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MCCORMICK,M.J. Niagara Mohawk Power Corp.
RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: Submits Unit 1 simulation facility four yr rept on certification.NRC Form 474,simulation facility certification to describe changes to Unit 1 simulation facility testing plan also encl.

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MAY

NIAGARA MOHAWK

NIAGARA MOHAWK POWER CORPORATION/NINE MILE POINT NUCLEAR STATION, P.O. BOX 63, LYCOMING, N.Y. 13093/TEL. (315) 349-2660
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MARTIN J. McCORMICK JR. P.E.
Vice President
Nuclear Safety Assessment and Support

December 7, 1995
NMP1L 1010

U.S. Nuclear Regulatory Commission
Director Nuclear Reactor Regulation
Washington, DC 20555-001

Re: Nine Mile Point Unit 1
Docket No. 50-220
DPR-63

Subject: Unit 1 Simulation Facility Four Year Report on Certification

Gentlemen:

In accordance with the provisions of 10CFR55.45 (b) (5) and 10CFR55.45 (b) (5) vi, we hereby submit the Nine Mile Point Nuclear Station Unit 1 Plant Simulation Facility Four Year Report on Certification. We are also submitting as required by 10CFR55.45 (b) (5) NRC Form 474, Simulation Facility Certification, to describe changes to the Nine Mile Point Nuclear Station Unit 1 simulation facility testing plan.

The Unit 1 Simulation Facility NRC 4 Year Report submitted in December, 1991 deleted three Normal Operating Tests from the test plan. Deletion of the Normal Operating Tests has been previously addressed in the Nine Mile Point Unit 2 Simulation Certification submittal of August 24, 1994 (NMP2L1490). The Deviation Event Report (DER) referenced in that submittal addressed both Unit 1 and Unit 2 certifications. As part of the corrective actions to that DER the three Normal Operating Tests were performed in test year 4 (1995) for Unit 1. These three operating tests are being re-instated via the NRC Form 474 accompanying this report in addition to other changes noted on the form. All normal operating tests were completed, and all testing requirements of ANSI/ANS 3.5-1985 were met.

All rules, regulations, and standard requirements have been met for the previous four year period concerning the simulator certification.

Very truly yours,

M. J. McCormick, Jr.

Martin J. McCormick, Jr.
Vice President - Nuclear Safety
Assessment and Support

MJM/SD/sab
Attachment
Mr. T. T. Martin, NRC Regional Administrator, Region 1
Mr. Barry S. Norris, Senior Resident Inspector
Mr. L. B. Marsh, Director, Project Directorate I-1, NRR
Mr. G. E. Edison, Senior Project Manager, NRR
Records Management

A005

NRC FORM 474 (10-92) U.S. NUCLEAR REGULATORY COMMISSION

SIMULATION FACILITY CERTIFICATION

APPROVED BY OMB: NO. 3150-0138
EXPIRES: 10/31/95

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 120 HOURS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0138), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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	DOCKET NUMBER
Nine Mile Point Nuclear Station - Unit # 1	50- 220
LICENSEE	**DATE**
Niagara Mohawk Power Corporation	11/30/95

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 55.45.
2. Documentation is available for NRC review in accordance with 10 CFR 55.45(b).
3. This simulation facility meets the guidance contained in ANSI/ANS 3.5, 1985, as endorsed by NRC Regulatory Guide 1.149.

If there are any EXCEPTIONS to the certification of this item, CHECK HERE [ ] and describe fully on additional pages as necessary.

NAME *(or other identification)* AND LOCATION OF SIMULATION FACILITY.

Nine Mile Point Nuclear Learning Center
NMP 1 Plant Referenced Simulator
R.D. # 1, Box #148
Oswego, NeweYork 13126-9719

[ ] 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 pages as necessary and identify the item description being continued.)*

[ ] 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 pages as necessary and identify the item description being continued.)*

[X] 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 pages as necessary and identify the item description being continued.)*

Add the Normal Operating Tests for plant evolutions (ANSI 3.1.1) titled "Reactor Trip followed by Recovery to Rated," "Startup, Shutdown, and Power Operations with less than full Reactor Coolant Flow" and "Core Performance Testing" to the 4 year test plan. These tests were deleted from the previous test plan submitted in December 1991; however, they were performed in 1995 as part of test year 4 and are now incorporated as part of that test year. See Section VII B.4.a of the Unit 1 Simulation Facility NRC Four Year Report on Certification that accompanies this correspondence.

Cont'd.

[ ] RECERTIFICATION *(Describe corrective actions taken, attach results of completed performance testing in accordance with 10 CFR 55.45(b)(5)(v). (Attach additional pages 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	DATE
M. J. McCormick Jr.	V.P. Nuclear Safety Assessment & Support	12/7/95

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 20555-0001

BY DELIVERY IN PERSON TO THE NRC OFFICE AT: ONE WHITE FLINT NORTH, 11555 ROCKVILLE PIKE, ROCKVILLE, MD

UNIT 1 SIMULATION FACILITY NRC 4 YEAR REPORT

I. Facility Nine Mile Point Nuclear Station, Unit 1 -Docket Number 50-220

II. Licensee Niagara Mohawk Power Corporation

III. Name and Location of Simulation Facility

Niagara Mohawk Power Corporation
NMP1 Plant Referenced Simulator
Nine Mile Point Nuclear Learning Center
RD #1, Box 148
Oswego, NY 13126-9719

IV. In 1994 the Unit 1 Simulator computer was upgraded from the original computer to a new series with increased capacity. Also part of the upgrade was a new instructor station, a 486 PC-based, menu-driven station. Five transients, twenty-five malfunctions, and five instructor-selected scenarios were selected to be tested on the new system and compared against performance on the original system. Test results were comparable between the two. In addition, extensive testing was performed on the upgraded Instructor Station with satisfactory results. The upgraded system was turned over to training in September, 1994.

V. Pursuant to 10CFR55.45(b)(5)(ii) all performance test failures that occurred in test years 1992, 1993, and 1994 have been corrected. The following discrepancies have been identified as a result of the 1995 testing. The discrepancies will be corrected in accordance with the Simulator Configuration Control Procedure, NTP-TQS-506; all corrections will be completed by June, 1996.

DR#	1-1948	Annunciator response, malf. FP08
	1-1949	Annunciator response, malf. RM01
	1-1956	RBCLC system response, malf. SC02
	1-1964	345KV Line indications, malf. EG10
	1-1970	Feedwater flow/temp, transient B1.2(3)
	1-1971	CRD temperature, Steady State, 100%

NINE MILE POINT UNIT #1 - NRC FORM 474 - 11/30/95
PERFORMANCE TESTING PLAN CHANGE (cont'd):

Delete the following operator conducted surveillance tests for Normal Plant Evolutions (ANSI 3.1.1).

