NONE

SMR #: _____ Completed _____
Date _____
SMR #: _____ Completed _____
Date _____
SMR #: _____ Completed _____
Date _____

Comments:

Performed By: Edmund J. Chagnon
Simulator Instructor
Reviewed By: C. J. Crews
Simulator Instructor
Approved By: C. J. Crews
Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: SIMULTANEOUS CLOSURE OF BOTH MSIVSANS-3.5, 1985 Requirement: APPB (02.2-3) malfunction #: 94Test Document Section Number: I. H. 3 Date 8/8/90Description of Test: SHUT 11 & 12 MSIVS, OBSERVE PANEL IND. AND ALARMS. POEV: OPEN AND REACTOR TRIPS ON HIGH PRESSURIZER PRESSUREComponent Tested: 1, 2 Severity: FIXEDInitial Conditions: 100% POWER, MOC, EQUIL. XENONTransient Initiator: MALFUNCTION 94Duration of Test: 1/2 Hours

Parameters plotted:

REACTOR POWER, PRESSURIZER PARAMETERS, RCS TEMPERATURES, STEAM GEN LEVEL/PRESS, STEAM/FEED FLOWTermination Criteria: 30 MINUTES AND STABLE

Acceptance Criteria (Baseline Data):

 Plant Data RETRAN Best Estimate Similar Plant Data FSARReference: EOP-0, EOP-1 (REACTOR TRIP)
(PWT TRIP IMMEDIATE ACTIONS)

Test Results

 SAT / UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

NONE

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Edmund Chyankatij
Simulator Instructor

Reviewed By: Chapman
Simulator Instructor

Approved By: Chapman
Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: SIMULTANEOUS TRIP OF ALL REACTOR COOLANT PPI

ANS-3.5, 1985 Requirement: APP B (B2.2-4) Malfunction #: 43

Test Document Section Number: F.H. 4 Date 7/16/90

Description of Test: SIMULTANEOUS TRIP OF ALL RCPs, REACTOR TRIP ON LOW FLOW, VERIFY PANEL INDICATIONS

Component Tested: 1, 2, 3, 4 Severity: FIXED

Initial Conditions: 100% POWER, MOC, EQUIL XENON

Transient Initiator: MAJFUNCTION 43

Duration of Test: 1/2 Hours

Parameters plotted:

REACTOR POWER, RCS TEMPERATURES, PRESSURIZER PARAMETERS, SK LEVEL/PRESS, STEAM/FEED FLOW, CVCS PARAMETERS

Termination Criteria: 30 MINUTES AND STABLE CONDITIONS

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate
 Similar Plant Data FSAR

Reference: EOP-0, EOP-2 (LOSS OF OFF-SITE POWER)
(OUT TRIP IMMEDIATE ACTIONS)

Test Results

SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

NONE

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

*THIS TEST WAS RUN AS PART OF ATP-1052 FOR THE
NEW J/H MODEL.*

Performed By: *Edmund Chynoweth*
Simulator Instructor

Reviewed By: *Chynoweth*
Simulator Instructor

Approved By: *Chynoweth*
Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: TRIP OF #11A REACTOR COOLANT PUMP

ANS-3.5, 1985 Requirement: APP-B [B.2.2.5] Malfunction #: 43(1)

Test Document Section Number: I.H.5 Date 12/4/90

Description of Test: TRIP OF 11A RCP DUE TO OVERCURRENT

Component Tested: 1 Severity: FIXED

Initial Conditions: 100% POWER, MOC, 548TC, BORON 610PPM

Transient Initiator: MAJFUNCTION 43(1)

Duration of Test: 1/2 Hours

Parameters plotted:

Core power, Pressurizer pressure + level, Loop Temperature
Steam generator pressure + level, AFW flow, Reactor vessel level.

Termination Criteria: CONDITIONS STABLE; AT LEAST 30 MIN. AND PLAN PARAMETERS VERIFIED.

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate

Similar Plant Data FSAR

Reference: EOP-0, EOP-1 (FACTOR TRIP)
(PUT TRIP IMMEDIATE ACTION)

Test Results

SAT UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

NONE

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: *Edward Chynoweth*
Simulator Instructor

Reviewed By: *Chris New*
Simulator Instructor

Approved By: *Chris New*
Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: MAIN TURBINE TRIP BELOW 15% POWERANS-3.5, 1985 Requirement: APP 15 (B2.2(6)) Malfunction #: 114Test Document Section Number: H. 6 Date 11/29/90Description of Test: TRIP TURBINE AT MAX POWER LEVEL NOT RESULTING IN IMMEDIATE REACTOR TRIP. NO OPERATOR ACTION IS TAKEN DURING THIS TEST.Component Tested: 1 Severity: FIXEDInitial Conditions: 10% POWER, MOC, PEAK XENONTransient Initiator: MALFUNCTION 114Duration of Test: 1/2 Hours

Parameters plotted:

REACTOR POWER, RCS TEMPERATURES, PRESSURIZER PARAMETERS, STEAM LEVEL/PRESS, FEED/STM FLOW, CVCS PARAMETERSTermination Criteria: 30 MINUTES AND STABLE CONDITIONS

Acceptance Criteria (Baseline Data):

 Plant Data RETRAN Best Estimate Similar Plant Data FSARReference: AOP-7F (LOSS OF LOAD)

Test Results

SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

NONE

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

REACTOR TRIPPED AT T=4min ON LOW S/A LEVEL.
FIELD REG. BYPASS VALVES AT 60% PRIOR TO TRIP
GO TO 30% AFTER TRIP

Performed By: Edmund Chyankowski
Simulator Instructor

Reviewed By: C. A. Crews
Simulator Instructor

Approved By: C. A. Crews
Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: MAX RATE OF POWER RAMP 100% TO 75% TO 100%ANS-3.5, 1985 Requirement: APPB (022-7) Malfunction #: 23, 24Test Document Section Number: F.H. 7 Date 5/11/90Description of Test: INSERT CEA TO REDUCE POWER WHILE
SIMULTANEOUSLY REDUCING LOAD ON THE MN TURBINE,
THEN WITHDRAWING CEA TO 100% LOADComponent Tested: N/A Severity: ALLInitial Conditions: 100%, MCC, EQUIL. XENONTransient Initiator: CEA INSERTIONDuration of Test: 1/2 Hours

Parameters plotted:

REACTOR POWER, PCI TEMPERATURES, PRESSURIZER
PARAMETERS, STM GEN LEVEL/PRES, FEED/STEAM FLOWTermination Criteria: 1/2 HOUR AND STABLE

Acceptance Criteria (Baseline Data):

Plant Data RETRAN Best Estimate
 Similar Plant Data FSAR

Reference: _____

Test Results

 SAT / UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

NONE

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: *Edmund Chynoweth*
Simulator Instructor

Reviewed By: *C. Andrews*
Simulator Instructor

Approved By: *C. Andrews*
Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: MAX SIZE LOCA WITH LOSS OF OFFSITE POWER

ANS-3.3, 1985 Requirement: APPB (R2.2-8) Malfunction #: 38, 149

Test Document Section Number: I. H. 8 Date 5/11/90

Description of Test: MAX SIZE LOCA AND LOSS OF OFFSITE PWR
RUN SIMULTANEOUSLY. TURBINE TRIP CAUSES REACTOR
TRIP. SIPS, CIS, CSIS, CRS AUTOMATICALLY ACTUATE.

Component Tested: NA Severity: 100%

Initial Conditions: 100% POWER, MOC, EQUIL XENON

Transient Initiator: MAJFUNCTIONS 38 AND 149

Duration of Test: 1/2 Hours

Parameters plotted:
RCS TEMPERATURES, PRESSURIZER AND CONTAINMENT
PARAMETERS, SAFETY INJECTION FLOWS, D/V BREAKER POS.

Termination Criteria: 30 MINUTES AND STABLE

Acceptance Criteria (Baseline Data):

- Plant Data PETRAN Best Estimate
- Similar Plant Data FSAR

Reference: EOP-0, EOP-8 (FUNCTIONAL RECOVERY PROCEDURE)
(POSTTRIP IMMEDIATE ACTIONS)

Test Results SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

None

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Edmund Chymerka J
Simulator Instructor

Reviewed By: C. P. Lewis
Simulator Instructor

Approved By: C. P. Lewis
Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: UNISOLABLE MN STEAM LINE BREAK IN CONT.ANS-3.5, 1985 Requirement: APP B (B.2.2.9) Malfunction #: 104Test Document Section Number: I. H. 9 Date 5/11/90Description of Test: MN STEAM LINE RUPTURE CAUSES REACTOR
TRIP ON LOW STEAM PRESSURE, SIAS, CTS, CSA, & JWS
ACTUATEComponent Tested: 1 Severity: 100%Initial Conditions: 100% POWER, MOC, EQUIL XENONTransient Initiator: MALEFUNCTION 104Duration of Test: 1/2 Hours

Parameters plotted:

REACTOR POWER, PRESSURIZER PARAMETERS, RCS TEMPERATURES,
STM LEN LEVEL/PRESS, STM/FEED FLOWS.Termination Criteria: 30 MINUTES AND STABLE

Acceptance Criteria (Baseline Data):

 Plant Data RETRAN Best Estimate
 Similar Plant Data FSARReference: EDP-4, EDP-0 (PWT TRIP IMMEDIATE ACTIONS)
(MN STEAM LINE RUPTURE)

Test Results

 SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

NONE

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: *Edward Chynoweth*

Simulator Instructor

Reviewed By: *Chynoweth*

Simulator Instructor

Approved By: *Chynoweth*

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: SLOW DEPRESSURIZATION OF RCS WITHOUT HPS

ANS-3.5, 1985 Requirement: APP B (B2.2-10) Malfunction #: 61

Test Document Section Number: I. H. 10 Date 8/8/90

Description of Test: PORV LEAKAGE TO DEPRESSURIZE
RCS RESULTING IN REACTOR TRIP AND SJAS. HPS
PUMPS ARE PLACED IN PULL-TO-LOCK.

Component Tested: 1 Severity: 35%

Initial Conditions: 100% MOC, EQUIL XENON

Transient Initiator: MPLE 1.1

Duration of Test: 1/2 Hours

Parameters plotted:

REACTOR POWER, RCS TEMPERATURES, UNCOOLED MARGIN,
PRESSURIZER PARAMETERS

Termination Criteria: 1/2 HOUR AND STABLE CONDITIONS

Acceptance Criteria (Baseline Data):

Plant Data IETRAN Best Estimate
 Similar Plant Data FEAR

Reference: EOP-0, EOP-5, EOP-6 (FUNCTIONAL RECOVERY PROCEDURE)
(PUT TRIP IMMEDIATE ACTION) (LOSS OF COOLANT ACCIDENT)

Test Results

BAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

NONE

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: Edmund Chyrowski

Simulator Instructor

Reviewed By: Andrew S

Simulator Instructor

Approved By: Andrew S

Supervisor Simulator Support

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: SIMULATOR TRAINING CAPABILITIES

ANS-3.5, 1985 Requirement: 4.3 Malfunction #: N/A

Test Document Section Number: III.B Date 12/18/90

Description of Test: VERIFY ELEVEN ICL AT VARIETY OF PLANT CONDITIONS, XENON CONC AND TIME IN CORE LIFE ARE "SAT", CAPACITY EXISTS FOR TEN

ADDITIONAL ICL MALFUNCTIONS CAN BE EASILY INSERTED/TERMINATED, SUFFICIENT REMOTE FUNCTIONS EXIST, ADDITIONAL MALFUNCTIONS MAY BE ADDED.

Component Tested: N/A Severity: N/A

Initial Conditions: N/A

Transient Initiator: N/A

Duration of Test: — Hours

Parameters plotted:

N/A

Termination Criteria: N/A

Acceptance Criteria (Baseline Data):

— Plant Data — RETRAN — Best Estimate

— Similar Plant Data — FSAR

Reference: N/A

Test Results

SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

NONE

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

Performed By: *E. Chagnon*

Simulator Instructor

Reviewed By: *C. Brown*

Simulator Instructor

Approved By: *C. Brown*

Supervisor Simulator Support

**RECERTIFICATION TEST
PLAN**

III.

RECERTIFICATION TEST PLAN INDEX

- A. Annual Testing
- B. Four Year Cycle

RECERTIFICATION TEST PLAN

THE FOLLOWING TESTS WILL BE PERFORMED ON AN ANNUAL BASIS:

Real Time Test

100% Drift Check

25% Mass/Energy Balance

50% Mass/Energy Balance

75% Mass/Energy Balance

100% Mass/Energy Balance

Manual Reactor Trip

Trip of 11 & 12 Steam Generator Feed Pump

Closure of 11 & 12 Main Steam Isolation Valve

Trip of 11A, 11B, 12A, 12B Reactor Coolant Pumps

Trip of 11A Reactor Coolant Pump

Main Turbine Trip @ 10%

Maximum Power Ramp

Large Break Loss of Coolant Accident With Loss of Offsite Power

Steam Line Rupture

Slow Reactor Coolant System Depressurization. with no High Pressure Safety Injection

YEAR ONE: These tests will be conducted annually:
(25% of the total)

NORMAL EVOLUTION TEST

Cold Shutdown to Hot Standby
Operation in Hot Standby

<u>MALFUNCTION</u>	<u>DESCRIPTION</u>
002	Wide Range Nuclear Instrument Channel High Voltage Power Supply Failure
012	Power Range Safety or Control Channel Linear Amp Fails High
016	RPS Channel B Bistable Trip Relay Contact Fails to Open on Trip
019	Failure of Manual Reactor Trip
027	Uncoupled Control Element Assembly
033	Individual Control Element Assembly Reed Switch Position Indication Fails
035	Reactor Trip
036	Control Element Drive Motor Generator Trips
048	Failure of Reactor Coolant Pump First Stage Seal
073	Loss of Normal Letdown Due to 1-CVC-516 Failing Closed
082	Failure of Boric Acid Pump
083	Volume Control Tank Level Transmitter Fails Hi/Lo
093	Main Steam Isolation Valve Stuck @ 90% of Full Open
094	Main Steam Isolation Valve Fails Closed
095	Steam Generator Level Control System Transmitter Fails Hi/Lo
103	Turbine Bypass Valve's Fail Open (Any Combination)
108	Turbine Bypass Valves Fail Closed
109	Turbine Bypass Valve Controller Fails in Auto Mode
110	Failure of Steam Flow Transmitter Hi/LO
112	Atmospheric Dump Valve Controller Fails While in Automatic Mode
137	Main Generator Trip

YEAR ONE (continued):

<u>MALFUNCTION</u>	<u>DESCRIPTION</u>
140	Auto Volt Regulator Maloperation
141	Loss of Stator Liquid Cooling
157	Loss of Pressurizer Heater Motor Control Centers
160	Loss of 250 Volt DC Emergency DC Bus
161	Failure of Emergency Diesel Generator to Start
171	Feed Regulating Valve Fails Full Open or Closed in Auto Control
186	Failure of Auxiliary Feedwater Actuation System to actuate
191	High Pressure Safety Injection Valves Fail-as-is
203	Failure of Recirculation Actuation System Signal to Actuate on Auto Demand
207	Failure of Containment Cooling Fans
223	Loss of Component Cooling Pump
224	Loss of Service Water Pump
225	Loss of Salt Water Pump
234	Loss of Motor Driven Auxiliary Feed Pump
239	Core Exit Thermocouple (CET) Detector Fails

YEAR T/O:
(% of the total)

These tests will be conducted annually:

NORMAL EVOLUTION TEST

Hot Standby to 10% Power
Turbine Start Up & Generator Synchronization
10% to 100% Power

<u>MALFUNCTION</u>	<u>DESCRIPTION</u>
003	Wide Range Nuclear Instrument Channel Pre-amp Output Fails Low
008	Power Range Safety or Control Channel Detector Output Fails Low
011	Power Range Safety or Control Channel Output From Power Summer Fails Low
017	Reactor Protection System Logic Matrix Relay AB-1 Coil
020	Reactor Protective System Logic Matrix Power Supply Failure
028	All Control Element Assemblies Fail to Move on Demand (Manual)
029	Control Pulses Sent But Control Element Assembly Doesn't Move. Control Element Assembly is Trippable
030	Stuck Control Element Assembly. Will Not Trip
037	Inadvertent Opening of a Single Reactor Trip Breaker
049	Failure of Reactor Coolant Pump Second Stage Seal
050	Failure of Reactor Coolant Pump Third Stage Seal
070	Loss of Flow From Charging Pump
091	Steam Generator Tube Leakage
096	Steam Generator Level Transmitter for Protection Channels Fails Hi/Lo
102	Inadvertent Slow Closure of Main Steam Isolation Valve
105	Steam Line Rupture Outside Contmt
115	Failure of Automatic Turbine Trip
131	Variable High Vibration on Main Turbine
135	Moisture Separator Reheater Relief Valve Fails Open
153	Loss of 4 K Bus

YEAR TWO (continued):