N1-ST-IC7 Emergency Vent System Surveillance with an Inoperable Branch
N1-ST-Q7 Manual Scram Instrument Channel Test
N1-ST-W4 Main Steam Line High Radiation Instrument Channel Test

Surveillance tests N1-ST-IC7 and N1-ST-Q7 were performed as specified in the previous four year test plan but have since been deleted as operator conducted tests; N1-ST-W4 was deleted as an operator performed test prior to the scheduled test year (4) and therefore was not performed.

Add the following operator conducted surveillance test which replaces the above mentioned N1-ST-IC7. See section VII B.1.a of the Unit 1 Simulation Facility NRC Four Year Report.

N1-ST-M8 Reactor Building Emergency Ventilation System Operability Test

The surveillance test titled "N1-ST-C5, Secondary Containment and Reactor Building Emergency Ventilation System Operability" was performed in test year 4 instead of test year 2.

Delete the following malfunction tests (ANSI 3.1.2) from the 4 year test plan. Instructors use other combinations of malfunctions for ATWS conditions. The drywell-torus differential system has been retired in place.

RP08 Anticipated Transient Without Scram
PC01 Drywell-Torus Differential Pressure Control Failure - Increase
PC02 Drywell-Torus Differential Pressure Control Failure - Decrease

VI. Pursuant to 10CFR55.45(b)(5)(vi) description of performance testing completed:

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

1. Computer Real Time Test (ANSI Appendix A Section A3.1)

   a. A test was completed satisfactorily each year for the previous four (4) year test period 1992, 1993, 1994, and 1995. Test results are on file in the simulator database annual ANSI 3.5 test report.

2. Steady State Test (ANSI 3.5 Appendix A Section A3.2 and Appendix B Section B1.1).

   a. Simulator parameters were compared with reference plant parameters at approximately 25%, 75%, and 100% rated thermal power each year for the previous four (4) year test period 1992, 1993, 1994, and 1995. The simulator performance meets or exceeds the performance criteria of ANSI 3.5, Section 4.1.

   b. Simulator stability tests were performed each year for the previous four (4) year test period 1992, 1993, 1994, and 1995. The simulator meets or exceeds the performance criteria of ANSI 3.5, Section 4.1.

3. Normal Operations (ANSI, Section 3.1.1, and Appendix A, Section A3.2)

   a. Normal plant evolutions as described in ANSI 3.5, Section 3.1.1 were performed in 1992, 1993, 1994, and 1995 at a rate of 25% per year. Performance tests satisfactorily met the acceptance criteria of ANSI 3.5, Section 4.2.1.

4. Transient tests (ANSI 3.5, Section 5.4.2, Appendix A, Section A.3.3, and Appendix B, Section B.1.2).

   a. Transient tests as described in ANSI 3.5, Section 5.4.2, Appendix A, Section A.3.3, and Appendix B, Section B.1.2 were performed each year the previous for (4) year test period. The transient test parameters were compared with reference plant data where available, or best engineering estimate when plant data was not available, by a panel of experts. The Simulator Configuration Control Board (SCCB) verified the test results were satisfactory in accordance with ANSI 3.5, Section 4.2.1 Performance Criteria. Test performance discrepancies noted under V. will be corrected in accordance with the Simulator Configuration Control procedure.

5. All simulator malfunction tests were performed at a rate of approximately 25% per year for the four (4) year test period in accordance with the original NRC Form 474 submittal. (ANSI 3.5, Section 4.2.2, Section 3.1.2, Appendix A, Section 3.4) Discrepancies noted under V. will be corrected in accordance with the Simulator Configuration Control Procedure.

   a. All malfunctions satisfactorily meet the ANSI 3.5, Section 4.2.1(b) Performance Criteria.

6. The reference plant modifications and simple design changes, listed below, were implemented in the simulator during the previous four (4) year reporting period. Special acceptance test procedures were written and performed for each modification and simple design change with satisfactory results in accordance with ANSI 3.5, Section 5.4.1 prior to turn over to training. No other reference plant modifications or simple design changes reviewed during this four (4) year reporting period had impact on the simulator as determined by the SCCB.

MOD/SDC #	TITLE
N1-82-058	Main Generator Transformer
N1-86-053	O_2 & Conductivity Recorders
N1-87-004	Main Fire Panel Upgrade
N1-87-005	3D-Monicore
N1-87-042	RIS Amplifier Removal
N1-88-053	Non-Coincidental Low Vacuum & MSIV Isolation Scram Bypass
N1-88-075	Reactor Building Corner Rooms Leak Detection
N1-88-077	Reactor Building Area Temperature Sensors
N1-88-078	Reactor Building ARMs
N1-88-091	UPS/Static Battery Chargers
N1-89-051	FWP#13 FCV Replacement

MOD/SDC #	TITLE
N1-90-012	Drywell Temperature Instrumentation
N1-90-020	Wide Range Torus Pressure/Level Instrumentation
N1-90-041	Core Spray EOP Bypass Jumpers
N1-90-126	NSR 125 VDC Battery Board #14
N1-90-174	Torus Vent & Purge Rupture Disks
N1-91-008	RBEV Time Delay & Reset Logic Change
N1-91-009	Containment Spray Intertie Valve Motor Operators
N1-91-021	ACUREX Upgrade
N1-92-005	Diesel Generator 102/103 Phase Overcurrent
N1-92-009	HP Turbine Diaphragm Rework
N1-93-005	IRM Range 10 Addition
N1-93-013	H_2O_2 System Modifications
N1-94-002	Reactor Recirc Pump Function Generator Removal
SC1-0036-91	Turbine Bearings 1-10 High Temperature Alarm Setpoint changes
SC1-0075-91	EOP Jumper Bypass Sub-panel
SC1-0101-91	CWFD Sump Pumpdown Setpoint change
SC1-0138-91	Stack Lights Annunciator
SC1-0148-91	Offgas Radiation Computer Points
SC1-0157-91	Liquid Poison Tank Meter Scale Change
SC1-0215-91	Condenser Backpressure Computer Point
SC1-0236-91	Annunciators removed; switches retired in place
SC1-0239-91	FW Pump 11/12 6" Recirculation
SC1-0266-91	APRM Scram/Rod Block Setpoint change
SC1-0293-91	Main Steam Line Radiation Monitors Downscale Alarm Setpoint change
SC1-0026-92	Intake Tunnel Low Level Alarm Setpoint change
SC1-0027-92	CRD Sequence Timer Revision
SC1-0078-92	RBEV 4 Second Time Delay Removal
SC1-0140-92	DW Cooling Fans Annunciator
SC1-0152-92	SRM Annunciation Logic change
SC1-0155-92	Torus Temperature/Level Technical Specifications changes (SPDS)
SC1-0034-93	IV 38-13 Stroke Time change
SC1-0057-93	Emergency Bearing DC Oil Pump Start Circuit change
SC1-0102-93	Removed Reactor Scram/MSL Closure Function Due to MSL High Radiation
SC1-0111-93	Simulator TSC/EOF Intertie
SC1-0174-93	Generator H_2 Core Monitor Recorder Replacement
SC1-0039-94	Elimination of 3 H_2O_2 Sample Lines
SC1-0058-94	Stroke time change for RWCU IV 33-04
SC1-0086-94	Stroke time change for FW IVs 31-07, 31-08
SC1-0090-94	Stroke time change for EC IVs 39-09, 39-10

ENHANCEMENT #	TITLE
PN1Y90EN010	Added 4 Feedwater Heating Malfunctions FW32, 33, 34, 35
PN1Y91EN021	Added remote functions RCT06-09 for Containment Spray Raw Water Pump Discharge Valves
PN1Y91EN025	Added malfunction CW11, RBCLC Leak inside the Drywell
PN1Y92EN001	Gaitronics System Upgrade
PN1Y92EN002	Added Offgas NUMACS
PN1Y92EN007	Added 3 malfunctions, RR88, 89, 90 to fail FWLC Transmitter; added 3 malfunctions to fail Reactor Vessel Pressure Transmitter, RR91, 92, 93
PN1Y92EN009	I/O Override Update
PN1Y92EN012	Added remote function RCW14 - RBCLC Heat Exchangers in service
PN1Y92EN013	Added a PCM restoration button
PN1Y92EN014	Added a PPC restoration button
PN1Y92EN015	Added variable malfunction MS12 - Steam Leak in the Condenser Area
PN1Y92EN016	Added variable malfunctions PC06 and PC07, Hydrogen and Oxygen Generation in the Drywell, respectively
PN1Y92EN017	Added remote function RLP5 for Alternate Boron Injection
PN1Y92EN021	Page Forward/Backward at Instructor Console Keyboards
PN1Y92EN022	Malfunctions TC11 & TC12 changed to variable
PN1Y92EN024	Added malfunction DG03 to increase Diesel Generator Loading
PN1Y92EN025	Control Rod Sequencing/Programming
PN1Y92EN026	Instructor Console Alarm Switches
PN1Y93EN001	Added Modcall & AGAF pushbuttons
PN1Y93EN002	Added malfunction MS13 - MSIV Failure
PN1Y93EN003	Added malfunction ED28 - Transformer Fault
PN1Y93EN007	IO Override Carryover
PN1Y93EN009	Added reference leg notching malfunctions RR94, 95, & 96
PN1Y93EN010	Added 3 FW remote functions, RFW28-30, to model in-plant manual blocking valves
PN1Y93EN011	Added 2 remote functions, RRR21, 22 to simulate local alarm resets for RPS-UPS units

ENHANCEMENT #	TITLE
PN1Y93EN012	Added remote function RCW15 for Screen House Gate Motor Breakers
PN1Y93EN013	Added 10 remote functions, RRR6-15, for Reactor Recirc. MG Sets
PN1Y93EN014	Added malfunction ED02- 115KV Line Fault
PN1Y93EN015	Added second AGAF button
PN1Y93EN016	Added malfunction ED22C - Loss of Battery Board #14
PN1Y93EN018	Added malfunction CW12 - DW Cooling Fan Trip
PN1Y94EN001	Added FW FCV positions to the Displayed Monitored Parameters List
PN1Y94EN002	Portable Radios
PN1Y94EN004	Changed malfunction RR29 from discrete to variable
PN1Y94EN005	Split malfunctions RP04 & RP05 into A & B - Failure to Scram
PN1Y94EN007	Reformatted malfunctions RP20 & 21 into 4 malfunctions - RP20, 21, 26, & 27
PN1Y94EN008	Added capability to load-strip PBs 16 & 17 using remote functions ED47-50
PN1Y94EN009	Added screens 11 & 12 to the SPDS display
PN1Y95EN005	Changed malfunction CW09 to PC01. Changed malfunction CW12 to PC02. (The original malfunctions identified as PC01 & PC02 were deleted as the system was retired in place at the reference plant.)
PN1Y95EN006	Added 3 remote functions to simulate Shutdown Cooling IV Motor Breakers
PN1Y95EN017	Added 4 remote functions, ED51-54, to allow local manual closure and opening of supply breakers to PBs 11 and 12 upon loss of DC control power

VII. Pursuant to 10CFR55.45(b)(5)(vi) performance testing schedule for the subsequent four (4) year period, which includes a schedule for the conduct of approximately 25% of the performance tests per year is as follows:

A. Each year of the subsequent four (4) years, 1996, 1997, 1998, 1999, the following tests will be performed:

1. Computer Real Time Test

2. Steady State Tests

3. Transient Tests

4. Special tests such as reference plant initiated Simulator modifications, reference plant simple design changes causing a simulator modification, simulator enhancements, and any other tests requested by the SCCB.

B. The remainder of the ANSI 3.5 required tests will be performed at approximately 25% per year for the subsequent four (4) year test period as follows:

1. Test year number one (1), 1996

a. Normal Operation Tests

1) Plant startup - Cold to Hot Standby

2) Operation at Hot Standby

3) SCCB selected surveillance tests:

N1-ST-C2- Manual Opening of Solenoid Actuated pressure relief valves and flow verification.

N1-ST-C7- Automatic shutdown and isolation of the mechanical vacuum pumps.

N1-ST-M8- Reactor Building Emergency Ventilation System Operability Test.

N1-ST-M10- Scram Discharge Volume Vent and Drain Valve position verification.

N1-ST-W10- Refuel Platform High Radiation Monitor Instrument Channel Test.

b. Malfunction tests listed in Attachment A.

2. Test year number two (2), 1997

a. Normal Operation Tests

1) Nuclear startup from hot standby to rated power.

2) Turbine startup and generator synchronization.

3) Load changes.

4) SCCB selected surveillance tests:

N1-ST-C5- Secondary Containment and Reactor Building Emergency Ventilation System Operability.

N1-ST-C8- Off-gas Radiation Monitor Channel Function Test.

N1-ST-M2- Emergency Cooling System Makeup Tanks Level Control Valves Exercising Test.

N1-ST-Q2- Control Rod Drive Pumps Flow Rate Test.

N1-ST-Q24- Drywell/Torus and Torus/Reactor Building Vacuum Breakers Test.

b. Malfunction tests listed in Attachment B.

3. Test year number three (3), 1998

a. Normal Operation Tests

1) Plant shutdown from rated power to hot standby and cooldown to cold shutdown conditions.

2) SCCB selected surveillance tests:

N1-ST-C14- Alternate Control Rod Insertion/ Backup Scram Valve/Scram Dump Volume Vent and Drain Valves Operability Test.

N1-ST-M3- Suppresseion Chamber-Drywell Relief Valve Exercising.

N1-ST-Q3- High Pressure Coolant Injection Pump and Valve Operability Test.

N1-ST-V3- Rod Worth Minimizer Operability Test/APRM/IRM Overlap Verification.

N1-ST-V8- MS, FW/HPCI, SDC, EC, Rx Head Vent Valve Cold S/D Operability Test.

b. Malfunction tests listed in Attachment C.