<u>MALFUNCTION</u>	<u>DESCRIPTION</u>
154	Loss of 480 V Bus
155	Loss of 480 V Reactor Motor Control Center
163	Loss of Condenser Vacuum
164	Hotwell Level Control Problems
166	Loss of Condensate Pump
167	Loss of Condensate Booster Pump
170	Steam Generator Feed Pump Trip
174	Feed Regulating Valve Differential Pressure Transmitter Fails Hi/Low
180	Loss of Heater Drain Pump
183	Loss of Aux Feedwater Pump
189	Failure of Low Pressure Safety Injection Pump
190	Failure of Containment Spray Pump

YEAR THREE: These tests will be conducted annually:
(25% of the total)

NORMAL EVOLUTION TEST

100% Power to Cold Shutdown

<u>MALFUNCTION</u>	<u>DESCRIPTION</u>
010	Power Range Safety or Control Channel Output From Power Summer Fails High
018	Failure of Automatic Reactor Trips
021	Failure of CEA Withdrawal Interlocks to Block Rod Withdrawal
023	Uncontrolled Withdrawal of Individual Control Element Assembly or Group of Control Element Assemblies
025	Uncontrolled Withdrawal of a Single Control Element Assembly
026	Uncontrolled Insertion of a Single Control Element Assembly
032	Dropped Control Element Assembly
038	Loop 12B Double-ended Rupture of Reactor Coolant System Cold Leg
042	Failure of Reactor Vessel Level Detector
043	Reactor Coolant Pump Trip
047	Failure of Reactor Coolant Pump Lift Pump to Reach Operating Pressure When Running
054	Pressurizer Spray Valve 100E Fails Open
062	Pressurizer Pressure Control Fails Hi/Lo
064	Low Range Pressurizer Pressure Transmitters Fail Hi/Lo
065	Pressurizer Level Control Fails Hi/Lo
075	Loss of Component Cooling to the Non-Regenerative Heat Exchanger
078	Failure of the Boronometer
079	Inadvertent Boration
098	Steam Generator Pressure Transmitter Fails High or Low
104	Steam Line Rupture Inside Contmt

YEAR THREE (continued):

<u>MALFUNCTION</u>	<u>DESCRIPTION</u>
113	Main Steam Safety Valve's Fail Open
114	Turbine Trip
116	Turbine Control Valve Fails Open
150	Loss of 13 KV Service Transformer
151	Loss of 13 KV Bus
156	Loss of a Turbine Motor Control Center
162	Loss of 125 Vital DC Bus
165	Gross Condenser Tube Leakage
177	Feed Line Rupture Outside of the Containment
185	Auxiliary Feedwater Pipe Rupture
188	Failure of High Pressure Safety Injection Pump
204	Failure of Diverse Scram Contactors to Open
219	High Radiation Alarms on Process Radiation Monitors
221	Intake Structure Traveling Screens Obstructed
226	Loss of Service Water to Turbine Building

YEAR FOUR: These tests will be conducted annually;
(25% of the total)

NORMAL EVOLUTION TEST

100% Trip & Recovery to 100% Power

<u>MALEFUNCTION</u>	<u>DESCRIPTION</u>
004	Wide Range Nuclear Instrument Channel Start-Up Rate Degradation
024	Uncontrolled Insertion of Individual Control Element Assembly or Group of Control Element Assemblies
031	Failure of Control Element Assembly to Move
034	Rupture of Control Element Drive Mechanism Housing (Control Element Assembly #1)
039	Reactor Coolant System Leak into Containment
045	Locked Rotor on Reactor Coolant Pump 11B
059	Power Operated Relief Valve Leakage
060	Pressurizer Power Operated Relief Valve ERV-402 Leaks
061	Pressurizer Safety Valve Leakage
068	Leak in Letdown Line Inside Contmt (Between Check Valve & 1-TE-221)
069	Leak in Letdown Line in Pen Room
086	Leakage Through Letdown Line Relief Valves
087	Charging Pump Primary Packing Leak
092	Steam Generator Gross Tube Failure
100	Steam Generator Differential Pressure Transmitter Fails High or Low
138	Load Rejection
149	Loss of Off-site Power
158	Loss of Non-Vital 120/208 Volts AC Instrument Bus
159	Loss of 120 Vital Instrument Bus
173	Erratic Operation of Feed Regulating Valve
175	Feedwater Line Rupture Inside the Containment; Before Check Valve

YEAR FOUR (continued):

<u>MALFUNCTION</u>	<u>DESCRIPTION</u>
176	Feedwater Line Rupture Inside the Containment; After the Check Valve
181	Feed Flow Transmitter Input to Control Channel Fails
196	Failure of Safety Injection Actuation Signal to Actuate on Auto Demand
197	Failure of Safety Injection Actuation Signal Manual Initiation
199	Failure of Containment Spray Actuation Signal to Actuate on Auto Demand
200	Failure of Containment Spray Actuation Signal Manual Initiation
205	Spurious Containment Isolation Signal
213	Failed Fuel Equivalent to 1 Fuel Pin
216	Accidental Release of Gaseous Waste
227	Loss of Instrument Air
228	Loss of Instrument Air in Containment
233	Loss of Component Cooling Water to Containment
238	Core Exit Thermocouple (CET) Meter Fails

SIMULATOR COMPARISON

ABSTRACT

ATTACHMENT 1A

SIMULATOR PERFORMANCE TEST ABSTRACT

TEST TITLE: SIMULATOR COMPARISON TEST

ANS-3.5, 1985 Requirement: 3.2 Malfunction #: N/A

Test Document Section Number: II AND III.A Date 12/17/90

Description of Test: DETERMINE THE DIFFERENCES BETWEEN REFERENCE PLANT AND SIMULATOR CONTROL ROOMS, AND UNIT TWO AND REFERENCE PLANT CONTROL ROOMS USING PICTURES, SETPOINT FILE, TASK ANALYSES, TECHNICAL SPECIFICATIONS, PLANT COMPUTER RECORDS, AND COMPUTER SOFTWARE TO REFLECT THE DEGREE OF SIMULATION

Component Tested: N/A Severity: N/A

Initial Conditions: N/A

Transient Initiator: N/A

Duration of Test: Hours

Parameters plotted: SEE ATTACHED LISTS

Termination Criteria: N/A

Acceptance Criteria (Baseline Data):

- Plant Data RETRAN Best Estimate
- Similar Plant Data FSAR

Reference: N/A

Test Results SAT/UNSAT (Circle One)

ATTACHMENT 1A
SIMULATOR PERFORMANCE TEST ABSTRACT

Deficiency Found:

DIFFERENCES IDENTIFIED AS NEEDING CORRECTION HAVE
SMR'S WRITTEN PER THE ATTACHED LISTS.

SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date
SMR #:	_____	Completed	_____
			Date

Comments:

ACCEPTED DIFFERENCES ARE THOSE WHICH HAVE BEEN
DETERMINED TO BE ACCEPTABLE PER THE SIMULATOR
CHANGE REVIEW COMMITTEE (SCRC) ^{IAW} ~~OF~~ TI-16.

E. CHRZANOWSKI
 R. LACKWITZ K. LIBERTINI
 P. MURPHY C. ANDREWS
 Performed By: J. SHUTE J. WILSON (SCRC 90-12)

Simulator Instructor

Reviewed By: E. Chrzanowski
Simulator Instructor

Approved By: C. Andrews
Supervisor Simulator Support

IV.

SIMULATOR COMPARISON ABSTRACT INDEX

- A. Simulator/Control Room Physical Differences
- B. Visually Simulated Hardware
- C. Differences Between Plant Computer & Stimulator
- D. Unit Two and Unit One Control Room Differences
 - 1. Physical Differences
 - 2. Support Differences
 - a. System Differences
 - b. Technical Specifications Differences
 - c. Procedure Differences
 - d. Operational Characteristics
- E. Accepted Differences
- F. Setpoint Comparison Between Unit One and Reference Plant Simulator
- G. Setpoint Comparison Between Unit One and Unit Two
- H. Operating Limits

IV.A.

SIMULATOR/CONTROL ROOM PHYSICAL DIFFERENCES

1.0 PANEL DIFFERENCES

1.1 1C01

1. The simulator is missing the caution labels under the U-2 spare volt meter selector switch and the blank area on the U-1 side where the selector switch would be if it were installed.

Refer to SMR# 939.

2. The 11 generator exciter ammeter (center meter) in the simulator is a different type than the one in the reference plant.

Refer to SMR# 1352.

3. The bezels for the 11 generator field volt meter and the 5072 chalk point ammeters are black in the reference plant and olive green in the simulator.

Refer to SMR# 1123 (FCR 88-201).

1.2 1C02

1. Meter 1-PI-4665 in the simulator is scaled 0 to 30 in Hg and in the reference plant is scaled 30 to 0 Hg.

Refer to SMR# 940.

2. The reference plant has a Plexiglass protective cover for U-1 Turbine CV test switches 1 thru 4 that the simulator does not have.

Refer to SMR# 1449.

3. The simulator's first stage pressure recorder 1-PR-3957 has a times 1 scale and the same recorder in the plant has a times 7 scale.

Refer to SMR# 1442.

1.3 1C03

1. Range labels for 1-LR-1021/1121, and 1-LR-1111/1121 are missing in the simulator.

Refer to SMR# 939.

2. The mimic on this panel has squared off corners in the reference plant and beveled corners in simulator.

Refer to SMR# 1123 (FCR 88-201).

1.4 1C04

1. The ammeter for 13 AUX feed pump in the reference plant is located to the left of the handswitch and in the simulator it is located above the handswitch.

Refer to SMR# 1405.

2. The Aux Feed System wide range S.G. Lvl recorders (1-LR-1114D and 1-LR-1124D) are Leeds and Northrup (L&N) in the plant and Fisher & Porter (F&P) in the simulator.

Refer to SMR# 1872.

3. The plant computer rod position indication in the simulator are 4 digit LED displays (one decimal place) and those in the reference plant are 5 digit displays (2 decimal places).

Refer to SMR# 1867.

1.5 1C05

1. The CEDS control panel in the reference plant does not have the words "automatic sequential" printed on it and the push button for this mode selection has been removed, they still exist in the simulator.

Refer to SMR# 939.

1.6 1C06

1. None.

1.7 1C07

1. The simulator is missing the magnetic open/shut (red/green) tags for the panel.
2. In the reference plant the scale for 1-PIC-201 is divided into major increments of 200 PSIG and in the simulator 1-PIC-201 is divided into major increments of 100 PSIG.

Refer to SMR# 1579.

3. The switch functions of the make-up mode selector switch 1-HS-210 in the reference plant are oriented (left to right) as follows, "Auto, dilute manual, borate". The functions for this switch in the simulator are oriented (left to right), "dilute, auto, manual, borate".

Refer to SMR# 1001, FCR# 88-0038.

1.8 1C08

1. The color of the 1C08 safety injection mimic in the simulator is orange and white and solid orange in the reference plant.

Refer to SMR# 939.

2. The keyswitch for LPSI pump 11 RAS override in the simulator is rotated 45 degrees from the one in the reference plant.

Refer to SMR# 943 and SMR# 1131 (FCR 88-0210).

3. The simulator is missing the valve symbols on the safety injection tank mimic. (Also 1C09)
4. In the reference plant the following meters:
1-LI-311A, 1-LI-321A, 1-LI-331A and 1-LI-341A have red bands on their scales that are not on these meters in the simulator.

Refer to SMR# 1132, FCR 88-0212.

1.9 1C09

1. The keyswitch for LPSI pump 12 RAS override in the simulator is rotated 45 degrees from the one in the reference plant. Also, in the simulator, the mimic running to the switch takes a different path than in the reference plant.

Refer to SMR# 943.

2. The instrument description label on 1-HIC-3657 in the simulator is different than the one in the reference plant.

Refer to SMR# 1123 (FCR 88-201)

1.10 1C10

1. None.

1.11 1C13

1. Instrument Air Modifications for the new Air Dryers have not been installed in the simulator.

Refer to SMR# 1105 and FCR# 86-0169.

1.12 1C15

1. The flow dependent selector switches (all 4 channels) in the reference plant have their knobs removed, the simulator doesn't.

Refer to SMR# 1617.

2. The linear range nuclear instrumentation drawers in the reference plant have fine and coarse adjustments on piggy back potentiometers, the simulator has only coarse adjustments.

1.13 1C17

1. None.

1.14 1C18

1. The simulator is missing the lead and lag stickers on the #11 Diesel Generator Var Meters.

Refer to SMR# 939.

2. In the simulator the 11 DG frequency meter has a green fail point mark and in the reference plant the fail point mark is yellow. This is true for 1C19 (DG#12) and 1C20 (DG#21).

1.15 1C19

1. The simulator is missing the lead and lag stickers on the #12 Diesel Generator Var Meters.

Refer to SMR# 939.

1.16 1C20

1. The simulator is missing the lead and lag stickers on the #21 Diesel General Var Meters.

Refer to SMR# 939.

1.17 1C22H

1. There are misc. differences (mispelling, missing labels, etc.) between the reference plants RMS status panel and the one in the simulator.

1.18 1C22

1. None.

1.19 1C24A

1. None.

1.20 1C33

1. None

1.21 1C34

1. The mimic in the simulator, for 12 access control heating and ventilation supply fan does not follow the same path as the reference plant.

Refer to SMR# 939.

2. There are three red caution labels in the simulator that are white in the reference control room.

Refer to SMR# 1123 (FCR 88-201).

3. The flow direction arrows are missing in the simulator's HVAC mimic.

Refer to SMR# 1123 (FCR 88-201).

4. The switch position lights and legend plate engraving is incorrect for Unit 1 & 2 ECCS pump room exhaust fan and damper hand switches and the fuel pool exhaust fan and damper hand switches (1/2-HS-5406, 1/2-HS-5407, 0-HS-5419 and 0-HS-5420).

Refer to SMR# 671 (FCR 84-1088).

5. The simulator is missing the caution label next to 1-HS-5416 (Fuel Pool Exhaust Filter)

1.22 1C35

- None.

1.23 1C36

- None.

1.24 1C43

1. The transfer switch bezels and on/off/remote labels in the simulator are different from those in the reference plant.

1.25 2C02

1. The 2C02 annunciators in the simulator have locations tags which are black background with white letters and should be white background with black letters (like all the other annunciator panels).

Refer to SMR# 939.

2. The simulator and the reference plant each have different types of oil lift pump hand switch handles.

Refer to SMR# 1900.

1.26 2C17

None.

1.27 2C24A

None.

1.28 2C24B

1. In the simulator 1-RR-5420 is missing the label which identifies the red and blue pens.

Refer to SMR# 1862.

2.0 MISCELLANEOUS

1. None of the annunciators in the simulator have individual location tags on them as in the reference plant.

Refer to SMR# 945.

2. The tank level meters on most of the panels in the reference plant have yellow areas on their scales, which are not in the simulator.

(SMR# 1132, FCR 88-212)

3. In the reference plant all of the Fisher & Porter (F&P) recorders on the panels have their scales (white with black numbers and divisions) mounted on a pivoting mechanism located in back of the pen pointers. In the simulator the scales are clear with white numbers and divisions stuck to the inside of the face glass.

4. The reference plant has a stainless steel guard rail around the control room panels that is missing in the simulator.

Refer to SMR# 1125.