4. Test Year number four (4), 1999

a. Normal Operations Tests

1) Reactor trip followed by recovery to Rated Power.

2) Startup, shutdown, and power operations with less than full reactor coolant flow.

3) Core Performance Testing.

4) SCCB selected surveillance tests:

N1-ST-M4- EDGs/PB102 and 103 Operability Test.

N1-ST-Q1A, B- Core Spray Loop 11(12) Pumps and Valves and Shutdown Cooling Water Seal Check Valves Operability Test.

N1-ST-Q6A-E- Containment Spray System Loop 111 (121, 112, 122) Quarterly Operability Test; Containment Spray System Quarterly Operability Test

N1-STQ26- Feedwater and Main Steam Line Power Operated Isolation Valves Partial Exercise Test and Associated Functional Testing of Reactor Protection System Trip Logic.

b. Malfunction tests listed in Attachment D.

ATTACHMENT A

Unit 1 Simulator Malfunction Test Year - 1 1996

MALF NUMBER	TITLE
AD03	SOLENOID ACTUATED PRESSURE RELIEF VALVE (#111) FAILURE - SOLENOID
AD07	ERV (111, 112, 113, 121, 122, 123, OR ANY) FAILS SHUT, BURNED OUT SOLENOID
AN01	CONTROL ROOM ANNUNCIATOR SYSTEM FAILURE
AN04	ANNUNCIATOR FAILURE PANEL A3
AN08	ANNUNCIATOR FAILURE PANEL A7
CS04	CORE SPRAY PUMP SUCTION LINE BREAK (111, 121, BOTH)
CT01	CONTAINMENT SPRAY PUMP TRIP (111, 112, 121, 122, OR ANY)
CU02	REACTOR CLEANUP PUMP TRIP (11, 12, OR BOTH)
CU06	REACTOR CLEANUP HIGH PRESSURE CONTROL VALVE (PCV 33-39) FAILS CLOSED
CU10	REACTOR CLEANUP DEMINERALIZER RESIN DEPLETION (11, 12, OR BOTH)
CW03	EMERGENCY SERVICE WATER PUMP TRIP (11, 12, OR BOTH)
CW07	CIRCULATION WATER EXPANSION JOINT LEAKAGE
DG01	DIESEL GENERATOR FAILURE TO START (102, 103, OR BOTH)
EC03	EMERGENCY COOLING SYSTEM RETURN VALVE FAILS OPEN (IV 39-05, IV 39-06, OR BOTH)
EC07	EMERGENCY CONDENSER FAILS TO ISOLATE (11, 12, BOTH)
EC08	EC LOOP 11 STEAM IVs FAIL TO CLOSE (111, 112)
ED04	AC POWER BOARD ELECTRICAL FAULT (PB 11)
ED08	AC POWER BOARD ELECTRICAL FAULT (PB 103)
ED12	AC POWER BOARD ELECTRICAL FAULT (PB 14 SECTION A)
ED16	AC POWER BOARD ELECTRICAL FAULT (PB 15 SECTION B)
ED20	AC POWER BOARD ELECTRICAL FAULT (PB 17 SECTION A)
ED24	LOSS OF POWER TO INSTRUMENT CONTROL BUS 130 - ALTERNATE
ED29	LOSS OF STATIC BATTERY CHARGER (161A, 161B, BOTH)
EG03	GENERATOR AUTOMATIC VOLTAGE REGULATOR FAILS - DECREASE
EG07	GENERATOR HYDROGEN MAIN SEAL OIL PUMP FAILURE
EG11	POWER GRID NETWORK LOAD TRANSIENT - INCREASE
FP01	DIESEL FIRE PUMP FAILURE
FP05	TURBINE ISLAND FIRE DETECTION (D-1195, D-1155, D-1165, D-1175, D-1061, DA-1114, DA-1131, OR ANY)
FP09	AUX CONTROL ROOM/CABLE SPREADING ROOM FIRE DETECTION (D-3031PL, DX-3031A, DX3011B, WD-8131, WD-8082, OR ANY)
FW03	FEEDWATER PUMP TRIP (11, 12, BOTH)
FW07	FEEDWATER CONTROL VALVE 11 CONTROLLER FAILS - HIGH
FW11	FEEDWATER CONTROL VALVE 13 CONTROLLER FAILS - HIGH
FW15	FEEDWATER MASTER CONTROLLER FAILS - LOW
FW19	CONDENSATE RECIRCULATION VALVE FAILS OPEN
FW23	FEEDWATER PUMP RECIRCULATION VALVE FAILS OPEN (11, 12, 13, OR ANY)
FW27	LOSS OF COMPENSATION TO FW FLOW TRANSMITTER
FW33	LOSS OF ALL FEEDWATER EXTRACTION STEAM
HV02	EMERGENCY VENTILATION FAN TRIP (11, 12, OR BOTH)
MC02	STEAM JET AIR EJECTOR STEAM SUPPLY VALVE FAILS CLOSED
MC06	EXPLOSION IN AIR EJECTOR PIPING
MS04	STEAM LINE RUPTURE INSIDE PRIMARY CONTAINMENT
MS08	SECOND STAGE REHEATER 112 STEAM SUPPLY VALVE CLOSES
MS13	MAIN STEAM ISOLATION VALVE FAILS OPEN (A, B, C, D)
NM01	SRM CHANNEL (11, 12, 13, 14 OR ANY) FAILURE - UPSCALE

MALF NUMBER	TITLE
NM05	SRM CHANNEL (11, 12, 13, 14 OR ANY) FAILURE - UPSCALE
NM09	SRM CHANNEL (11, 12, 13, 14 OR ANY) DETECTOR STUCK
NM13	IRM CHANNEL (11, 12, 13, 14, 15, 16, 17, 18, OR ANY) FAILURE - INOPERATIVE
NM17	IRM CHANNEL (11, 12, 13, 14, 15, 16, 17, 18, OR ANY) DETECTOR STUCK
NM21	APRM CHANNEL (11, 12, 13, 14, 15, 16, 17, 18, OR ANY) FAILURE - INOPERATIVE
NM26	ANY LPRM (X-Y-J) FAILURE - UPSCALE
NM30	ANY LPRM (X-Y-J) FAILURE - DOWNSCALE
NM34	ANY LPRM (X-Y-J) - DRIFT +/ -25%
NM35	ANY LPRM (X-Y-J) - DRIFT +/ -25%
NM39	RECIRC FLOW CONVERTER CHANNEL (11, 12, BOTH) FAILURE - INOPERATIVE
OG03	OFFGAS RECOMBINER MIXING JET STEAM SUPPLY FAILS - CLOSED
PC03	PRIMARY CONTAINMENT LEAKAGE
PC05	SEISMIC EVENT TRIGGERED
PC06	HYDROGEN GENERATION IN THE DRYWELL
PC07	OXYGEN GENERATION IN THE DRYWELL
RD03	CONTROL ROD XX-YY FAILURE - ACCUMULATOR TROUBLE
RD07	CONTROL ROD XX-YY FAILURE - SLOW SCRAM TIME
RD11	CONTROL ROD XX-YY FAILURE - ACCUMULATOR TROUBLE
RD15	CONTROL ROD XX-YY FAILURE - SLOW SCRAM TIME
RD19	CONTROL ROD XX-YY FAILURE - ACCUMULATOR TROUBLE
RD23	CONTROL ROD XX-YY FAILURE - SLOW SCRAM TIME
RD27	CONTROL ROD XX-YY FAILURE - ACCUMULATOR TROUBLE
RD31	CONTROL ROD XX-YY FAILURE - SLOW SCRAM TIME
RD35	CRD HYDRAULIC PUMP TRIP (11, 12, OR BOTH)
RD39	REACTOR MANUAL CONTROL SYSTEM TIMER MALFUNCTION - INSERT
RM02	DRAWER DOWNSCALE FOR ANY AREA RADIATION MONITOR SIMULATED (INSTRUCTOR SELECT)
RM04	DRAWER UPSCALE FOR ANY AREA RADIATION MONITOR SIMULATED
RP03	REACTOR SCRAM
RP07	PRIMARY CONTAINMENT ISOLATION
RP13	RPV LT 36-03D FAILED HI/LO/AS IS
RP17	RPV LT 36-07C FAILED HI/LO/AS IS
RP21	RPS 12 DRYWELL PT FAILED HIGH/LOW/AS IS
RP25	LOSS OF BOTH UPS 172A & 172B
RR03	RECIRCULATION PUMP 11 SEIZURE
RR07	RECIRCULATION PUMP 12 FIELD BREAKER TRIP
RR11	RECIRCULATION PUMP 13 DRIVE BREAKER TRIP
RR15	RECIRCULATION PUMP 13 INCOMPLETE START SEQUENCE
RR19	RECIRCULATION PUMP 14 CONTROL SIGNAL FAILURE
RR23	RECIRCULATION PUMP 15 SEIZURE
RR26	MASTER RECIRCULATION FLOW CONTROLLER FAILURE - HIGH
RR30	REACTOR VESSEL PRESSURE RECORDER FAILURE - UPSCALE (ID77)
RR34	RECIRCULATION PUMP UPPER (OUTER) SEAL FAILURE - PUMP 11
RR38	REACTOR VESSEL LEVEL RECORDER FAILURE - UPSCALE (ID14)
RR42	REACTOR VESSEL LEVEL INDICATION (CONTROL SYSTEM) FAILURE - DOWNSCALE (ID59D)

MALF NUMBER	TITLE
RR46	REACTOR VESSEL LEVEL INDICATION (WIDE RANGE SAFETY SYSTEM) FAILURE - AS IS (LI 36-19, CH 11)
RR50	REACTOR VESSEL LEVEL INDICATION (FUEL ZONE SAFETY SYSTEM) FAILURE - AS IS
RR54	REACTOR VESSEL LEVEL TRANSMITTER (LOCAL - CONTROL SYSTEM INPUT) FAILS - HIGH
RR58	REACTOR VESSEL PRESSURE TRANSMITTER (LOCAL - REACTOR PROTECTION SYSTEM INPUT) FAILS - LOW
RR62	REACTOR VESSEL PRESSURE TRANSMITTER (LOCAL - CONTROL SYSTEM INPUT) FAILS - AS IS
RR66	REACTOR RECIRCULATION PUMP 15 TACHOMETER FAILS - LOW
RR70	REACTOR RECIRCULATION PUMP M/A STATION FAILURE - AS IS (11, 12, 13, 14, 15, OR ANY)
RR75	RPV INSTRUMENT NOZZLE N13A SHEAR
RR79	RPV INSTRUMENT NOZZLE N14A SHEAR
RR83	RPV INSTRUMENT NOZZLE N7L SHEAR
RR88	REACTOR VESSEL LEVEL TRANSMITTER (LOCAL-CONTROL SYSTEM INPUT) FAILS - HIGH
RR92	REACTOR VESSEL PRESSURE TRANSMITTER (LOCAL-CONTROL SYSTEM INPUT) FAILS - LOW
RR93	REACTOR VESSEL PRESSURE TRANSMITTER (LOCAL-CONTROL SYSTEM INPUT) FAILS - AS IS
RX01	FUEL CLADDING FAILURE
RX03	CORE INSTABILITY IN RESTRICTED ZONE
RX05	INCREASED CONTROL ROD WORTH FOR ANY CONTROL ROD
TC01	MAIN TURBINE TRIP
TC05	ELECTRICAL PRESSURE REGULATOR FAILS - LOW
TC09	MECHANICAL PRESSURE REGULATOR FAILS - OSCILLATES
TC13	TURBINE CONTROL VALVE FAILS CLOSED (11, 12, 13, 14, OR ANY)
TU04	MAIN TURBINE BEARING OIL LOW PRESSURE