3.0 ANNUNCIATOR DIFFERENCES

<u>ANNUNCIATOR WINDOW</u>	<u>SIMULATOR ENGRAVING</u>	<u>REF. PLANT ENGRAVING</u>	<u>COMMENTS</u>
1C02-B19	SPARE	SPARE	SIM ENGRAVING LGR
1C02-B38	EHC SYSTEM ELECTRICAL MALFUNCTION	EHC SYS ELECTRICAL MALFUNCTION	SPELLING SMR# 945
1C02-B40	EHC PWR UNIT RESERVOIR LEVEL	EHC POWER UNIT RESERVOIR LEVEL	SPELLING SMR# 945
1C03-C13	CONDENSATE CONDUCTIVITY HI	UMHO CONDENSATE CONDUCTIVITY HI	WORDS LEFT OFF SMR# 945
1C03-C14	CONDS CLEAN UP RECIRC LINE PRESS HI	PSIG CONDS CLEAN UP RECIRC LINE PRESS HIGH	WORDS LEFT OFF & SPELLING SMR#945
1C03-C15	CONDENSATE STORAGE TANK 11 LEVEL	^{C15} CONDENSATE STORAGE TANK 11	WORDS LEFT OFF SMR# 945
1C03-C16	CONDR HOTWELL LEVEL	HI CONDR HOTWELL LEVEL LO	WORDS LEFT OFF SMR# 945

<u>ANNUNCIATOR</u> <u>WINDOW</u>	<u>SIMULATOR</u> <u>ENGRAVING</u>	<u>REF. PLANT</u> <u>ENGRAVING</u>	<u>COMMENTS</u>
1C03-C24	WASTE NEUT TANK# 11/12 HI LEVEL	WASTE NEUT TANK 11/12 HI LEVEL	WORDING SMR# 945
1C03-C25	SG FEED PPS SUCTION PRESS LO	PSIG SG FEED PPS SUCTION PRESS LO	WORDS LEFT OFF SMR# 945
1C03-C27	11 SG FEED PP BRG OIL PRESS LO	PSIG 11 SG FEED PP BRG OIL PRESS LO	WORDS LEFT OFF SMR# 945
1C03-C28	11 SG FEED PUMP DISCH PRESS HI	PSIG 11 SG FEED PUMP DISCH PRESS HI	WORDS LEFT OFF SMR# 945
1C03-C31	12 SG FEED PP BRG OIL PRESS LO	PSIG 12 SG FEED PP BRG OIL PRESS LO	WORDS LEFT OFF SMR# 945
1C03-C32	12 SG FEED PUMP DISCH PRESS HI	PSIG 12 SG FEED PUMP DISCH PRESS HI	WORDS LEFT OFF SMR# 945

<u>ANNUNCIATOR WINDOW</u>	<u>SIMULATOR ENGRAVING</u>	<u>REF. PLANT ENGRAVING</u>	<u>COMMENTS</u>
		HI	
1C03-C34	11 MOIST SEP REHEAT DRAIN TANK LEVEL	11 MOIST SEP REHEAT DRAIN TANK LEVEL LO	WORDS LEFT OFF SMR# 945
		HI	
1C03-C35	12 MCIST SEP REHEAT DRAIN TANK LEVEL	12 MOIST SEP REHEAT DRAIN TANK LEVEL LO	WORDS LEFT OFF SMR# 945
		C57	
1C03-C57	STEAM LINE 11 RUPTURE	STEAM LINE 11 RUPTURE	WORDS LEFT OFF SMR# 945
		C58	
1C03-C58	AFW 11 FLOW TO BREAK	AFW 11 FLOW TO BREAK	WORDS LEFT OFF SMR# 945
		C61	
1C03-C61	STEAM LINE 12 RUPTURE	STEAM LINE 12 RUPTURE	WORDS LEFT OFF SMR# 945
		C62	
1C03-C62	AFW 12 FLOW TO BREAK	AFW12 FLOW TO BREAK	WORDS LEFT OFF SMR# 945

<u>ANNUNCIATOR</u> <u>WINDOW</u>	<u>SIMULATOR</u> <u>ENGRAVING</u>	<u>REF. PLANT</u> <u>ENGRAVING</u>	<u>COMMENTS</u>
1C03-C72	DE-AERATOR LEVEL	HI DE-AERATOR LEVEL LO	WORDS LEFT OFF SMR# 945
1C04-W03	MTR SYS NO FLOW	MOTOR SYS NO FLOW	SPELLING SMR# 945
1C04-W04	TURB SYS NO FLOW	TURBINE SYS NO FLOW	SPELLING SMR# 945
1C04-W05	TURB SYS L/U IMPROPER	TURBINE SYS L/U IMPR	WORDING SMR# 945
1C04-W12	U1 - U2 XCON OPEN	U-2/U-1 X CONN	WORDING SMR# 945
1C04-W14	AFW SUCTION LOW PRESS	SYS SUCT LOW PRESS	WORDING SMR# 945
1C04-W15	LCL CONT VLV L/U IMPROP	LOCAL CNTRL L/U IMPR	WORDING SMR# 945
1C04-W16	AFAS B/S TRIP	AFAS BISTAB TRIP	WORDING SMR# 945
1C04-W17	AFAS POWER LOSS	AFAS LOSS OF POWER	WORDING SMR# 945
1C04-W18	AFAS CH. BYPASSED	CH. BYP/AUTO TEST FAULT	WORDING SMR# 945

<u>ANNUNCIATOR</u> <u>WINDOW</u>	<u>SIMULATOR</u> <u>ENGRAVING</u>	<u>REF. PLANT</u> <u>ENGRAVING</u>	<u>COMMENTS</u>
1C04-W19	DOOR OPEN MOD WTHDRN	AFAS DR OPN /MOD WITHDR	WORDING SMR# 945
1C05-D01	CEA TCB-11/TCB-15 TRIP	CEA TCB-11 TCB-15 TRIP	SPELLING SMR# 945
1C05-D02	CEA TCB-13/TCB-17 TRIP	CEA TCB-13 TCB-17 TRIP	SPELLING SMR# 945
1C05-D03	CEA TCB-12/TCB-16 TRIP	CEA TCB-12 TCB-16 TRIP	SPELLING SMR# 945
1C05-D04	CEA TCB-14/TCB-18 TRIP	CEA TCB-14 TCB-8 TRIP	SPELLING SMR# 945
1C05-D29	CEA POSITION DEVIATION ± 4	CEA POSITION DEVIATION ± 4	SPELLING SMR# 945
1C05-D30	CEA POSITION DEVIATION ± 8	CEA POSITION DEVIATION ± 8	SPELLING SMR# 945
1C05-D33	SHUTDOWN MARGIN SETPOINT EXCEEDED	SHUTDOWN MONITOR HI	WORDING SMR# 945

<u>ANNUNCIATOR</u> <u>WINDOW</u>	<u>SIMULATOR</u> <u>ENGRAVING</u>	<u>REF. PLANT</u> <u>ENGRAVING</u>	<u>COMMENTS</u>
1C06-E39	PZR B/U HTR CNTR-BANK 1,3 LOCAL-1C43	PZR B/U HTR ^{E-39} CNTR-BANK 1,3 LOCAL 1C43	WORDS LEFT OFF SMR# 945
1C06-E48	REACTOR COOLANT PPS VIBRATION	BENTLEY NEVADA REACTOR COOLANT PPS VIBRATION	WORDS LEFT OFF SMR# 945
1C06-E52	11A RCP VIBRATION	MOTOR 11A RCP VIBRATION	WORDS LEFT OFF SMR# 945
1C06-E56	11B RCP VIBRATION	MOTOR 11B RCP VIBRATION	WORDS LEFT OFF SMR# 945
1C06-E60	12A RCP VIBRATION	MOTOR 12A RCP VIBRATION	WORDS LEFT OFF SMR# 945
1C06-E64	12B RCP VIBRATION	MOTOR 12B RCP VIBRATION	WORDS LEFT OFF SMR# 945
1C07-F01	REGEN HX OUTLET TEMP HI	REGEN HX OUTLET TEMP HI 470 F ISOLATION	WORDS LEFT OFF SMR# 945

<u>ANNUNCIATOR</u> <u>WINDOW</u>	<u>SIMULATOR</u> <u>ENGRAVING</u>	<u>REF. PLANT</u> <u>ENGRAVING</u>	<u>COMMENTS</u>
1C07-F24	LTDN LN CTMT ISOL VLV LCL 1C43	LETDOWN LINE CNTMT ISOL CV LOCAL AT 1C43	WORDING SMR# 945
1C07-F28	RCP BLD CTMT ISOL VLV LCL 1C43	RCP BLD OFF CNTMT ISOL CV LOCAL AT 1C43	WORDING SMR# 945
1C07A-X64	MOV 654 AUX HP HDR	MOV 654 HP HDR	WORDING SMR# 945
		J09	
1C10-J09	H2 ANALYZING SYSTEM	H2 ANALYZING SYSTEM	WORDS LEFT OFF SMR# 945
1C10-J11	UNIT-1 EL 45'-0" SWITCHGEAR RM TEMP HI	UNIT 1 EL 45 SWITCHGEAR RM TEMP HI	WORDING SMR# 945
1C10-J12	UNIT-1 EL 27'-0" SWITCHGEAR RM TEMP HI	UNIT 1 EL 27 SWITCHGEAR RM TEMP HI	WORDING SMR# 945
1C10-J18	SERVICE WATER PUMP ROOM LEVEL HI	SERV WATER PUMP ROOM LEVEL HI	SPELLING SMR# 945

<u>ANNUNCIATOR WINDOW</u>	<u>SIMULATOR ENGRAVING</u>	<u>REF. PLANT ENGRAVING</u>	<u>COMMENTS</u>
1C10-J18	SERVICE WATER PUMP ROOM LEVEL HI	SERV WATER PUMP ROOM LEVEL HI	SPELLING SMR# 945
1C10-J22	CONDENSOR PIT LEVEL HI	CONDR PIT LEVEL HI	SPELLING SMR# 945
1C17-L15	TECH SUPPORT CENTER	TECH SUPPORT COMPUTER	WORDING SMR# 945
1C18-M06	MCC -11G UNDERVOLTAGE	MCC 11G UNDERVOLTAGE	SPELLING SMR# 945
1C33-T20	125 VDC GROUNDING DETECTION	125V DC GROUNDING DETECTION	SPELLING SMR# 945
1C34-U02	11 ACC CONT AREA EXH FILTERS DIFF PRESS HI	BLANK	NOT MODELED IN THE SIMULATOR ANYWHERE THEREFORE INSTALL A BLANK WINDOW SMR# 945
1C34-U24	LOSS OF 250 VDC BATTERY ROOM EXHAUST FAN	LOSS OF 25 VDC BATT ROOM 13 & 23 VENTILATION	WORDING SMR# 945
2C02-B15	EMERGENCY LUBE OIL PUMP RUNNING	EMERGENCY BRG OIL PP RUNNING	WORDING SMR# 945
2C02-B16	EMERGENCY LUBE OIL PUMP OVERLOAD	EMERGENCY BRG OIL PUMP OVERLOAD	WORDING SMR# 945

IV.B.

VISUALLY SIMULATED HARDWARE

1C03

1. The 11 & 12 MSIV timer jacks.

1C15

1. All Gammametric test pushbuttons on the wide range NI drawers (Channels A-D).

1C22H

1. The following RMS alarm bypass pushbuttons:

Common 1C22-A

Unit 2 1C22A & B

Common 1C22B channels: 0-RE-5210
0-RE-7028
1-RE-4095
2-RE-4095

1C24A

1. The "13/23 Batt Trouble" light.

2C02

1. The phone jacks on the turbine control panel.

NOTE: The alarm windows to systems not modeled were reviewed and are not included on this list because, when tested on the control panels, these annunciators will test as if in control of the operator. The instructor has the ability to panel override annunciators "on".

DIF DIFFERENCES BETWEEN PLANT COMPUTER & SIMULATOR

1. Sequence of events report not available on simulator plant computer.
2. Group Function Displays may differ between plant and simulator. They were identical as of September 1988.
3. Loss of power malfunctions that would cause displays to go blank (no raster) would not produce the same effect on the simulator plant computer.
4. Never see "BAD" quality tags on the simulator plant computer because the simulator has no true sensors, thus none can go "BAD".
5. Simulator plant computer has real time of day, not simulator time.
6. Simulated rhodium detector signals are not available on the simulator for CECORE to use. Thus, CECORE output is static just like INCA was on the PRODAC -250 plant computer model.
7. The plant computers have a TSC data link pgm to send data from the plant computers to the TSC computer.
8. The plant has 9 CRT's per unit, the simulator has 7. No TSC, CRT and no 72' CRT.
9. The simulator plant computer has no Mag tape cassettes for Nuclear Fuel Group analog snapshot tapes.
10. The simulator plant computer has no plotter.

IV. D.1. UNIT TWO AND UNIT ONE CONTROL ROOM PHYSICAL DIFFERENCES

1.1 1C01

1. 1C01 is a common panel, therefore no differences exist.

1.2 1C02/2C02

1. The differences between 1C02 and 2C02 will not be addressed because 2C02 is modeled on the simulator.

1.3 1C03/2C03

1. Unit 1 has 6 MSR drain switches while Unit 2 has 12 MSR drain switches.
2. On 2C03 there is a note over 26A & 26B high level dump valves that states:

"Do not allow 26A or B FWH to go empty." There is no such note on 1C03.
3. On Unit 1 the heater drain pp recirc indications are vertical to each other and on Unit 2 the they are horizontal to each other.
4. On 1C03 the cond ndr press/flow meters are next to the MSR indications and on 2C03 are directly above 21 htr dr pump.
5. On 2C03 the DI water storage tank level indicator is between SGFP indications. There is no DI water storage tank level indictator on Unit 1.
6. HS 4000 on both panels is below drain HS, but on 2C03 HS 4000 is located lower on panel than unit one's.
7. On 1C03 the hydraulic jack HS for each SGFP ext to speed controller while on 2C03 there is no hydraulic jack.
8. On 1C03 the SGFP bias pots are located on top of controllers, while on 2C03 the SGFP bias pots are located on side of controllers.

9. Due to the difference in SGFP controls the switches and displays are different between the units.

1.4 1C04/2C04

1. On 1C04 there is no SGFP supervisory alarm.
2. On 2C04 the SGFP "supervisor instr" is on status panel, while on 1C04 there is no supervisory alarm..
3. On 1C04 the EOP-0 plaque is larger than the plaque on 2C04.

1.5 1C05/2C05

1. None.

1.6 1C06/2C06

1. None.

1.7 1C07/2C07

1. None.

1.8 1C08-9-10/2C08-9-10

1. On 1C08-9-10 the SITS are labeled left to right: 11A, 11B, 12A and 12B, while on 2C08,9-10 the SITS are labeled left to right: 22A, 22B, 21A and 21B.

1.9 1C13/2C13

1. 1C13 has spent fuel pool cooling pumps handswitches which do not exist on 2C13.
2. 1C13 has service water handswitches to 12 D/G which do not exist on 2C13.

1.10 1C15/2C15

1. On 1C15 the TCBS are labeled different than on 2C15 (human factors engineered on U-2). This causes the alarms on 1/2C05 to be labeled different.

ANNUNCIATOR DIFFERENCES

<u>ANNUNCIATOR</u> <u>WINDOW</u>	<u>UNIT ONE</u> <u>ENGRAVING</u>	<u>UNIT TWO</u> <u>ENGRAVING</u>	<u>COMMENTS</u>
1C03/2C03			
C1-3	ALARM WINDOWS LEFT JUSTIFIED	ALARM WINDOWS RIGHT JUSTIFIED	WORDING
C14	HIGH	HI	SPELLING
C15	CONDENSATE STORAGE TANK 11 LEVEL	DEMIN WTR 21 COND STG TK LEVEL	WORDING
C17	CONDENSATE PRE-COAT FILTER SYSTEM	CONDS PRECOAT FILTER SYSTEM	WORDING
C18	CONDS. PRECOAT FILTER SYS DIFF PRESS HI	CONDS PRECOAT FILTER SYSTEM DIFF PRESS HI	WORDING
C23	MAKEUP DEMIN SYS	MFW PUMPS CSAS/SGIS OVERRIDE	WORDING
C24	WASTE NEUT TANK 11/12 HI LEVEL	BLANK	
C33	MFW PUMPS CSAS/SGIS OVERRIDE	21 MOIST SEP REHEAT DRAIN TANK LEVEL	WORDING
C34	11 MOIST SEP REHEAT DRAIN TANK LEVEL	22 MOIST SEP REHEAT DRAIN TANK LEVEL	
C35	12 MOIST SEP REHEAT DRAIN TANK LEVEL	23 MOIST SEP REHEAT DRAIN TANK LEVEL	
C36	BLANK	24 MOIST SEP REHEAT DRAIN TANK LEVEL	

ANNUNCIATOR WINDOW	UNIT ONE ENGRAVING	UNIT TWO ENGRAVING	COMMENTS
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1C03/2C03

C44	BLANK	21 SGFP TURBINE SPEED HOLD OR SYSTEM TROUBLE	
C48	BLANK	22 SGFP TURBINE SPEED HOLD OR SYSTEM TROUBLE	
C49	BLOWDOWN TANK RECOVERY SYS TROUBLE	BLOWDOWN RECOVERY SYS TROUBLE	WORDING
C57	LARGE LETTERS	SMALL LETTERS	
C61	LARGE LETTERS	SMALL LETTERS	
C66	CONDENSATE STORAGE TANK 12 LEVEL	CONDENSATE STORAGE TANK 12 LEVEL	WORDING
C72	DE-AERATOR LEVEL	BLANK	

1C05/2C05

D40	LARGE LETTERS	SMALL LETTERS	
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SEE 1C15 - 2C15 DIFFERENCES FROM PART 1.0 OF THIS REPORT.