ATTACHMENT B

Unit 1 Simulator Malfunction Test Year - 2 1997

MALF NUMBER	TITLE
AD04	SOLENOID ACTUATED PRESSURE RELIEF VALVE (#111) FAILURE - VALVE LEAKS
AD08	ERV (111, 112, 113, 122, 123, OR ANY) FAILS OPEN, DIRT IN PILOT VALVE
AN05	ANNUNCIATOR FAILURE PANEL A4
AN09	ANNUNCIATOR FAILURE PANEL A8
CS01	CORE SPRAY PUMP TRIP (111, 112, 121, 122, OR ANY)
CT02	CONTAINMENT SPRAY RAW WATER PUMP TRIP (111, 112, 121, 122, OR ANY)
CU03	REACTOR CLEANUP REJECT FLOW CONTROL VALVE (FCV-ND22) FAILS OPEN
CU07	REACTOR CLEANUP LOW PRESSURE CONTROL VALVE (PCV-ND37) FAILS OPEN
CU11	COOLANT LEAKAGE OUTSIDE PRIMARY CONTAINMENT
CW04	REACTOR BUILDING CLOSED LOOP COOLING (11, 12, 13, OR ANY) PUMP TRIP
CW08	CIRCULATING WATER INTAKE STRUCTURE ICING
DG02	DIESEL GENERATOR TRIP (102, 103, OR BOTH)
DG03	DIESEL GENERATOR LOADING
EC04	EMERGENCY COOLING SYSTEM RETURN VALVE FAILS TO OPEN IV 39-05, IV 39-06, OR BOTH)
EC09	EC LOOP 12 STEAM IVs FAIL TO CLOSE (121, 122)
ED01	LOSS OF OFFSITE 115KV POWER SOURCES (JAF-LINE 4, SOUTH OSWEGO-LINE 1, OR BOTH)
ED05	AC POWER BOARD ELECTRICAL FAULT (PB 12)
ED09	AC POWER BOARD ELECTRICAL FAULT (PB 13 SECTION A)
ED13	AC POWER BOARD ELECTRICAL FAULT (PB 14 SECTION B)
ED17	AC POWER BOARD ELECTRICAL FAULT (PB 15 SECTION C)
ED21	AC POWER BOARD ELECTRICAL FAULT (PB 17 SECTION B)
ED25	LOSS OF POWER TO INSTRUMENT CONTROL BUS 130 - COMPLETE
ED26	FAILURE OF PB 11 TO AUTO TRANSFER
ED30	LOSS OF STATIC BATTERY CHARGER (171A, 171B, BOTH)
EG04	MAIN GENERATOR CORE INTERNAL HEATING
EG08	GENERATOR HYDROGEN EMERGENCY SEAL OIL PUMP FAILURE
EG12	POWER GRID NETWORK LOAD TRANSIENT - DECREASE
FP02	ELECTRIC FIRE PUMP FAILURE
FP06	CONTROL ROOM FIRE DETECTION (FIRE PANEL 2, CONTROL CONSOLE, "L" PANEL, "K" PANEL, "H" PANEL, "F" PANEL, "A" PANEL, OR ANY)
FP10	REACTOR BUILDING FIRE DETECTION (DX-4217A, DA-4116W, DA-4076E, D-4207, D-4156, SP-4126, D-4086, OR ANY)
FW04	SHAFT DRIVEN FEEDWATER PUMP 13 FAILURE
FW08	FEEDWATER CONTROL VALVE 11 CONTROLLER FAILS - LOW
FW12	FEEDWATER CONTROL VALVE 13 CONTROLLER FAILS - LOW
FW16	FEEDWATER MASTER CONTROLLER FAILS - AS IS
FW20	CONDENSATE RECIRCULATION VALVE (FCV 50-24) FAILS CLOSED
FW24	FEEDWATER CONTROL VALVE #13 FAILS CLOSED
FW28	HPCI MODE FAILURE TO INITIATE (11, 12, OR BOTH)
FW32	LOSS OF ALL FEEDWATER EXTRACTION STEAM
FW34	FEEDWATER HEATER TUBE LEAK HTR 124
IA01	LOSS OF INSTRUMENT AIR
MC03	HOTWELL LEVEL CONTROLLERS IN AUTO FAIL - HIGH
MS01	STEAM LINE RUPTURE OUTSIDE PRIMARY CONTAINMENT (DESIGN BASIS)
MS05	TURBINE STEAM SEAL REGULATOR FAILS CLOSED

MALF NUMBER	TITLE
MS09	SECOND STAGE REHEATER 112 DRAIN TANK LEVEL CONTROL FAILS LOW
NM02	SRM CHANNEL (11, 12, 13, 14, OR ANY) FAILURE - DOWNSCALE
NM06	SRM CHANNEL (11, 12, 13, 14, OR ANY) FAILURE - DOWNSCALE
NM10	IRM CHANNEL (11, 12, 13, 14, 15, 16, 17, 18, OR ANY) FAILURE - UPSCALE
NM14	IRM CHANNEL (11, 12, 13, 14, 15, 16, 17, 18, OR ANY) FAILURE - UPSCALE
NM18	IRM CHANNEL (11, 12, 13, 14, 15, 16, 17, 18, OR ANY) DETECTOR STUCK
NM22	APRM CHANNEL (11, 12, 13, 14, 15, 16, 17, 18, OR ANY) FAILURE - UPSCALE
NM25	ANY LPRM (X-Y-J) FAILURE - UPSCALE
NM27	ANY LPRM (X-Y-J) FAILURE - UPSCALE
NM31	ANY LPRM (X-Y-J) FAILURE - DOWNSCALE
NM36	RECIRC FLOW CONVERTER CHANNEL (11, 12, BOTH) FAILURE - UPSCALE
NM40	RECIRC FLOW CONVERTER CHANNEL (11, 12, BOTH) FAILURE - COMPARATOR
OG04	OFFGAS DISCHARGE TO STACK ISOLATION VALVE FAILS - CLOSED
PC04	TORUS WATER LEAK
PP01	FAILURE OF PLANT PROCESS COMPUTER
RD04	CONTROL ROD XX-YY FAILURE - STUCK
RD08	CONTROL ROD XX-YY FAILURE - RPIS
RD12	CONTROL ROD XX-YY FAILURE - STUCK
RD16	CONTROL ROD XX-YY FAILURE - RPIS
RD20	CONTROL ROD XX-YY FAILURE - STUCK
RD24	CONTROL ROD XX-YY FAILURE - RPIS
RD28	CONTROL ROD XX-YY FAILURE - STUCK
RD32	CONTROL ROD XX-YY FAILURE - RPIS
RD36	CRD FLOW CONTROL VALVE FAILS - CLOSED (11, 12, BOTH)
RD40	REACTOR MANUAL CONTROL SYSTEM TIMER MALFUNCTION - SETTLE
RM03	DRAWER UPSCALE FOR ANY AREA RADIATION MONITOR SIMULATED
RP04	REACTOR PROTECTION SYSTEM FAILURE TO SCRAM - AUTOMATIC
RP10	RPV LT 36-03A FAILED HI/LO/AS IS
RP14	RPV LT 36-05B FAILED HI/LO/AS IS
RP18	RPV LT 36-08A FAILED HI/LO/AS IS
RP22	LOSS OF UPS 162A
RR04	RECIRCULATION PUMP 11 CONTROL SIGNAL FAILURE
RR08	RECIRCULATION PUMP 12 SEIZURE
RR12	RECIRCULATION PUMP 13 FIELD BREAKER TRIP
RR16	RECIRCULATION PUMP 14 DRIVE BREAKER TRIP
RR20	RECIRCULATION PUMP 14 INCOMPLETE START SEQUENCE
RR24	RECIRCULATION PUMP 15 CONTROL SIGNAL FAILURE
RR27	MASTER RECIRCULATION FLOW CONTROLLER FAILURE - LOW
RR31	REACTOR VESSEL PRESSURE RECORDER FAILURE - DOWNSCALE (ID77)
RR35	REACTOR VESSEL PRESSURE RECORDER FAILURE - UPSCALE (ID76C)
RR39	REACTOR VESSEL LEVEL RECORDER FAILURE - DOWNSCALE (ID14)
RR43	REACTOR VESSEL LEVEL INDICATION (CONTROL SYSTEM) FAILURE - AS IS (ID59D)
RR47	RECIRCULATION PUMP DISCHARGE VALVE STEAM SEPARATES FROM VALVE GATE (11, 12, 13, 14, 15 OR ANY)
RR51	REACTOR VESSEL LEVEL TRANSMITTER (LOCAL - REACTOR PROTECTION SYSTEM INPUT) FAILS - HIGH

ATTACHMENT B

Unit 1 Simulator Malfunction Test Year - 2 1997

MALF NUMBER	TITLE
RR55	REACTOR VESSEL LEVEL TRANSMITTER (LOCAL - CONTROL SYSTEM INPUT) FAILS - LOW
RR59	REACTOR VESSEL PRESSURE TRANSMITTER (LOCAL - REACTOR PROTECTION SYSTEM INPUT) FAILS - AS IS
RR63	REACTOR RECIRCULATION PUMP 12 INNER SEAL FAILURE
RR67	REACTOR RECIRCULATION PUMP 15 TACHOMETER FAILS - OSCILLATES
RR71	REACTOR SAFETY VALVE INADVERTENTLY OPENS (PSV NR28A)
RR76	RPV INSTRUMENT NOZZLE 16A SHEAR
RR80	RPV INSTRUMENT NOZZLE 15A SHEAR
RR84	RPV INSTRUMENT NOZZLE 17B SHEAR
RR89	REACTOR VESSEL LEVEL TRANSMITTER (LOCAL-CONTROL SYSTEM INPUT) FAILS - LOW
RR91	REACTOR VESSEL PRESSURE TRANSMITTER (LOCAL-CONTROL SYSTEM INPUT) FAILS - HIGH
RR94	LEVEL NOTCHING PENETRATION N7L
RX02	INCREASED ROD WORTH FOR ANY CONTROL ROD
RX06	INCREASED ROD WORTH FOR ANY CONTROL ROD
TC02	TURBINE GOVERNOR FAILS - HIGH
TC06	ELECTRICAL PRESSURE REGULATOR FAILS - OSCILLATES
TC10	FIRST BYPASS VALVE STICKS OPEN
TU01	EXHAUST HOOD SPRAY VALVE FAILS CLOSED
TU05	MAIN TURBINE BEARING HIGH TEMPERATURE

ATTACHMENT C

Unit 1 Simulator Malfunction Test Year - 3 1998

MALF NUMBER	TITLE
AD01	ADS FAILURE TO INITIATE-PRIMARY VALVES
AD05	SOLENOID ACTUATED PRESSURE RELIEF VALVE (#11) FAILURE OPENS INADVERTENTLY
AN02	ANNUNCIATOR FAILURE PANEL A1
AN06	ANNUNCIATOR FAILURE PANEL A5
AN10	ANNUNCIATOR FAILURE PANELS K AND L
CS02	CORE SPRAY TOPPING PUMP TRIP (111, 112, 121, 122, OR ANY)
CT03	CONTAINMENT SPRAY HEAT EXCHANGER (111, 112, OR BOTH) TUBE LEAK
CU04	REACTOR CLEANUP REJECT FLOW CONTROL VALVE (FCV-ND22) FAILS CLOSED
CU08	REACTOR CLEANUP LOW PRESSURE CONTROL VALVE (PCV-ND37) FAILS CLOSED
CU12	CLEANUP ISOLATION FAILURE
CW01	HIGH RADIATION IN SERVICE WATER
CW05	TURBINE BUILDING CLOSED LOOP COOLING PUMP TRIP (11, 12, OR BOTH)
CW11	RBCLC LEAK IN THE DRYWELL
EC01	STEAM LEAKAGE INSIDE PRIMARY CONTAINMENT
EC05	EMERGENCY COOLING SYSTEM EMERGENCY CONDENSER MAKEUP CONTROL VALVE FAILS CLOSED (LCV 60-17, LCV 60-18 BOTH)
ED02	115KV BUS FAULT BETWEEN R10 AND MOD168
ED06	AC POWER BOARD ELECTRICAL FAULT (PB 101)
ED10	AC POWER BOARD ELECTRICAL FAULT (PB 13 SECTION B)
ED14	AC POWER BOARD ELECTRICAL FAULT (PB 14 SECTION C)
ED18	AC POWER BOARD ELECTRICAL FAULT (PB 16 SECTION A)
ED22	DC POWER BOARD ELECTRICAL FAULT (11, 12, OR BOTH)
ED27	FAILURE OF PB 12 TO AUTO TRANSFER
EG01	MAIN GENERATOR TRIP - ELECTRICAL FAULT
EG05	MAIN TRANSFORMER LOSS OF COOLING
EG09	STATOR COOLING PUMP TRIP (11, 12, OR BOTH)
EG13	STATOR WATER COOLING DEMINERALIZER RESIN DEPLETION
FP03	AC FOAM PUMP FAILURE
FP07	TURBINE BUILDING FIRE DETECTION (DA-2092MG, DA-2083M, DA-2081S, DA-2092E, D-2102, OR ANY)
FW01	CONDENSATE PUMP TRIP (11, 12, 13, OR ANY)
FW05	SHAFT DRIVEN FEEDWATER PUMP CLUTCH FAILURE TO ENGAGE
FW09	FEEDWATER CONTROL VALVE 12 CONTROLLER FAILS - HIGH
FW13	FEEDWATER CONTROL VALVE 13 CONTROLLER FAILS - AS IS
FW17	CONDENSATE DEMINERALIZER DEPLETION
FW21	FEEDWATER BOOSTER PUMP RECIRCULATION VALVE FAILS OPEN (FCV 51-58, FCV 51-59, FCV 51-60, OR ANY)
FW25	THREE MILE ISLAND ACCIDENT (BWR EQUIVALENT)
FW29	HPCI MODE INADVERTENT INITIATION (11, 12, BOTH)
FW31	FW LINE BREAK OUTSIDE DRYWELL
FW35	FEEDWATER HEATER 124 LCV FAILURE - CLOSED
LP01	LIQUID POISON PUMP TRIP (11, 12, BOTH)
MC04	HOTWELL LEVEL CONTROLLERS IN AUTO FAIL - LOW
MS02	MSIV DISC SEPARATES FROM STEM
MS07	FIRST STAGE REHEATER 111 STEAM SUPPLY VALVE CLOSES