1C06/2C06

E19	SMALL LETTER	LARGE LETTERS	
E20	BLANK	21 REACTOR VESSEL FLANGE TEMP LO	
E22		DARK LETTERS	
E38	RXV TEMP LO PRESS HI	BLANK	

ANNUNCIATOR UNIT ONE		UNIT TWO	
<u>WINDOW</u>	<u>ENGRAVING</u>	<u>ENGRAVING</u>	<u>COMMENTS</u>
1C06/2C06			
E41	UNIT 1 PLANT COMPUTER	UNIT 2 PLANT COMPUTER	ARRANGEMENT
E45	LARGE LETTERS	SMALL LETTERS	
1C07/2C07			
F20	CONTAINMENT IA ISOLATION IA-2085-CV SHUT	LETDOWN ISOLATED 2CV2085	
F45	CHG HEADER ...	CHARGING HDR ...	SPELLING
1C08-9-10/2C08-9-10			
G4	CNTMT PRESS TRANSMITTERS ISOLATED	FLANK	
G12	BLANK	CNTMT PRESS TRANSMITTER ISOLATED	
G34	BLANK	ACTUATION SYST AUTO TEST INTERRUPTED	
	ALARMS FOR SIT LEVEL/PRESS HI SIT LEVEL/PRESS LO	ALARMS FOR SIT PRESS HI/LO SIT LEVEL HI/LO	
H52	LETTERING IS DIFFERENT AND SPACED FURTHER APART ON 1C09		

ANNUNCIATOR WINDOW	UNIT ONE ENGRAVING	UNIT TWO ENGRAVING	COMMENTS
1C08-9-10/2C08-9-10			
H27	SERV WTR ...	SERV WATER ...	SPELLING
H28	SERV WTR ...	SERV WATER ...	SPELLING
J8	PLANT VENT. EFFL. RAD MONITOR 2C24B	PLANT VENTILATION EFFLUENT RADIATION MONITOR 2C24B	WORDING
J9	H ₂ ANALYZING SYSTEM	RECORDER PANEL	WORDING
J10	AUX BLDG TEMPS HI	AUX BLDG TEMPS HI	
J19	SEWAGE TREATMENT LEVEL HI	BLANK	
J23	INTAKE SUMP OR STRUCTURE LEVEL HI	INTAKE STRUCTURE LEVEL HI	WORDING
J25	CONDR PIT LEVEL HI	CONDENSER PIT LEVEL HI	WORDING
1C13/2C13			
K3	11 SRW HX OUT TEMP HI	22 SALT WTR AIR COMPR LOCAL CONTR	WORDING
K7	12 SRW HX OUT TEMP HI	21/22 SRW HX SRW OUT TEMP HI	WORDING
K15	SMALL LETTERS	LARGE LETTERS	
K16	SFP COOLING PPS DISCH PRESS LO	IN STR AIR CLR SALT WTR STRWNR DIFF PRESS HI	WORDING

ANNUNCIATOR <u>WINDOW</u>	UNIT ONE <u>ENGRAVING</u>	UNIT TWO <u>ENGRAVING</u>	<u>COMMENTS</u>
1C13/2C13			
K18	SFP DEMIN 'FLOW LO 'DIFF PRESS HI	BLANK	
K19	SFP FILTER DIFF PRESS HI	BLANK	
K20	SFP LEVEL TEMP HI	BLANK	
K24	SFP COOLER DISCH TEMP HI	BLANK	
K30	SMALL LETTERS	LARGE LETTERS	

UNIT TWO AND UNIT ONE CONTROL ROOM
SUPPORT DIFFERENCES

a. System Differences

Service Water - Insignificant Difference in Turbine Building
Feedwater Control - Trained on in Classroom/Lab
Mn Turbine & Generator - 2C02 Modeled on Simulator
SGFP's & Turbine - Covered with Feedwater Control Differences

b. Technical Spec Differences

ASI Trip Setpoints Figure 2.2-1
Fire Detector Instr Table 3.3-11/3.7.5
LTOP T.S. Changes 3.1.2.1, 3.1.2.3, 3.4.9.1, 3.4.9.3, 3.5.3,
CEA Recovery Times 3.1.3.1, Fig. 3.1-3
Peak Linear Heat Rate, Fig. 3.2-1 T.S. 3.2.1 & Fxyt Fig. 3.2.3b
Fr T.S. 3.2.3, Fig. 3.2.3c
T.S.3.2.5 U-2 Addresses Basss
Table 3.2.4 AFAS Block Hi Delta P Setpoint

c. Procedure Differences

Having reviewed the Control Room Operator Qualification Manual,
the following were identified as Unit Task Differences (where there
were separate Unit One and Unit Two tasks):

Main Turbine
Turbine Control
Turbine Generator Bearing Oil
Generator and Exciter
Generator Cooling and Seal Oil Systems
Reheat System
Main Feedwater

Condensate System:

Task: Direct Plant Operators to respond to High Unit
One/Two Turbine Exhaust Hood Temperatures.

d. Operational Characteristics

Both Primary Plants are CE Design
Both Secondary Plants are similar except under "Sys Differences"
FSAR analyses are for both units

IV.E.

ACCEPTED DIFFERENCES

1.0 PANEL DIFFERENCES

1.1 1C01

1. Synchroscope mimic labeling is black in the reference plant and olive green in the simulator. This difference was accepted, with no change required, to the simulator during the 12/89 SCRC meeting.

1.2 1C02

1. The Unit 1 main turbine recorder 1-SR-4678 in the simulator is different from the type installed in the reference plant. It was approved in the initial design of the simulator to substitute a Tracor-Westronics recorder for the obsolete Leeds & Northrup. Refer to Mod.# 4.
2. The Unit 1 main turbine recorder 1-TR-4404 in the simulator does not have the point bypass option as in the reference plant. This deviation was approved in the initial design of the simulator. Refer to Mod.# 13.
3. The small (3/4" x 1") labels for 1-HS-4018 and 1-HS-4019 are on the left side of the switches in the reference plant and on the right side in the simulator. The adjacent vibration phase angle selection switch panel is too close in the simulator to allow for placement of the labels on the left. This difference was accepted, with no change required, to the simulator during the 12/89 SCRC meeting.
4. The simulator's shell warming and load limit-set potentiometers have different style vernier dials than those in the reference plant. This difference was accepted, with no change required, to the simulator during the 12/90 SCRC meeting.

1.3 1C03

1. Number 11 & 12 MSIV test switches and test jacks are in slightly different locations in the simulator. This difference was accepted, with no change required, to the simulator during the 12/89 SCRC meeting.
2. Controller 1-FIC-1121 has a black bezel in the plant and an olive green bezel in the simulator. This difference was accepted, with no change required, to the simulator during the 12/90 SCRC meeting.

3. The "S/G BD Tank Vent To Htr Drn Tks" handswitch is a different type. This difference was accepted, with no change required, to the simulator during the 12/90 SCRC meeting.

1.4 1C04

1. The secondary Control Element Assembly meter display is a different type of LED display than what is installed in the reference plant. This difference was approved in the initial design of the simulator.
2. The simulator has a digital clock on 1C04 and the reference plant has a round analog clock. This difference was approved in the initial design of the simulator.

1.5 1C05

1. In the Reference Plant there is a patch panel in the back of 1C05 used to select which WPNI channel is connected to the SMM. The simulator does not have such a panel. This difference was accepted, with no change required, to the simulator during the 12/89 SCRC meeting.
2. The reference plant has a framed 1 year calendar hanging over 1C05 that is not in the simulator. This difference was accepted, with no change required, to the simulator during the 1/90 SCRC meeting.
3. The power ratio setpoint/deviation adjustment potentiometers have different locking devices and dials than those in the reference plant. This difference was accepted, with no change required, to the simulator during the 12/90 SCRC meeting.

1.6 1C06

1. The acoustic monitor display on the simulator uses a codicount segmented display as opposed to a one piece display in the reference plant. This difference was approved in the initial design of the simulator. Ref to Mod.# 5.

2. The plants PORV override label is roughly engraved with large lettering, while the label in the simulator is professionally done. This difference was accepted, with no change required, to the simulator during the 12/90 SCRC meeting.

1.7 1C07

1. The boric acid and DI water batching switch used in the plant are obsolete and replaced by a IVO Type FS229 subtracted type switch in the simulator. This difference was approved in the initial design of the simulator. Refer to Mod.# 1.
2. The make-up mode selector switch 1-HS-210 in the reference plant has been replaced by a new style and relocated slightly to accommodate its larger switch wafers. Refer to FCR# 86-0024. the slight difference in location of the switch does not justify its relocation in the simulator, however the new style switch has been installed.

Refer to completed SMR# 663.

3. The 1-FY-202 instruments above the boronometer are not visually simulated in the simulator. This difference was accepted, with no change required, to the simulator during the 12/90 SCRC meeting.
4. The bezels for 1-FQ-210X&Y are black in the reference plant and olive green in the simulator. This difference was accepted, with no change required, to the simulator during the 12/90 SCRC meeting.
5. In the reference plant the bezel for the 210X batching switch is black and olive green in the simulator. This difference was accepted, with no change required, to the simulator during the 12/90 SCRC meeting.

1.8 1C08

1. The mimic for the containment spray headers in the simulator are different from the plant. This difference was accepted, with no change required, to the simulator during the 12/90 SCRC meeting.

1.9 1C09

1. NONE

1.10 1C10

1. In the simulator the H₂ monitor recorder (O-AR-6519) is lower on the panel than in the reference plant which makes it necessary to place the label describing the sample point locations above the recorder instead of below it as it is in the reference plant. This difference was accepted with no change required to the simulator during the 12/89 SCRC meeting.
2. The Simulator is missing the "No Smoking In Control Panel Area: red sign and the reactor vessel level cabel connector on the end of the 1C10 panel. This difference was accepted, with no change required, to the simulator during the 12/90 SCRC meeting.

1.11 1C13

1. NONE

1.12 1C15

1. The RPS trip modules won't pull out. One must walk behind the 1C15 panel and throw the appropriate toggle switches to trip the bistables. This was approved in the initial design of the simulator.
2. In the reference plant several of the drawers have lock bolts on their handles that are missing in the simulator. This difference was accepted, with no change required, to the simulator during the 12/90 SCRC meeting.
3. The linear range power meters in the reference plant are "Gulf Genera Atomics" and in the simulator are "General Electric". This difference was accepted, with no change required, to the simulator during the 12/90 SCRC meeting.
4. The cable release (all 4 channels) in the reference plant are pull to retract and in the simulator are push to retract. This difference was accepted, with no change required, to the simulator during the 12/90 SCRC meeting.

5. The trip breaker status lights in the reference plant have clear lenses and are not as bright as in the simulator. This difference was accepted, with no change required, to the simulator during the 12/90 SCRC meeting.

6. The phase current lights in the reference plant are equal in brightness to the simulator, but have clear lenses. This difference was accepted, with no change required, to the simulator during the 12/90 SCRC meeting.

7. The position of the labels "1C15" and "Reactor Protective System" in the reference plant are reversed from their position in the simulator. This difference was accepted, with no change required, to the simulator during the 12/90 SCRC meeting.

1.13 1C17

1. The cable connectors in the reference plant for fuel management's reactivity computer at the end of 1C17 are not installed in the simulator. This difference was accepted, with no change required, to the simulator during the 12/90 SCRC meeting.

1.14 1C18

1. NONE

1.15 1C19

1. The synch stick in the reference plant has a white handle and the one in the simulator is brown. This difference was accepted, with no change required, to the simulator during the 1/90 SCRC meeting.

1.16 1C20

1. NONE

1.17 1C22 H

1. See 1C22 comments.

1.18 1C22

1. The location of 1C22A, B, D and H in the simulator differ from the reference plant. In the reference plant 1C22A B, D and H are across from 1C24A, the simulator design locates these panels in the wedge section along side 1C24A, and 1C22H is located on the wedge section door. This difference was approved in the initial design of the simulator. Refer to Mod.# 2.

1.19 1C24A

1. In the reference plant the 11 bus and 21 bus ground test switches are different types than those in the simulator. This difference was accepted, with no change required, to the simulator during the 12/90 SCRC meeting.

1.20 1C33

1. NONE

1.21 1C34

1. NONE

1.22 1C35

1. NONE

1.23 1C36

1. NONE

1.24 1C43

1. The simulator is missing the "Do not key radio transmitters within 10 ft" sign that is on the reference plants 1C43. This difference was accepted, with no change required, to the simulator during the 12/90 SCRC meeting.

1.25 2C02

1. There are two (2) spare handswitches on the reference plant's 2C02 panel that are not installed on the simulator. This difference was approved in the initial design of the simulator.
2. The Unit 2 main turbine recorder 2-AR-8250 in the simulator is different from the type installed in the reference plant. It was approved in the initial design of the simulator to

substitute a Tracor-Westronics recorder for the obsolete Leeds & Northrup. Refer to Mod.# 3.

3. The simulators second stage steam manual adjustment potentiometer knob is a different type from the one in the reference plant. This difference was accepted, with no change required, to the simulator during the 12/90 SCRC meeting.

4. The simulators U-2 turbine control panel key switch bezels are different from those in the reference plant. This difference was accepted, with no change required, to the simulator during the 12/90 SCRC meeting.

3. The Unit 2 turbine reference and setter display on the turbine control panel are LED displays in the simulator and gas discharge displays in the reference plant. This difference was approved in the initial design of the simulator. Refer to Mod.# 7.

1.26 2C17

1. NONE

1.27 2C24A

1. NONE

1.28 2C24B

1. Recorders 1-RR-5415 and 1-RR-5416 in the reference plant are Leeds and Northrup and in the simulator are Tracor Westronics. This difference was accepted, with no change required, to the simulator during the 12/89 SCRC meeting.

1. The cable connectors in the reference plant for fuel management's reactivity computer at the end of 1C17 are not installed in the simulator. This difference was accepted, with no change required, to the simulator during the 12/90 SCRC meeting.

2.0 MISCELLANEOUS

1. The following control boards have not been incorporated into the simulator (by design): 1C24B, 1C26, 1C39, 1C22G, E&F, 1C31, 1C32, 1C23 and 1C29. Refer to Mod.# 52.
2. The mimic material used in the simulator is plastic strip, approximately 1/8 inch thick, while in the reference plant it's dyna-label material. This difference was accepted, with no change required, to the simulator during the 12/89 SCRC meeting.
3. There is a trunk/cable way installed overhead between panels 1C10 and 1C15 in the reference plant that is not installed in the simulator. This difference was accepted, with no change required, to the simulator during the 12/89 SCRC meeting.
4. The simulator control room construction is not the same as the reference plant. This includes the ceiling height and lighting, a false floor, the remote instructor station located on the simulator floor, the main instructor station booth and the glassed in observation deck. This was approved in the original design of the simulator and building.
5. The Reference Plant has a xerox machine next to 1C13, the simulator does not. This difference has been accepted with no changes required, as per John R. Hill.
6. An audio sound system has been installed on the control boards of the simulator that does not exist in the plant.

Refer to Mod.# 123 and SMR# 422.

7. A video system including cameras mounted to the control room ceiling are installed in the simulator that does not exist in the reference plant.

Refer to Mod.# 124 and SMR# 423.

8. The Reference Plant has a key box at the end of the rear C'S's desk, the Simulator key box is in the front of the rear CRS'S desk. This was approved in the original design of the simulator furniture.

(Item 18 on attached Figure 1)

9. The Reference Plant keeps E-Prints, Miscellaneous Tools, FSARs and Chemistry Procedures in drawers on the he back side

of the rear CRS's desk. The Simulator has cables and wiring in the drawers. This was approved in the original design of the simulator furniture.

(Item 19 on attached Figure 1)

10. Most of the procedures cannot be put in the same location in the Simulator as in the Reference Plant because the shelves are too short. This was approved in the original design of the simulator furniture.

(Note: Items 5 thru 10 on attached Figure 1).

11. The simulator does not have the red stripe on the floor that runs behind the CRS's desk in the reference plant which divides the general access area from the no access without permission area. This difference was accepted, with no change required, to the simulator during the 12/90 SCRC meeting.

Refer to SMR# 1454.

12. The simulator does not have the "DO NOT CROSS THE RED LINE WITHOUT THE CONTROL ROOM OPERATORS PERMISSION" sign. This difference was accepted, with no change required, to the simulator during the 12/90 SCRC meeting.

Refer to SMR# 947.

13. In the reference plant the control room panels have various spare tag areas (1C04 and 1C07) which are squared off with mimic. These areas in the simulator are not bordered with mimic. This difference was accepted, with no change required, to the simulator during the 12/90 SCRC meeting.

Refer to SMR# 1123 (FCR 88-201).

14. In the plant there is a TLD locator in back of the CRS's desk, the simulator doesn't have one. This difference was

accepted, with no change required, to the simulator during the 12/90 SCRC meeting.

15. In the plant, miscellaneous panel light bulb lenses (red & green) appear to be more opaque than the simulator light bulb lenses (1C02, 1C04 & 2C02). This difference was accepted, with no change required, to the simulator during the 12/90 SCRC meeting.

(The bulb filaments are not as clearly visible through the lenses in the plant)

16. The small status annunciator panels in the simulator do not have the bezels or manufacturer labels that are in the reference plant. This difference was accepted, with no change required, to the simulator during the 12/90 SCRC meeting.
17. In the reference plant, on the desk in back of the CRS's desk there are portable transceivers and charging stations that are not in the simulator. This difference was accepted, with no change required, to the simulator during the 12/90 SCRC meeting.
18. The mimic on misc. panels in the reference plant is thicker (approx. 1/8") than the mimic on the simulator (approx. 1/16"). This difference was accepted, with no change required, to the simulator during the 12/90 SCRC meeting.
19. The "walkie-talkie" system in the simulator does not transmit or receive. This difference was accepted, with no change required, to the simulator during the 12/90 SCRC meeting.
20. The simulator is missing the IN/OUT mail file that is on the desk behind the CRS's desk in the reference plant. This difference was accepted, with no change required, to the simulator during the 12/90 SCRC meeting.
21. The simulator does not have the "Stop! one person at a time" sign on the side of 2C17. There is also a table under this

sign which is not in the simulator. This difference was accepted, with no change required, to the simulator during the 12/90 SCRC meeting.

22. The Reference Plant has a personal computer and laser jet printer sitting on a computer table in front of the CRS's desk. The Simulator has a personal computer but no printer. This difference was accepted, with no change required, to the simulator during the 12/90 SCRC meeting.

THE FOLLOWING SIMULATOR SETPOINTS DISAGREE
WITH THE REFERENCE PLANT AND HAVE SMRs WRITTEN TO CORRECT THEM

CERTIFICATION SECTION IV.F.

1990 SETPOINT COMPARISON BY SYSTEM

12/21/90 AT 9:34:09

MODSPEC	SUBS	SIMULATOR NAME	SIMULATOR VALUE	G	SYSN	INSTRUMENT	PLANT SETPOINT	D	COMMENTS
MSP-118	PRMI	DATA HIGH_SETPOINT(11)	40000 cpm		0-79	0-R1-2201	29000 cpm	x	SMR1400
MSC-016	CCWI	HARDCODE BISHI CCWI.FLX	7 psid		1-15	1-PDIS-3827	14.5 psid	x	SMR1398, 1C09 H49
MSC-016	CCWI	HARDCODE BISHI CCWI.FLX	7 psid		1-15	1-PDIS-3929	14.5 psid	x	SMR1398, 1C09 H49
MSP-117	CAI	CAI_COMP1A_SETPOINT	104.7 psia	x	1-19	1-PS-2056	93 psig	x	SMR1399
MSP-117	CAI	CAI_P1C13K30_STPT	94.7 psia	x	1-19	1-PS-2060	90 psig	x	SMR1399, 1C13 K30
MSP-117	CAI	CAS_PS2061_SETPOINT	99.7 psia	x	1-19	1-PS-2061	88 psig	x	SMR1399
MSP-117	CAI	CAI_COMP12_SETPOINT	114.7 psia	x	1-19	1-PS-2062,2064	HI 104 psig	x	SMR1399
MSP-117	CAI	CAI_COMP11_SETPOINT	107.7 psia	x	1-19	1-PS-2062,2064	LO 97 psig	x	SMR1399
MSP-117	CAI	CAI_P1C13K26_STPT	102.7 psia	x	1-19	1-PS-2079	90 psig	x	SMR1399
MSC-003	CNDI	PARAM PS6083_SP	62.5 psid		1-39	1-PS-6083	13 psig		(13 psig=62.5 psid)
MSC-001	LDNI	PARAM SETPOINT_F15	30 psid		1-41	1-PDIS-202	50 psid	x	SMR1390
MSC-003	CNDI	PARAM CND_SP CNDIPMP.FLX	175 psig		1-44	1-PS-4414,21,28	175 psig		
MSC-003	CNDI	PARAM PS4436_SP	185 psig		1-44	1-PS-4436	185 psig		1C03 C4
MSC-003	CNDI	PARAM SUCT_SP CNDIPMP.FLX	20 psig		1-44	1-PS-4453	20 psig		
MSC-003	CNDI	PARAM CNDSP_SP CNDIPMP.FLX	335 psig		1-44	1-PS-4454,61,68	335 psig		
MSC-003	CNDI	PARAM SUCT_SP CNDIPMP.FLX	22 psig		1-44	1-PS-4460	22 psig		
MSC-003	CNDI	PARAM SUCT_SP CNDIPMP.FLX	24 psig		1-44	1-PS-4467	24 psig		
MSC-003	FWSI	PARAM SUCT_SP OILN.FLX	236 psig		1-45	1-PS-4482	275 psig	x	SMR1393, 1C03 C25
MSC-003	FWSI	PARAM DISCH_HHI OILN.FLX	1450 psig		1-45	1-PS-4490	1450 psig		
MSC-003	FWSI	PARAM DISCH_SP OILN.FLX	1400 psig		1-45	1-PS-4491	1300 psig	x	SMR1392, 1C03 C50
MSC-003	FWSI	PARAM DISCH_SP OILN.FLX	1400 psig		1-45	1-PS-4496	1300 psig	x	SMR1392, 1C03 C66
MSC-003	FWSI	FWSI_TURB_VIBR	3 mils	x	1-45	1-VR-3962/1	5 mils	x	1C17 L12, SMR 1835
MSC-003	FWSI	FWSI_TURB_VIBR	3 mils	x	1-45	1-VR-3962/2	5 mils	x	1C17 L12, SMR 1835
MSC-003	FWSI	FWSI_TURB_VIBR	3 mils	x	1-45	1-VR-3962/3	5 mils	x	1C17 L12, SMR 1835
MSC-003	FWSI	FWSI_TURB_VIBR	3 mils	x	1-45	1-VR-3962/4	3 mils	x	1C17 L12, SMR 1835
MSC-003	CNDI	CNDI_FIC1466_SP (PBM)	1100 gpm	x	1-47	1-FIC-1466	1200 gpm	x	SMR 1721
MSC-003	CNDI	CNDI_FIC1466_SP (PBM)	1100 gpm	x	1-47	1-FIC-1469	1200 gpm	x	SMR 1826
MSC-006	TRC1	TRC1_1LS3706_STPT	0.33333'	x	1-47	1-LS-3706	5.5"	x	SMR1394, 1C03 C34
MSP-119	PC	CEA_LCSLIMIT(1)	4.5"	x	1-55	LCS REG GROUPS	6.0" min	x	SMR1434, A7001
MSP-119	PC	CEA_LCSLIMIT(5)	4.5"	x	1-55	LCS REG GROUPS	6.0" min	x	SMR1434, A7005
MSP-119	PC	CEA_LCSLIMIT(4)	4.5"	x	1-55	LCS REG GROUPS	6.0" min	x	SMR1434, A7004

THE FOLLOWING SIMULATOR SETPOINTS DISAGREE
WITH THE REFERENCE PLANT AND HAVE SMRs WRITTEN TO CORRECT THEM
CERTIFICATION SECTION IV.F.
1990 SETPOINT COMPARISON BY SYSTEM

12/21/90 AT 9:34:14

MODSPEC	SUBS	SIMULATOR NAME	SIMULATOR VALUE	G	SYSN	INSTRUMENT	PLANT SETPOINT	D	COMMENTS
MSP-119	PC	CEA_LCSLIMIT(3)	4.5"	x	1-55	LCS REG GROUPS	6.0" min	x	SMR1434, A7003
MSP-119	PC	CEA_LCSLIMIT(2)	4.5"	x	1-55	LCS REG GROUPS	6.0" min	x	SMR1434, A7002
MSP-119	PC	CEA_LCSLIMIT(10)	4.5"	x	1-55	LCS SD GROUPS	6.0" min	x	SMR1434, A7000C
MSP-119	PC	CEA_LCSLIMIT(9)	4.5"	x	1-55	LCS SD GROUPS	6.0" min	x	SMR1434, A7000B
MSP-119	PC	CEA_LCSLIMIT(8)	4.5"	x	1-55	LCS SD GROUPS	6.0" min	x	SMR1434, A7000A
MSP-119	PC	CEA_LIM_TABLE(5,5)	107.25"	x	1-55	PDIL GR5 90-100%	90.0"	x	SMR1435, K50058 computer
MSP-119	PC	CEA_UCSLIMIT(4)	131.75"	x	1-55	UCS REG GROUPS	130.3" max	x	SMR1354, A1004
MSP-119	PC	CEA_UCSLIMIT(3)	131.75"	x	1-55	UCS REG GROUPS	130.5" max	x	SMR1354, A1003
MSP-119	PC	CEA_UCSLIMIT(5)	131.75"	x	1-55	UCS REG GROUPS	130.5" max	x	SMR1354, A1005
MSP-119	PC	CEA_UCSLIMIT(2)	131.75"	x	1-55	UCS REG GROUPS	130.5" max	x	SMR1354, A1002
MSP-119	PC	CEA_UCSLIMIT(1)	131.75"	x	1-55	UCS REG GROUPS	130.5" max	x	SMR1354, A1001
MSC-009	RPS	RPS_TMLP_PIA102_HI_TSP	3.90V	x	1-58	1-PIA-102A,B,C,D	H=2225 psie	x	SMR1397, -5V/+5V=0/2500 psie
MSC-009	RPS	RPS_TMLP_PIA102_LO_TSP	2.50V	x	1-58	1-PIA-102A,B,C,D	L=1875 psie	x	SMR1397, -5V/+5V=0/2500 psie
MSC-009	RPS	RPS_APD_KUX1(1)	0.4	x	1-58	APD BREAK 1 CH A	0.52	x	SMR 1831
MSC-009	RPS	RPS_APD_KUX1(2)	0.4	x	1-58	APD BREAK 1 CH B	0.52	x	SMR 1831
MSC-009	RPS	RPS_APD_KUX1(3)	0.4	x	1-58	APD BREAK 1 CH C	0.52	x	SMR 1831
MSC-009	RPS	RPS_APD_KUX1(4)	0.4	x	1-58	APD BREAK 1 CH D	0.52	x	SMR 1831
MSC-009	RPS	RPS_APD_KYON(1)	0.580	x	1-58	APD YON CH A	0.48	x	SMR 1832
MSC-009	RPS	RPS_APD_KYON(2)	0.580	x	1-58	APD YON CH B	0.48	x	SMR 1832
MSC-009	RPS	RPS_APD_KYON(3)	0.580	x	1-58	APD YON CH C	0.48	x	SMR 1832
MSC-009	RPS	RPS_APD_KYON(4)	0.580	x	1-58	APD YON CH D	0.48	x	SMR 1832
MSC-009	RPS	RPS_APD_KYOP(1)	0.580	x	1-58	APD YOP CH A	0.48	x	SMR 1832
MSC-009	RPS	RPS_APD_KYOP(2)	0.580	x	1-58	APD YOP CH B	0.48	x	SMR 1832
MSC-009	RPS	RPS_APD_KYOP(3)	0.580	x	1-58	APD YOP CH C	0.48	x	SMR 1832
MSC-009	RPS	RPS_APD_KYOP(4)	0.580	x	1-58	APD YOP CH D	0.48	x	SMR 1832
MSC-009	RPS	RPS_BS_TRIPSETPT(1,2)	2.430 dpm	x	1-58	ATU2 TRIP	H=2.430 dpm		<=2.6 Limit Defined per T.S.
MSC-009	RPS	RPS_BS_PTRIPSETPT(1,3)	97.126%	x	1-58	ATU3 PRETRIP	-3.936V	x	SMR1396, %=(v+2.1413)/.018478
MSC-009	RPS	RPS_BS_TRIPSETPT(1,3)	94.962%	x	1-58	ATU3 TRIP	-3.896V	x	SMR1396, %=(v+2.1413)/.018478
MSC-009	RPS	RPS_BS_TRIPSETPT(2,2)	2.430 dpm	x	1-58	BTU2 TRIP	H=2.430 dpm		<=2.60PM setpoint per T.S
MSC-009	RPS	RPS_BS_PTRIPSETPT(2,3)	99.399%	x	1-58	BTU3 PRETRIP	-3.978V	x	SMR1396, %=(v+2.1413)/.018478
MSC-009	RPS	RPS_BS_TRIPSETPT(2,3)	97.235%	x	1-58	BTU3 TRIP	-3.930V	x	SMR1396, %=(v+2.1413)/.018478

THE FOLLOWING SIMULATOR SETPOINTS DISAGREE
WITH THE REFERENCE PLANT AND HAVE SMRs WRITTEN TO CORRECT THEM
CERTIFICATION SECTION IV.F.
1990 SETPOINT COMPARISON BY SYSTEM

12/21/90 AT 9:34:19

MGDSPEC	SUBS	SIMULATOR NAME	SIMULATOR VALUE	G	SYSN	INSTRUMENT	PLANT SETPOINT	D	COMMENTS
MSC-009	RPS	RPS_BS_TRIPSETPT(3,2)	2.430 dpm	x	1-58	CTU2 TRIP	H=2.430 dpm		
MSC-009	RPS	RPS_BS_TRIPSETPT(4,2)	2.430 dpm	x	1-58	DTU2 TRIP	H=2.430 dpm		
MSC-002	RCPI	RCPI_SP15	1.1 gpm	x	1-64	1-FT-150	L=0.5 gpm	x	1C07B X3, SMR 1713
MSC-002	RCPI	RCPI_SP16	2.0 gpm	x	1-64	1-FT-150	H=1.6 gpm	x	1C07B X3
MSC-002	RCPI	SGL P1C06_1PIA152_MT	BISHI=1675 psia		1-64	1-PIA-152	HI 1716 psia	x	MOD FOR REALISTIC PANEL RESP., SMR 1828
MSC-002	RCPI	SGL P1C06_1PIA152_MT	BISLO=1305 psia		1-64	1-PIA-152	LO 1316 psia	x	MOD FOR REALISTIC PANEL RESP., SMR 1829
MSC-002	RCPI	SGL P1C06_1PIA153_MT	BISHI=930 psia		1-64	1-PIA-153	HI 983 psia	x	MOD FOR REALISTIC PANEL RESP., SMR 1829
MSC-002	RCPI	SGL P1C06_1PIA162_MT	BISHI=1750 psia		1-64	1-PIA-162	HI 1716 psia	x	SMR1391, 1C06 E55
MSC-002	RCPI	SGL P1C06_1PIA162_MT	BISLO=900 psia		1-64	1-PIA-162	LO 1316 psia	x	SMR1391, 1C06 E55
MSC-002	RCPI	SGL P1C06_1PIA163_MT	BISLO=500 psia		1-64	1-PIA-163	LO 583 psia	x	SMR1391, 1C06 E55, SMR 1829
MSC-002	RCPI	SGL P1C06_1PIA163_MT	BISHI=945 psia		1-64	1-PIA-163	HI 983 psia	x	SMR1391, 1C06 E55, SMR 1829
MSC-002	RCPI	SGL P1C06_1PIA172_MT	BISHI=1793 psia		1-64	1-PIA-172	HI 1716 psia	x	SMR1391, SMR 1828
MSC-002	RCPI	SGL P1C06_1PIA172_MT	BISLO=1297 psia		1-64	1-PIA-172	LO 1316 psia	x	MOD FOR REALISTIC PANEL RESP., SMR 1828
MSC-002	RCPI	SGL P1C06_1PIA173_MT	BISHI=1150 psia		1-64	1-PIA-173	HI 983 psia	x	SMR1391, 1829
MSC-002	RCPI	SGL P1C06_1PIA173_MT	BISLO=552 psia		1-64	1-PIA-173	LO 583 psia	x	MOD FOR REALISTIC PANEL RESP., SMR 1829
MSC-002	RCPI	SGL P1C06_1PIA182_MT	BISLO=1193 psia		1-64	1-PIA-182	LO 1316 psia	x	SMR1391, 1828
MSC-002	RCPI	SGL P1C06_1PIA182_MT	BISHI=1697 psia		1-64	1-PIA-182	HI 1716 psia	x	MOD FOR REALISTIC PANEL RESP., SMR 1828
MSC-002	RCPI	SGL P1C06_1PIA183_MT	BISLO=493 psia		1-64	1-PIA-183	LO 583 psia	x	SMR1391, 1829
MSC-002	RCPI	SGL P1C06_1PIA183_MT	BISHI=952 psia		1-64	1-PIA-183	HI 983 psia	x	MOD FOR REALISTIC PANEL RESP., SMR 1829
MSC-002	PRSI	PRSI_PY_SP	384.4 Psia	x	1-64	1-PY-103	430 psia	x	SMR-1827
MSP-118	PRMI	DATA HIGH SETPOINT(13)	1500 cpm		1-79	1-RI-4014	1900 cpm	x	SMR1400, 1C22 A4
MSC-004	MSI	MSI_1LS6601_STPT	10'	x	1-83	1-LS-6601	2 5/8" C/L top line	x	SMR813
MSC-004	MSI	MSI_1PS4043B_STPT	1575 psig	x	1-83	1-PS-4043B	close 1675 psig	x	SMR 1830
MSC-004	MSI	MSI_1PS4048B_STPT	1575 psig	x	1-83	1-PS-4048B	close 1675 psig	x	SMR 1830
MSC-007	TSI2	TSI2_DE2LO_TSP	0.259"	x	2-93	DIF EXP GEN LONG	741 mils	x	SMR815, 2C02 B33
MSC-007	TSI2	TSI2_DE2HI_TSP	1.225"	x	2-93	DIF EXP GEN SHORT	-225 mils		2C02 B33

Printed 57 of the 1010 records.

THE FOLLOWING UNIT 2 SETPOINTS
DIFFER FROM THE REFERENCE PLANT (UNIT-1) SETPOINTS
CERTIFICATION SECTION IV.G

12/21/90 AT 9:35:20

SYSN	U-1 INSTRUMENT	U-1 SETPOINT	U-2 INSTRUMENT	U-2 SETPOINT	SIM SETPOINT	COMMENTS 1	COMMENTS 2	D	PLT
1-09	1-PDS-5187	10" D/P	2-PDS-5187	8" D/P +/- .6"					Y
1-15	1-LS-3820	open cv=42"	2-LS-3820	open cv=43"					Y
1-41	1-LIA-206	HI 136" on mtr	2-LIA-206	HI 144" on mtr					Y
1-41	1-LIA-208	HI 136" on mtr	2-LIA-208	HI 144" on mtr					Y
1-41	1-PDIS-202	50 psid	2-PDIS-202	30 psid				X	Y
1-44	1-LS-4404	54 3/8"	2-LS-4404	52"					Y
1-44	1-LS-4405	47 7/8"	2-LS-4405	44 1/2"					Y
1-44	1-PS-4414,21,28	175 psig	2-PS-4414,21,28	165 psig					Y
1-44	1-PS-4436	185 psig	2-PS-4436	175 psig					Y
1-45	1-FIC-4484	3750 gpm	2-FIC-4484	2000 gpm +/- 100 gpm					Y
1-45	1-FIC-4485	3750 gpm	2-FIC-4485	2000 gpm +/- 100 gpm					Y
1-45	1-LS-4705,4711	alarm -28"	2-LS-4705,4711	alarm -48 13/16"					Y
1-45	1-LS-5035	L=-2.5"	2-LS-8015	L=26.5"					Y
1-45	1-LS-5035	H=2.5"	2-LS-8015	H=39.5"					Y
1-45	1-LS-5081	H=2.5"	2-LS-8055	H=39.5"					Y
1-45	1-LS-5081	L=-2.5"	2-LS-8055	L=26.5"					Y
1-45	1-PS-4990	open 100 psig	1-PS-8015	open 123 psig					Y
1-45	1-PS-4990	close 125 psig	2-PS-8015	close 115 psig					Y
1-45	1-PS-4991	open 100 psig	2-PS-8017	open 123 psig					Y
1-45	1-PS-4991	close 125 psig	2-PS-8017	close 115 psig					Y
1-45	1-PS-4995	close 36 psig	2-PS-8019	close 10 psig					Y
1-45	1-PS-5001	close 5.62+/-1 psig	2-PS-8020	closes 45 psig					Y
1-45	1-PS-5001	open 8.62+/-1 psig	2-PS-8020	open 40 psig					Y
1-45	1-PS-5003	close 7 psig	2-PS-8021	close 12 psig					Y
1-45	1-PS-5003	open 4 psig	2-PS-8021	open 12 psig					Y
1-45	1-PS-5040	open 100 psig	2-PS-8020	open 40 psig					Y
1-45	1-PS-5040	close 125 psig	2-PS-8020	close 45 psig					Y
1-45	1-PS-5041	open 100 psig	2-PS-8058	open 40 psig					Y

Note: D-Difference exists between Simulator & Reference Plant, PLT-Difference exists Between Unit 1 and Unit 2

THE FOLLOWING UNIT 2 SETPOINTS
DIFFER FROM THE REFERENCE PLANT (UNIT-1) SETPOINTS
CERTIFICATION SECTION IV.G

12/21/90 AT 9:35:25

SYSN	U-1 INSTRUMENT	U-1 SETPOINT	U-2 INSTRUMENT	U-2 SETPOINT	SIM SETPOINT	COMMENTS 1	COMMENTS 2	D	PLT
1-45	1-PS-5041	close 125 psig	2-PS-8058	close 45 psig					Y
1-45	1-PS-5045	close 36 psig	2-PS-8059	close 10 psig					Y
1-45	1-PS-5045	open 45 psig	2-PS-8059	open 15 psig					Y
1-45	1-PS-5050	open 8.62+/-1 psig	2-PS-8060	open 12 psig					Y
1-45	1-PS-5050	close 5.62+/-1 psig	2-PS-8060	close 12 psig					Y
1-45	1-PS-5052	close 7 psig	2-PS-8060	close 15 psig					Y
1-45	1-PS-5052	open 4 psig	2-PS-8060	open 12 psig					Y
1-45	1-T1A-3971	H=180 F	2-T1S-8007	H=170 F					Y
1-45	1-T1A-3972	H=180 F	2-T1S-8008	H=170 F					Y
1-45	1-T1A-3984	H=180 F	2-T1S-8047	H=170					Y
1-45	1-T1A-3985	H=180 F	2-T1S-8048	H=170					Y
1-45	1-T1A-5001	H=135 F	2-T1S-8006	close=130 F					Y
1-45	1-VR-3962/1	5 mils	2-ZS-8007A	10 mils				X	Y
1-45	1-VR-3962/2	5 mils	2-ZS-8007B	10 mils				X	Y
1-45	1-VR-3962/3	5 mils	2-ZS-8007C	10 mils				X	Y
1-45	1-VR-3962/4	3 mils	2-ZS-8007D	10 mils				X	Y
1-46	1-LS-1414	H=15 3/4"	2-LS-1414	H=15"					Y
1-46	1-LS-1415	trip=16 3/4"	1-LS-1415	trip =16"					Y
1-46	1-LS-1415	trip=16 3/4"	1-LS-1415	trip=16"					Y
1-46	1-LS-1416	H=15 3/4"	2-LS-1416	H=15"					Y
1-46	1-LS-1417	trip=16 3/4"	2-LS-1417	trip=16"					Y
1-46	1-LS-1417	trip=16 3/4"	2-LS-1417	trip=16"					Y
1-46	1-LS-1418	H=12 1/4"	2-LS-1418	H=11"					Y
1-46	1-LS-1419	trip=13 1/4"	2-LS-1419	trip=12"					Y
1-46	1-LS-1419	trip=13 1/4"	2-LS-1419	trip=12"					Y
1-46	1-LS-1420	H=12 1/4"	2-LS-1420	h=12"					Y
1-46	1-LS-1421	trip=13 1/4"	2-LS-1421	trip=12"					Y
1-46	1-LS-1421	trip= 13 1/4"	2-LS-1421	trip=12"					Y

Note: D=Difference exists between Simulator & Reference Plant, PLT=Difference exists Between Unit 1 and Unit 2

THE FOLLOWING UNIT 2 SETPOINTS
DIFFER FROM THE REFERENCE PLANT (UNIT-1) SETPOINTS
CERTIFICATION SECTION 3V.G

12/21/90 AT 9:35:30

SYS#	U-1 INSTRUMENT	U-1 SETPOINT	U-2 INSTRUMENT	U-2 SETPOINT	SIM SETPOINT	COMMENTS 1	COMMENTS 2	D	PLT
1-46	1-LS-1422	H=19 3/8"	2-LS-1422	trip=17 1/16"					Y
1-46	1-LS-1423	trip=23 3/8"	2-LS-1423	trip 18 1/16"					Y
1-46	1-LS-1423	trip=23 3/8"	2-LS-1423	trip 18 1/16"					Y
1-46	1-LS-1424	H=19 3/8"	2-LS-1424	17 1/16"					Y
1-46	1-LS-1425	trip=23 3/8"	2-LS-1425	trip=18 1/16"					Y
1-46	1-LS-1425	trip=23 3/8"	2-LS-1425	18 1/16"					Y
1-46	1-LS-1426	H=18 5/8"	2-LS-1426	H=13 7/8"					Y
1-46	1-LS-1427	trip=19 5/8"	2-LS-1427	trip=14 7/8"					Y
1-46	1-LS-1427	trip=19 5/8"	2-LS-1427	trip=14 7/8"					Y
1-46	1-LS-1428	H=18 5/8"	2-LS-1428	H=13 7/8"					Y
1-46	1-LS-1429	trip=19 5/8"	2-LS-1429	trip=14 7/8"					Y
1-46	1-LS-1429	trip=19 5/8"	2-LS-1429	trip=14 7/8"					Y
1-46	1-LS-1446	H=15 13/16"	2-LS-1446	H=14 5/16"					Y
1-46	1-LS-1446	H=15 13/16"	2-LS-1446	H=14 15/16"					Y
1-46	1-LS-1446	H=15 13/16"	2-LS-1446	H=14 15/16"					Y
1-46	1-LS-1447	L=14 13/16"	2-LS-1447	L=13 5/16"					Y
1-46	1-LS-1448	H=15 13/16"	2-LS-1448	H=14 5/16"					Y
1-46	1-LS-1448	H=15 13/16"	2-LS-1448	14 5/16"					Y
1-46	1-LS-1448	H=15 13/16"	2-LS-1448	H=14 5/16"					Y
1-46	1-LS-1449	L=14 13/16"	2-LS-1449	L=13 5/16"					Y
1-46	1-LS-1450	H=15 13/16"	2-LS-1450	14 5/16"					Y
1-46	1-LS-1450	H=15 13/16"	2-LS-1450	H=14 5/16"					Y
1-46	1-LS-1450	H=15 13/16"	2-LS-1450	H=14 5/16"					Y
1-46	1-LS-1451	L=14 13/16"	2-LS-1451	L=13 5/16"					Y
1-46	1-LS-1452	H=13 3/16"	2-LS-1452	H=12 7/16"					Y
1-46	1-LS-1452	H=13 3/16"	2-LS-1452	L=12 7/16"					Y
1-46	1-LS-1452	H=13 3/16"	2-LS-1452	12 7/16"					Y
1-46	1-LS-1453	L=12 3/16"	2-LS-1453	L=11 7/16"					Y

Note: D=Difference exists between Simulator & Reference Plant, PLT=Difference exists Between Unit 1 and Unit 2

THE FOLLOWING UNIT 2 SETPOINTS
DIFFER FROM THE REFERENCE PLANT (UNIT-1) SETPOINTS
CERTIFICATION SECTION IV.G

12/21/90 AT 9:35:36

SYS#	U-1 INSTRUMENT	U-1 SETPOINT	U-2 INSTRUMENT	U-2 SETPOINT	SIM SETPOINT	COMMENTS 1	COMMENTS 2	D - PLT
1-46	1-LS-1454	H=13 3/16"	2-LS-1454	H=12 7/16"				Y
1-46	1-LS-1454	H=13 3/16"	2-LS-1454	H=12 7/16"				Y
1-46	1-LS-1454	H=13 3/16"	2-LS-1454	H=12 7/16"				Y
1-46	1-LS-1455	L=12 3/16"	2-LS-1455	L=11 7/16"				Y
1-46	1-LS-1456	H=13 3/16"	2-LS-1456	H=12 7/16"				Y
1-46	1-LS-1456	H=13 3/16"	2-LS-1456	H=12 7/16"				Y
1-46	1-LS-1456	H=13 3/16"	2-LS-1456	H=12 7/16"				Y
1-46	1-LS-1457	L=12 3/16"	2-LS-1457	L=11 7/16"				Y
1-47	1-FIC-1466	1200 gpm	2-FIC-1466	1100 gpm				X Y
1-47	1-FIC-1469	1200 gpm	2-FIC-1469	1100 gpm				X Y
1-47	1-LC-1414	H=11 3/4"+3"	2-LC-1414	H=11" +3"				Y
1-47	1-LC-1414	L=11 3/4"-3"	2-LC-1414	L=11" -3"				Y
1-47	1-LC-1416	H=11 3/4"+3"	2-LC-1416	H=11" +3"				Y
1-47	1-LC-1416	L=11 3/4"-3"	2-LC-1416	L=11" -3"				Y
1-47	1-LC-1418	H=8 1/4"+3"	2-LC-1418	H=7" +3"				Y
1-47	1-LC-1418	L=8 1/4"-3"	2-LC-1418	L=7" -3"				Y
1-47	1-LC-1420	H=8 1/4"+3"	2-LC-1420	H=7" +3"				Y
1-47	1-LC-1420	L=8 1/4"-3"	2-LC-1420	L=7" -3"				Y
1-47	1-LC-1426	L=14 1/2"-3"	2-LC-1426	L=10" -3"				Y
1-47	1-LC-1426	H=14 1/2"+3"	2-LC-1426	H=10" +3"				Y
1-47	1-LC-1428	L=14 1/2"-3"	2-LC-1428	L=10" -3"				Y
1-47	1-LC-1428	H=14 1/2"+3"	2-LC-1428	H=10" +3"				Y
1-47	1-LC-1446	8" to 14"	2-LC-1446	6 1/2 to 12 1/2"				Y
1-47	1-LC-1446	H= 8" to 14"	2-LC-1446	H= 6 1/2 to 12 1/2"				Y
1-47	1-LC-1448	8" to 14"	2-LC-1448	6 1/2 to 12 1/2"				Y
1-47	1-LC-1448	H= 8" to 14"	2-LC-1448	H= 6 1/2 to 12 1/2"				Y
1-47	1-LC-1450	H= 8" to 14"	2-LC-1450	H=6 1/2 to 12 1/2"				Y
1-47	1-LC-1450	8" to 14"	2-LC-1450	6 1/2" to 12 1/2"				Y

Note: D=Difference exists between Simulator & Reference Plant, PLT Difference exists Between Unit 1 and Unit 2

THE FOLLOWING UNIT 2 SETPOINTS
DIFFER FROM THE REFERENCE PLANT (UNIT-1) SETPOINTS
CERTIFICATION SECTION IV.G

12/21/90 AT 9:35:41

SYSN	U-1 INSTRUMENT	U-1 SETPOINT	U-2 INSTRUMENT	U-2 SETPOINT	SIM SETPOINT	COMMENTS 1	COMMENTS 2	D	PLT
1-47	1-LC-1452	H=5 1/2" to 11 1/2"	2-LC-1452	H=4 3/4 to 10 3/4"					Y
1-47	1-LC-1452	5 1/2" to 11 1/2"	2-LC-1452	4 3/4 to 10 3/4"					Y
1-47	1-LC-1454	H=5 1/2" to 11 1/2"	2-LC-1454	H=4 3/4" to 10 3/4"					Y
1-47	1-LC-1454	5 1/2" to 11 1/2"	2-LC-1454	4 3/4" to 10 3/4"					Y
1-47	1-LC-1456	H=5 1/2" to 11 1/2"	2-LC-1456	H=4 3/4" to 10 3/4"					Y
1-47	1-LC-1456	5 1/2" to 11 1/2"	2-LC-1456	4 3/4" to 10 3/4"					Y
1-47	1-LS-3700	3" < bot of MSR	2-LS-3730	7" Bottom					Y
1-47	1-LS-3706	5.5"	2-LS-3709	7"				X	Y
1-47	1-LS-3712	42 1/2"	2-LS-3712	41"					Y
1-47	1-LS-3713	8"	2-LS-3713	7"					Y
1-52	1-LIA-4143	LO ALM 462"	2-LIA-4143	LO ALM 38'					Y
1-52	1-PIA-311A	H=235 psig	2-PIA-311A	H=225 psig					Y
1-52	1-PIA-311A	H=235 psig	2-PIA-311A	H=225 psig					Y
1-52	1-PIA-321A	H=235 psig	2-PIA-321A	H=225 psig					Y
1-52	1-PIA-321A	H=235 psig	2-PIA-321A	H=225					Y
1-52	1-PIA-331A	H=235 psig	2-PIA-331A	H=225 psig					Y
1-52	1-PIA-331A	H=235 psig	2-PIA-331A	H=225 psig					Y
1-52	1-PIA-341A	H=235 psig	2-PIA-341A	H=225 psig					Y
1-52	1-PIA-341A	H=235 psig	2-PIA-341A	H=225 psig					Y
1-55	COMPUTER PPDIL	1.5" > PDIL	COMPUTER PDIL	4" > PDIL					Y
1-55	PDIL GR1 100%	127.5"	PDIL GR1 100%	127"					Y
1-55	PDIL GR1 25%	127.5"	PDIL GR1 25%	127"					Y
1-55	PDIL GR1 50%	127.5"	PDIL GR1 50%	127"					Y
1-55	PDIL GR1 75%	127.5"	PDIL GR1 75%	127"					Y
1-55	PDIL GR3 30%	86.25"	PDIL GR3 30%	87"					Y
1-55	PDIL GR3 40%	112.5"	PDIL GR3 40%	113"					Y
1-55	PDIL GR3 50%	127.5"	PDIL GR3 50%	127"					Y
1-55	PDIL GR4 100%	127.5"	PDIL GR4 100%	127"					Y

Note: D=Difference exists between Simulator & Reference Plant, PLT=Difference exists Between Unit 1 and Unit 2

THE FOLLOWING UNIT 2 SETPOINTS
DIFFER FROM THE REFERENCE PLANT (UNIT-1) SETPOINTS
CERTIFICATION SECTION IV.G

12/21/90 AT 9:35:46

SYSN	U-1 INSTRUMENT	U-1 SETPOINT	U-2 INSTRUMENT	U-2 SETPOINT	SIM SETPOINT	COMMENTS 1	COMMENTS 2	D	PLT
1-55	PDIL GR4 40%	31.5"	PDIL GR4 40%	27"					Y
1-55	PDIL GR4 50%	58.5"	PDIL GR4 50%	57"					Y
1-55	PDIL GR4 65%	108.0"	PDIL GR4 60%	90"					Y
1-55	PDIL GR5 65%	26.25"	PDIL GR5 60%	5"					Y
1-55	PDIL GR5 75%	74.25"	PDIL GR5 75%	74"					Y
1-55	PDIL GR5 80%	80.75"	PDIL GR5 80%	79"					Y
1-55	PDIL GR5 99-100%	90.0"	PDIL GR5 90%	95"				X	Y
1-58	APD BREAK 1 CH A	0.52	APD BREAK 1 CH A	.70				X	Y
1-58	APD BREAK 1 CH B	0.52	APD BREAK 1 CH B	.7				X	Y
1-58	APD BREAK 1 CH C	0.52	APD BREAK 1 CH C	.7				X	Y
1-58	APD BREAK 1 CH D	0.52	APD BEAK 1 CH D	.7				X	Y
1-58	APD TILT ADD CH A	0.4775	APD TILT ADD CH A	.4825					Y
1-58	APD TILT ADD CH B	0.5140	APD TILT ADD CH B	.5245					Y
1-58	APD TILT ADD CH C	0.5180	APD TILT ADD CH C	.5090					Y
1-58	APD TILT ADD CH D	0.5050	APD TILT ADD CH D	.5265					Y
1-58	APD TILT MLT CH A	0.5450	APD TILT MLT CH A	.5400					Y
1-58	APD TILT MLT CH B	0.5125	APD TILT MLT CH B	.5325					Y
1-58	APD TILT MLT CH C	0.4000	APD TILT MLT CH C	.4300					Y
1-58	APD TILT MLT CH D	0.4700	APD TILT MLT CH D	.4300					Y
1-58	APD YON CH A	0.48	APD YON CH A	0.38				X	Y
1-58	APD YON CH B	0.48	APD YON CH B	0.38				X	Y
1-58	APD YON CH C	0.48	APD YON CH C	0.38				X	Y
1-58	APD YON CH D	0.48	APD YON CH D	0.38				X	Y
1-58	APD YOP CH A	0.48	APD YOP CH A	0.38				X	Y
1-58	APD YOP CH B	0.48	APD YOP CH B	0.38				X	Y
1-58	APD YOP CH C	0.48	APD YOP CH C	0.38				X	Y
1-58	APD YOP CH D	0.48	APD YOP CH D	0.38				X	Y
1-58	ATU2 TRIP	H=2.430 dpm	ATU2 TRIP	H=2.521 dpm					Y

Note: D=Difference exists between Simulator & Reference Plant, PLT=Difference exists Between Unit 1 and Unit 2

THE FOLLOWING UNIT 2 SETPOINTS
DIFFER FROM THE REFERENCE PLANT (UNIT-1) SETPOINTS
CERTIFICATION SECTION IV.G

12/21/90 AT 9:35:50

SYSN	U-1 INSTRUMENT	U-1 SETPOINT	U-2 INSTRUMENT	U-2 SETPOINT	SIM SETPOINT	COMMENTS 1	COMMENTS 2	D	PLT
1-58	ATU3 PRETRIP	-3.936V	ATU3 PRETRIP	-3.908V					X Y
1-58	ATU3 TRIP	-3.896V	ATU3 TRIP	-3.868V					X Y
1-58	BTU2 TRIP	H=2.430 dpm	BTU2 TRIP	H=2.521 dpm					Y
1-58	BTU3 PRETRIP	-3.978V	BTU3 PRETRIP	-3.891					X Y
1-58	BTU3 TRIP	-3.938V	BTU3 TRIP	-3.851V					X Y
1-58	CTU2 TRIP	H=2.430 dpm	CTU2 TRIP	H=2.521 dpm					Y
1-58	CTU3 PRETRIP	-3.948V	CTU3 PRETRIP	-3.926V					Y
1-58	CTU3 TRIP	-3.908V	CTU3 TRIP	-3.866V					Y
1-58	DTU2 TRIP	H=2.430 dpm	DTU2 TRIP	H=2.521 dpm					Y
1-58	DTU3 PRETRIP	-3.877V	DTU3 PRETRIP	-3.920V					Y
1-58	DTU3 TRIP	-3.837V	DTU3 TRIP	-3.880V					Y
1-58	ON DELTA T POWER	L=-2% rx pwr	ON DELTA T POWER	L=-1.3% rx pwr					Y
1-58	ON DELTA T POWER	(+.2, -.2)% rx pwr	ON DELTA T POWER	(+.13, -.13)% rx pwr					Y
1-58	RPSCIP METER	H=+2% rx pwr	RPSCIP METER	H=1.3% rx pwr					Y
1-58	RPSCIP METER	(+.2, -.2)% rx pwr	RPSCIP METER	(+.13, -.13)% rx pwr					Y
1-58	TMLP 4PUMP (Alpha)	0.5784 pot	TMLP 4PUMP ALPHA	0.4122					Y
1-58	TMLP 4PUMP (Beta)	0.3432 pot	TMLP 4PUMP BETA	0.3170					Y
1-58	TMLP 4PUMP (Gamma)	0.6542 pot	TMLP 4PUMP GAMMA	0.4128					Y
1-58	TMLP Q11	1.000 pot	TMLP Q11	0.972					Y
1-58	TMLP Q12	0.600 pot	TMLP Q12	0.781 pot					Y
1-58	TMLP S12	0.5417 pot	TMLP S12	0.2334					Y
1-62	1-PIA-118	1975 psig	2-PIA-118	1979 psig					Y
1-64	1-FT-150	H=1.6 gpm	2-FT-150	H=2.5 gpm					X Y
1-64	1-FT-150	L=0.5 gpm	2-FT-150	L=0.65 gpm					X Y
1-64	1-PIA-152	LO 1316 psia	2-PIA-152	LO 1290 psia					X Y
1-64	1-PIA-152	HI 1716 psia	2-PIA-152	HI 1690 psia					X Y
1-64	1-PIA-153	LO 583 psia	2-PIA-153	LO 545 psia					Y
1-64	1-PIA-153	HI 983 psia	2-PIA-153	HI 945 psia					X Y

Note: D=Difference exists between Simulator & Reference Plant, PLT=Difference exists Between Unit 1 and Unit 2

THE FOLLOWING UNIT 2 SETPOINTS
DIFFER FROM THE REFERENCE PLANT (UNIT-1) SETPOINTS
CERTIFICATION SECTION IV.G

12/21/90 AT 9:35:55

SYSN	U-1 INSTRUMENT	U-1 SETPOINT	U-2 INSTRUMENT	U-2 SETPOINT	SIM SETPOINT	COMMENTS 1	COMMENTS 2	D	PLT
1-64	1-PIA-162	LO 1316 psia	2-PIA-162	LO 1690 psia					x Y
1-64	1-PIA-162	HI 1716 psia	2-PIA-162	HI 1690 psia					x Y
1-64	1-PIA-163	HI 983 psia	2-PIA-163	HI 945 psia					x Y
1-64	1-PIA-163	LO 583 psia	2-PIA-163	LO 545 psia					x Y
1-64	1-PIA-172	LO 1316 psia	2-PIA-172	LO 1290 psia					x Y
1-64	1-PIA-172	HI 1716 psia	2-PIA-172	HI 1690 psia					x Y
1-64	1-PIA-173	LO 583 psia	2-PIA-173	LO 545 psia					x Y
1-64	1-PIA-173	HI 983 psia	2-PIA-173	HI 945 psia					x Y
1-64	1-PIA-182	HI 1716 psia	2-PIA-182	HI 1690 psia					x Y
1-64	1-PIA-182	LO 1316 psia	2-PIA-182	LO 1290 psia					x Y
1-64	1-PIA-183	HI 983 psia	2-PIA-183	HI 945 psia					x Y
1-64	1-PIA-183	LO 583 psia	2-PIA-183	LO 545 psia					x Y
1-64	1-TA-154	180 F	2-TA-154	160 F					Y
1-64	1-TY-115	330 F	2-TY-115	280 F					Y
1-77	1-RI-7006	6x10(-2) r/hr	2-RI-7006	5x10(-3) r/hr					Y
1-77	1-RI-7008	3x10(-2) r/hr	2-RI-7008	1x10(-2) r/hr					Y
1-77	1-RI-7009	3x10(-2) r/hr	2-RI-7009	1x10(-2)					Y
1-77	1-RI-7010	2x10(-2) r/hr	2-RI-7010	5x10(-2)					Y
1-77	1-RI-7011	7.5x10(-2) r/hr	2-RI-7011	5x10(-2) r/hr					Y
1-79	1-RI-3819	5000 cpm	2-RI-3819	4000 cpm					Y
1-83	1-LS-6601	2 5/8" C/L top line	2-LS-6601	C/L of float					x Y
1-83	1-RV-4021	228 psig	2-RV-4021	142 psig					Y
1-83	1-RV-4026	232 psig	2-RV-4026	142 psig					Y
1-92	1-PC-4681	3.5 psig	2-PC-4681	125 psig					Y
1-92	1-PCV-4679	4 psig	2-PCV-4731	5.1-7.1 psig					Y
1-92	1-PCV-4680	5 psig	2-PC-4731	5.1 to 7.1 psig					Y
1-92	1-PS-4664	L=1.8 psig	2-PIS-4722	L=100 psig					Y
1-92	1-RV-4685	20 psig	2-RV-4685	100 psig					Y

Note: D=Difference exists between Simulator & Reference Plant, PLT=Difference exists Between Unit 1 and Unit 2

THE FOLLOWING UNIT 2 SETPOINTS
DIFFER FROM THE REFERENCE PLANT (UNIT-1) SETPOINTS
CERTIFICATION SECTION IV.G

12/21/90 AT 9:36:00

SYSN	U-1 INSTRUMENT	U-1 SETPOINT	U-2 INSTRUMENT	U-2 SETPOINT	SIM SETPOINT	COMMENTS 1	COMMENTS 2	D	PLT
1-92	1-RV-4686	120 psig	2-RV-4686	300 psig					Y
1-94	PAK0021	0.6 MW	PAK0021	.15 MW					Y
1-94	PAK0026	18.8 MW	PAK0026	17.4 MW					Y

Note: D=Difference exists between Simulator & Reference Plant, PLT=Difference exists Between Unit 1 and Unit 2

LIST OF "SIMULATOR OPERATING LIMITS"

SEVERITY MESSAGE

```

5      *** not enough local storage for global memory ***
4      can not trigger zzzz
5      External node buffer overflow in UNIFLOW
5      Internal node buffer overflow in UNIFLOW
3      Too many islands in UNIFLOW
5      [IOAP] IN DECLARE- MASTER, PPI STATUS = nnnn
5      [IOAP] IN REPORT-DIM-ERROR, DIMENSION DIFFERENCE
      GC/IOAP VA
5      FROM node cannot be found
5      TO node cannot be found
6      State variable(s) out of range. Cannot continue.(RCSLB)
6      State variable(s) out of range. Cannot continue.(RCS)
6      State variable(s) out of range. Cannot continue.(RCSS)
5      I CPU zzzz thinks CPU zzzz has stalled
5      I RENDEZVOUS logic has detected some task is missing
5      Subisland location buffers full
5      Too many subislands in UNIFLOW
5      Subisland dimension too large
4      Error number nnnn closing zzzz
4      Error number nnnn opening zzzz
4      A MODEL_OFF flag is set, type B MODEL_OFF at REX terminal
4      A que model if off, type OFF at REX terminal
4      MOD_OFF_FR flag is set
4      Error in setting malfunction
4      ** UNITEACH has detected zzzz task has apparently crashed
4      BUDDY SYSTEM error on BUDLIAX with INDX = nnnn
4      BACKTRAC task is ACTIVE when it should NOT be
5      Can't start backtracker because models not active'
4      ISUNIT_TURBINE has undefined value
4      REX is FROZEN when it should NOT be.
4      Simulator is NOT frozen when it should be.
4      Simulator is NOT off when it should be.
4      No. of array locations does not match no. of islands
4      UF_BRANCHES_IN_ISLAND array is bad
4      UF_BRANCHES_IN_ISLANDS does not match BNUM
4      UNIVOLT LINKLIST overflow fatal error
6      Unable to notify SFLOWTM

```

If a problem appears in the software, an associated message (above) will appear, with an instructor station alarm. The instructor will call BG&E "Information Systems Department" for assistance.

Plant design operating limits are currently being investigated for incorporation under SMR# 1702.

OVERVIEW OF THE CALVERT CLIFFS
FULL SCOPE CONTROL ROOM TRAINING SIMULATOR
DECEMBER 10, 1990

V.

OVERVIEWTABLE OF CONTENTS

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A. INTRODUCTION

The purpose of this report is to document how the Calvert Cliffs Full Scope Control Room Training Simulator design complies with industry standards. The Simulator was designed to comply with the requirements of ANSI/ANS 3.5-1981 as endorsed and modified by NRC Reg Guide 1.149, dated April 1981. A revision to ANSI/ANS 3.5 was approved on October 25, 1985, and thus this report will demonstrate compliance with the latest revision of the standard (ANSI/ANS 3.5-1985). Regulatory Guide 1.149 states: "Appendix A, 'Procedure for Documenting Simulator Performance', to the standard should be considered an integral part of the standard." This report will comply with the intent of this requirement.

B. SIMULATOR INFORMATION1. GENERAL INFORMATION

SIMULATOR:	CALVERT CLIFFS UNIT-1 CONTROL ROOM FULL SCOPE TRAINING SIMULATOR
OWNER:	BALTIMORE GAS AND ELECTRIC CO. PO BOX 1475 BALTIMORE, MARYLAND 21203
OPERATOR:	BALTIMORE GAS AND ELECTRIC CO. NUCLEAR SUPPORT SERVICES DEPT. NUCLEAR TRAINING SECTION SIMULATOR SUPPORT UNIT CALVERT CLIFFS NUCLEAR POWER PLANT LUSBY, MARYLAND 20657
MANUFACTURER:	C-E POWER SYSTEMS COMBUSTION ENGINEERING, INC. 1000 PROSPECT HILL RD. WINDSOR, CONNECTICUT 06095
REFERENCE PLANT:	CALVERT CLIFFS UNIT-1
TYPE:	PRESSURIZED WATER REACTOR
RATING:	2700 MWt, 880 MWe
REPORT TYPE:	INITIAL CERTIFICATION
DATE OF COMPLIANCE:	DECEMBER 27, 1990

2. CONTROL ROOM FIDELITY

a. CONTROL ROOM PHYSICAL ARRANGEMENT

ATTACHMENT 5.2.1-A shows the physical layout of the Reference Plant Control Room for both Units at Calvert Cliffs. ATTACHMENT B.2.1-B shows the physical layout for the Calvert Cliffs Control Room Simulator. Wherever possible the layout of the Simulator panels closely corresponds in location to that of the reference plant.

b. SIMULATOR CONTROL PANELS AND EQUIPMENT

The Calvert Cliffs Control Room Simulator includes all of the major control panels which the Operator/Trainee would interface with during normal and emergency operation of the Calvert Cliffs Unit-1 facility. In designing the Calvert Cliffs Control Room Simulator, BG&E has strived to maintain fidelity with the physical layout of the Reference Plant Control Room. The arrangement of the major control panels in the Simulator Room is essentially the same as the arrangement of the reference plant control panels. However, due to limitations of Simulator space available, some non-negative training modifications were made.

After performing a cost/benefit analysis, it was decided not to include the following control panels in the Simulator design due to the very minimal training benefit these panels would provide:

1C24B	Plant Fire Protection Panel
1C26	Unit-1 Equipment Vibration Monitors
1C22	Rad Monitoring for Unit-2
1C29	Temperature and Vibration Recorders
1C30	Reactor Regulating System Ch. A
1C31	Reactor Regulating System Ch. B

Additionally, the equipment located inside the reference plant control panels is not modeled except for those devices which the Operator would normally use. This includes the ability to select temperature inputs to the Reactor Regulating System when the temperature transmitter fails, and the ability to simulate withdrawal of individual RPS Trip Modules using switches provided in panel 1C15.

The following panels have been relocated or modified slightly to minimize cost or to provide strength and rigidity for other panels.

1C22	Radiation Monitoring Panels, including Panels A-D & H
1C33	Waste Processing Panel
1C34	Plant Hval Control Panel
2C24A	Unit-1 Salt Water Panel
2C26	Unit-1 Rad Monitoring Equipment

Simulator panels 1C33 and 1C34 have been moved approximately 3 feet west so as to join directly with the rear of panel 1C17. The entire complex of panels 1C34 to 2C26B forms a "U" shape design, and the movement of these panels provides for stability and rigidity of the entire "U" section. In addition, panel 2C24 and 2C26 have been located against the back of panel 2C17, which provides the second leg of the "U" section. In the reference plant these panels are located in the rear of the Unit-2 RPS panels (2C15) which is not modeled in the simulator. Rather than construct additional panels it was decided to utilize the space in back of 2C17 to locate these panels. With this layout, the Operator/trainee must walk in the same direction to observe these panels, and their view of the main panels is obstructed, as it is in the reference plant. Thus this change does not provide negative training, while minimizing construction costs through more efficient use of available panel space. No operator maintained equipment was located in the area now occupied by panels 2C24 and 2C26.

Simulator panels 1C22 A through D have been located in the area where panels 1C24 and 1C26 are in the reference plant. As stated previously, panels 1C24 and 1C26 provided no training value on the Simulator, thus it was decided to locate 1C22 in this area. Again, the operator/trainee must move in the same direction as he would have to in the reference plant Control Room, and his view of the main control boards is obstructed as it is in the reference plant. Utilizing this space more efficiently saves the construction costs of building a separate panel for this purpose.

The RMS Alarm override panel 1C22H is located on the door used for entry behind panel 1C15. In the reference plant, this panel is located on the main cabinet for 1C22 A through F. For the same reasons as stated above, this change does not provide negative training.

Panel 1C29, the Temperature and Vibration recorder panel, was not modeled due to insufficient training value to justify cost of modeling.

Panels 1C30 and 1C31, the Reactor Regulating System panels, were not modeled since operator interface with these panels is minimal. Most of the functions of the RRS are no longer being used in the reference plant, and the displays are used for indication only. The operator/trainee would rarely use these displays since most of the indications are also available on the main panels.

A detailed list of differences, including setpoints is included under Tab IV.

c. SYSTEMS MODELED

All of the plant systems with which the Operator/Trainee would interface with on the Control Panels are actively modeled. All controls and devices mounted on the Simulator Control Panels respond to Operator/Trainee actions in the manner expected from the identical control in the reference plant.

d. SIMULATOR CONTROL ROOM ENVIRONMENT

The Simulator Control Room environment provides good fidelity with the Reference Plant Control Room. However, differences do exist. Attempts are made to locate reference materials in the same locations as they are in the Reference Plant. Ceiling height and color is different. The Reference Plant Control Room ceiling is approximately 16 feet high, and an Amber Diffusion Grid is used to soften the lighting. The Simulator Control Room ceiling is 10 feet high and a Silver Metallic Diffusion Grid is used. The ambient lighting levels on the Simulator floor are lower than that of the Reference Plant Control Room.

The Simulator design includes a Sound Effects System which simulates the sounds which can be heard in the Control Room, such as component Cooling System Check Valve slam, Control Room Ventilation Duct noise, Steam noise from use of the Atmospheric Dumps and Steam Generator Safety Valves, and Steam noise from various casualties modeled such as a Steam Line Break in the Turbine Building. Sound Effects are modeled in stereo so as to provide directional simulation of the sounds as they would be heard in the Control Room.

The Simulator models are interfaced with the Training Facility Lighting Systems so as to provide accurate simulation of Loss of Power casualties, including the effects of repowering plant buses from the Emergency Diesel Generators. This modeling includes the normal lighting system, as well as the emergency DC lighting.

3. INSTRUCTOR INTERFACE

a. INITIAL CONDITIONS

There are a total of 68 Initial Conditions (ICs) available to the Simulator Instructor. Forty of these ICs are "protected" which means that they cannot be changed without entering a valid password. The remaining 28 ICs are available on a general basis for use by the instructors in preparing lessons or for snapshots of any problem conditions which may arise.

b. MALFUNCTIONS

Currently, there are 230 malfunctions available to the instructor for use in preparing the students to handle plant casualties. Of these, 135 are certified. Several methods may be used to initiate a malfunction. First, a malfunction may be manually activated using a "pushbutton code" of up to two digits. This method can be used to initiate casualties based on reaching some specific condition during training. A malfunction may also be time-delay activated at some pre-determined time into a training session. This feature is useful in controlling the pace of the session, particularly where the malfunction initiation is not dependent on any specific condition being reached. This later method would be used when the instructor is actively involved with the students and prefers to "automate" the major events to occur during a training session.

Some malfunctions may be set to activate conditionally. This type of activation is dependent upon the student performing some action which then causes the malfunction to activate. Other malfunctions are passive in nature. These malfunctions can be activated at any time but the students will not notice the problem until they try to use the device or equipment which has been failed.

Finally, malfunctions may be set to activate simultaneously with other malfunctions.

c. REMOTE FUNCTIONS (CONTROLS PROVIDES FOR ITEMS OUTSIDE THE CONTROL ROOM)

The Calvert Cliffs Simulator presently includes provision for Remote Functions. These Remote Functions are provided to control valves and equipment which are located external to the Reference Plant Control Room. The actual plant procedures are utilized without modification for Simulator limitations on the Simulator. Thus, the student receives maximum benefit from training using the actual plant procedures - a detailed list of remote functions is available in the Instructor Station Operation Manual (ISOM).

d. ADDITIONAL INSTRUCTOR/TRAINING FEATURES

The Calvert Cliffs Simulator was designed to provide maximum flexibility of operation. It was intended for the instructor to remain as inconspicuous as possible during a training session so as not to alert the students to any impending action. There are three basic methods of operation: main simulator, fixed remote, and hand held remote instructor stations.

Five TIME SCALING MODES are provided. These are SLOW TIME, which runs the simulation at 1/2 real time speed; REAL TIME, which provides simulation and response on a realistic time basis; and three levels of FAST TIME which speeds up the simulation at rate of X6, X30, and X60 times real time. Operational modes other than REAL TIME will not normally be used in other than a demonstration mode of training, either to slow down the process of observation, or to speed up the simulation in order to conserve valuable training time.

A BACKTRACK feature has been incorporated to facilitate recovery from undesired conditions. A Backtrack snapshot is recorded every 60 seconds during active simulation which provides the capability to return to any condition during the past hour of active simulation. This is a time saving feature in that it allows recovery from otherwise unrecoverable mistakes during a training session without having to reinitialize and start over from the beginning of the session.

A PANEL OVERRIDE feature has also been incorporated. Virtually any device located on the control panels can be overridden to any state or condition. If the device provides input to a model, the model responds to the override state. If the device provides an output from the model, the device responds to the override state while the model continues to respond normally. These features potentially increase the number of available malfunctions since each can in effect simulate a failure of any device. This is useful in creating realistic conditions where transmitters are isolated or bypassed, such as in cold shutdown conditions, or it can be used to enhance the training situation by duplicating current problems being experienced at the reference plant. Thus, when the student comes to the Simulator after operating the plant, they should not have to recondition themselves for different operating problems.

The instructor can control various EXTERNAL FUNCTIONS which have some impact on the operation of the plant. Functions such as Atmospheric Pressure, Outside Air Temperature and Bay Water temperature can be changed to seasonal conditions and the effect of operation of the plant can be observed.

A digital clock was supplied at panel 1C04 which can be programmed to display Simulator time or actual clock time.

A Message Tableau has been provided to warn of Simulator conditions which may be detrimental to training. The incoming message is recorded showing the time the condition occurred, the severity of the problem, and the number of times the problem has occurred. Recording of the message is also coincident with an Instructor Station Alarm, which warns the instructor of possible problems. A detailed list of alarms & operating limits is provided under Tab IV.

The Simulator includes the ability to internally plot the value of any Global Common Variable. This information can later be output in tabular format, or in a high resolution graphic format using the Versaplot capability of the Versatek Printer.

4. USE OF REFERENCE PLANT PROCEDURES

It has been intended from the initial design phase, that the existing plant procedures be used on the Simulator without modification of these procedures in any way. Thus the student uses the same procedures on the Simulator as he would use in the actual Control Room environment. This has led to a significant number of remote functions being incorporated into the Simulator design. It is our philosophy that if some remote operation, being controlled by a procedure from the Control Room, results in observable indication in the Control Room, then that remote function is actively modeled. For non-observable indications, the instructor acts as the local operator and reports accomplishment of the steps he is directed to perform. The result is a very realistic simulation of reference plant operations.

NOTE: Due to lag time in copying & replacing procedures, simulator proc. may lag the Control Room by 7 days. Procedures are controlled by CCI-300, V "Changes, Revisions and Special Tests" section A.2.C.

5. CHANGES SINCE LAST REPORT

None/Initial Report

C. SUMMARY

This report documents how the Calvert Cliffs Full Scope Simulator complies with the design and update requirements of ANSI/ANS 3.5-1985, Nuclear Power Plant Simulators for Use in Operator Training. Baltimore Gas and Electric Company believes that the Calvert Cliffs Simulator is in compliance with the intent of the standard in every way. It is our intent to maintain the Simulator in a condition that meets or exceeds the requirements of the standard.

D. REFERENCES

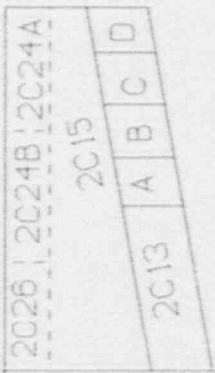
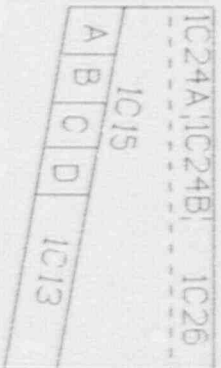
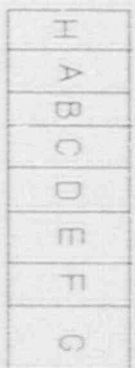
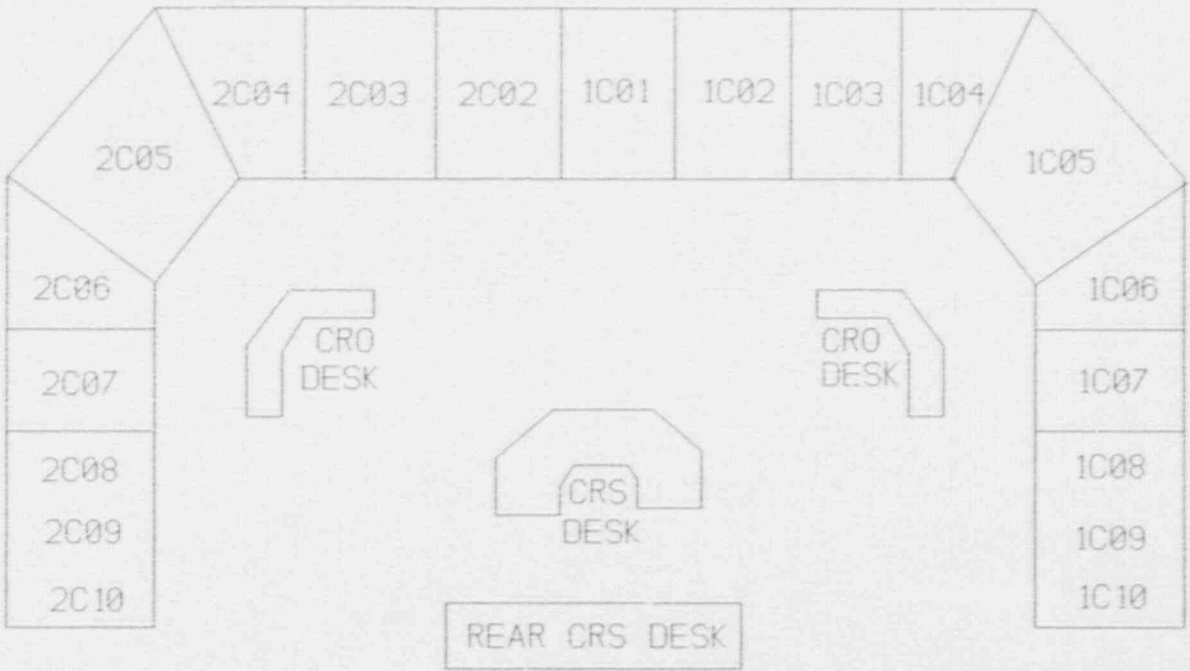
1. American National Standard
Nuclear Power Plant Simulators for Use in Operator Training
ANSI/ANS 3.5-1985
American Nuclear Society
La Grange Park, Ill.
2. Regulatory Guide
Nuclear Power Plant Simulators for Use in Operator Training
Reg. Guide 1.149
U.S. Nuclear Regulatory Commission
3. Guidelines for Simulator Training (86-026)
Institute of Nuclear Power Operations
Atlanta, GA
4. Simulator Maintenance/Modification Requests
Training Instruction 16
CCNPP
5. Calvert Cliffs Simulator Facility Configuration Management
Training Instruction 19
CCNPP
6. NUREG - 1258
Evaluation Procedure for Simulation Facilities
Certified Under 10CFR55
December, 1987
7. NUREG - 1262
Answers to Questions at Public Meetings
Regarding Implementation of Title 10, Code of Federal Regulations
Part 55 on Operator's Licenses
November, 1987

ATTACHMENTS

ATTACHMENT B.2.1-A

CALVERT OLIFFS
 NUCLEAR POWER PLANT
 UNITS 1 AND 2

DRAWN FROM BG&E
 DRAWING: 60-277-E
 (BECHTEL NUMBER, M-100)



ATTACHMENT B.2.1-B

CALVERT CLIFFS
NUCLEAR POWER PLANT
FULL SCOPE SIMULATOR



NRC FORM 474

LIST OF EXCEPTIONS

Unit 2

SIMULATION FACILITY CERTIFICATION

INSTRUCTIONS. This form is to be filed for initial certification, recertification (if required), and for any change to a simulation facility performance testing plan made after initial submittal of such a plan. Provide the following information, and check the appropriate box to indicate reason for submittal.

FACILITY Calvert Cliffs Nuclear Power Plant, Unit Two **DOCKET NUMBER**
50-318

LICENSEE Baltimore Gas and Electric Company **DATE** 12/27/90

This is to certify that 1. the above named facility licensee is using a simulation facility consisting solely of a plant-referenced simulator that meets the requirements of 10 CFR § 55.46; 2. this simulation facility meets the guidance contained in ANSI/ANS 3.5, 1985, as endorsed by NRC Regulatory Guide 1.140; and 3. documentation is available for NRC review in accordance with 10 CFR § 55.45(b). If there are any exceptions to the certification of item 2 above, check here and describe fully on additional pages as necessary.

NAME (for other identification) AND LOCATION OF SIMULATION FACILITY
Calvert Cliffs Nuclear Power Plant, Lusby, Maryland 20657

SIMULATION FACILITY PERFORMANCE TEST ABSTRACTS ATTACHED. (For performance tests conducted in the period ending with the date of this certification)

DESCRIPTION OF PERFORMANCE TESTING COMPLETED (Attach additional page(s) as necessary, and identify the item description being continued)

The Calvert Cliffs Unit One Simulator is utilized to perform Unit Two Simulator Training. The performance tests were run per the Unit One Certification. Operational characteristics of Unit Two were considered and differences which impact training are identified as exceptions in the Attachment 1 to this form.

SIMULATION FACILITY PERFORMANCE TESTING SCHEDULE ATTACHED. (For the conduct of approximately 25% of performance tests per year for the four year period commencing with the date of this certification)

DESCRIPTION OF PERFORMANCE TESTING TO BE CONDUCTED (Attach additional page(s) as necessary, and identify the item description being continued)

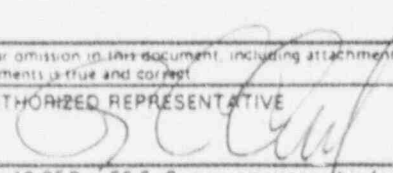
The Calvert Cliffs Unit One Simulator is utilized to perform Unit Two Simulator Training. The performance tests will be run per the Unit One Certification. Operational characteristics of Unit Two will be considered and differences which impact training will be identified.

PERFORMANCE TESTING PLAN CHANGE. (For any modification to a performance testing plan submitted on a previous certification)

DESCRIPTION OF PERFORMANCE TESTING PLAN CHANGE (Attach additional page(s) as necessary, and identify the item description being continued)

RECERTIFICATION (Describe corrective actions taken, attach results of completed performance testing in accordance with 10 CFR § 55.45(b)(3)(v). Attach additional page(s) as necessary, and identify the item description being continued.)

Any false statement or omission in this document, including attachments, may be subject to civil and criminal sanctions. I certify under penalty of perjury that the information in this document and attachments is true and correct.

SIGNATURE - AUTHORIZED REPRESENTATIVE  **TITLE** Vice President, Nuclear Energy **DATE** 1-11-91

In accordance with 10 CFR § 55.5, Communications, this form shall be submitted to the NRC as follows:
BY MAIL ADDRESSED TO: Director, Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555
BY DELIVERY IN PERSON TO THE NRC OFFICE AT: 7920 Norfolk Avenue
Bethesda, MD

EXCEPTION / CALVERT CLIFFS U-2 / REFERENCE PLANT SIMULATOR

BG&E uses the U-1 Reference Plant Simulator to train and examine those persons licensed on Calvert Cliffs Unit 2.

- Calvert Cliffs has a dual unit control room.
- Calvert Cliffs U-2 Control Room is a mirror-image of Calvert Cliffs U-1 with some distinct differences:
 - Turbine Control Panel: 2C02 is Westinghouse turbine control
1C02 is a General Electric turbine control

To train on this difference 2C02 is modeled and connected to the Unit One Reference Plant Simulator for startup and load changes.
 - Feedwater Panel: 2C03 has Lovejoy controls for the Westinghouse Steam Generator Feedwater Pumps 1C03 has Fisher-Porter controls for the General Electric Steam Generator Feedwater Pumps

To train on this difference, a Lovejoy control rack is used in classroom training.
- Other plant differences exist and have been evaluated (see "Unit One and Unit Two Differences Abstracts," Section IV).

BG&E takes exception to a Unit Two Reference Plant Simulator and takes credit for the Unit One Reference Plant Simulator for training and examining those persons licensed on Calvert Cliffs Unit Two.