ATTACHMENT C

Unit 1 Simulator Malfunction Test Year - 3 1998

MALF NUMBER	TITLE
MS10	LOSS OF EXTRACTION STEAM TO HIGH PRESSURE FEEDWATER HEATER (115, 125, 135, OR ANY)
MS12	MAIN STEAM LINE RUPTURE IN THE TURBINE BUILDING (CONDENSER AREA)
NM03	SRM CHANNEL RECORDER FAILURE (RED, BLACK, OR BOTH PENS)
NM07	SRM CHANNEL RECORDER FAILURE (RED, BLACK, OR BOTH PENS)
NM11	IRM CHANNEL (11, 12, 13, 14, 15, 16, 17, 18, OR ANY) FAILURE - DOWNSCALE
NM15	IRM CHANNEL (11, 12, 13, 14, 15, 16, 17, 18, OR ANY) FAILURE - DOWNSCALE
NM19	APRM CHANNEL (11, 12, 13, 14, 15, 16, 17, 18, OR ANY) FAILURE - UPSCALE
NM23	APRM CHANNEL (11, 12, 13, 14, 15, 16, 17, 18, OR ANY) FAILURE - DOWNSCALE
NM29	LPRM (X-Y-J) FAILURE - DOWNSCALE
NM37	RECIRC FLOW CONVERTER CHANNEL (11, 12, BOTH) FAILURE - DOWNSCALE
OG01	OFFGAS RECOMBINER PREHEATER STEAM SUPPLY FAILS CLOSED
PC01	LOSS OF DRYWELL COOLING
RD01	CONTROL ROD XX-YY FAILURE - DRIFT IN
RD05	CONTROL ROD XX-YY FAILURE - UNCOUPLED
RD09	CONTROL ROD XX-YY FAILURE - DRIFT IN
RD13	CONTROL ROD XX-YY FAILURE - UNCOUPLED
RD17	CONTROL ROD XX-YY FAILURE - DRIFT IN
RD21	CONTROL ROD XX-YY FAILURE - UNCOUPLED
RD25	CONTROL ROD XX-YY FAILURE - DRIFT IN
RD29	CONTROL ROD XX-YY FAILURE - UNCOUPLED
RD33	CONTROL ROD BANK FAILURE TO SCRAM (BANK I, II, III, IV, V, OR ANY)
RD37	RPIS FAILURE - COMPLETE SYSTEM FAILURE
RD41	SCRAM DISCHARGE VOLUME RUPTURE
RM05	CONTINUOUS AIR MONITOR FAILURE (T. BLDG, R. BLDG, WASTE BLDG, OR ANY)
RP01	REACTOR TRIP BUS MOTOR GENERATOR TRIPS (131, 141, OR BOTH)
RP05	REACTOR PROTECTION SYSTEM FAILURE TO SCRAM - COMPLETE
RP09	ARI/ATWS AIR HEADER EXHAUST PORT BLOCKED
RP11	RPV LT 36-03D FAILED HI/LO/AS IS
RP15	RPV LT 36-05C FAILED HI/LO/AS IS
RP19	RPV LT 36-08D FAILED HI/LO/AS IS
RP23	LOSS OF UPS 172A
RR01	RECIRCULATION PUMP 11 DRIVE BREAKER TRIP
RR05	RECIRCULATION PUMP 11 INCOMPLETE START SEQUENCE
RR09	RECIRCULATION PUMP 12 CONTROL SIGNAL FAILURE
RR13	RECIRCULATION PUMP 13 SEIZURE
RR17	RECIRCULATION PUMP 14 FIELD BREAKER TRIP
RR21	RECIRCULATION PUMP 15 DRIVE BREAKER TRIP
RR25	RECIRCULATION PUMP 15 INCOMPLETE START SEQUENCE
RR28	MASTER RECIRCULATION FLOW CONTROLLER FAILURE - AS IS
RR32	REACTOR VESSEL PRESURE RECORDER FAILURE - AS IS (ID77)
RR36	REACTOR VESSEL PRESSURE INDICATOR FAILURE - DOWNSCALE (ID76C)
RR40	REACTOR VESSEL LEVEL RECORDER FAILURE - AS IS (ID14)
RR44	REACTOR VESSEL LEVEL INDICATION (WIDE RANGE SAFETY SYSTEM) FAILURE UPSCALE (LI 36-19, CH 11)

ATTACHMENT C

Unit 1 Simulator Malfunction Test Year - 3 1998

MALF NUMBER	TITLE
RR48	REACTOR VESSEL LEVEL INDICATION (FUEL ZONE SAFETY SYSTEM) FAILURE - UPSCALE
RR52	REACTOR VESSEL LEVEL TRANSMITTER (LOCAL - REACTOR PROTECTION SYSTEM INPUT) FAILS - LOW
RR56	REACTOR VESSEL LEVEL TRANSMITTER (LOCAL - CONTROL SYSTEM INPUT) FAILS - AS IS
RR60	REACTOR VESSEL PRESSURE TRANSMITTER (LOCAL - CONTROL SYSTEM INPUT) FAILS - HIGH
RR64	REACTOR RECIRCULATION PUMP 12 OUTER SEAL FAILURE
RR68	REACTOR RECIRCULATION PUMP M/A STATION FAILURE - INCREASE (11, 12, 13, 14, 15, OR ANY)
RR72	LOSS OF COMPENSATION TO FW CONTROL SYSTEM (GEMAC) LEVEL TRANSM ITTER
RR77	RPV INSTRUMENT NOZZLE N13B SHEAR
RR81	RPV INSTRUMENT NOZZLE N14B SHEAR
RR85	RPV LLL CH11 VAR LEG SHEAR
RR90	REACTOR VESSEL LEVEL TRANSMITTER (LOCAL-CONTROL SYSTEM INPUT) FAILS-AS IS
RR95	LEVEL NOTCHING PENETRATION N14A
RR96	LEVEL NOTCHING PENETRATION N15A
RX07	INCREASED ROD WORTH FOR ANY CONTROL ROD
SC01	SHUTDOWN COOLING PUMP TRIP (11, 12, 13, OR ANY)
TC03	TURBINE GOVERNOR FAILS - LOW
TC07	MECHANICAL PRESSURE REGULATOR FAILS - HIGH
TC11	ALL BYPASS VALVES FAIL - OPEN
TU02	MAIN TURBINE HIGH VIBRATION BEARINGS #5 AND #6
TU06	MAIN TURBINE THRUST BEARING WEAR

ATTACHMENT D

Unit 1 Simulator Malfunction Test Year - 4 1999

MALF NUMBER	TITLE
AD02	ADS FAILURE TO INITIATE - COMPLETE
AD06	SOLENOID ACTUATED PRESSURE RELIEF VALVE (#111) FAILURE - STUCK OPEN
AN03	ANNUNCIATOR FAILURE PANEL A2
AN07	ANNUNCIATOR FAILURE PANEL A6
AN11	ANNUNCIATOR FAILURE PANEL H
AN12	ANNUNCIATOR FAILURE PANEL F
CS03	CORE SPRAY INBOARD INJECTION VALVE FAILURE TO OPEN (IV 40-01, IV 40-09, IV 40-11, IV 40-10, OR ANY)
CT04	CONTAINMENT SPRAY PUMP SUCTION LINE BREAK (121, 122, BOTH)
CU01	COOLANT LEAKAGE INSIDE PRIMARY CONTAINMENT
CU05	REACTOR CLEANUP HIGH PRESSURE CONTROL VALVE (PCV 33-30) FAILS OPEN
CU09	REACTOR CLEANUP NON-REGENERATIVE HEAT EXCHANGER TUBE LEAK
CU13	CU ISOL. FAILURE ON LIQ. PSN INITIATION
CW02	SERVICE WATER PUMP TRIP (11, 12, OR BOTH)
CW06	CIRCULATION WATER PUMP TRIP (11, 12, OR BOTH)
CW10	MAIN CONDENSER TUBE LEAK
EC02	STEAM LEAKAGE OUTSIDE PRIMARY CONTAINMENT
EC06	EMERGENCY CONDENSER TUBE LEAK
ED03	COMPUTER POWER SUPPLY MOTOR GENERATOR TRIPS (167)
ED07	AC POWER BOARD ELECTRICAL FAULT (PB 102)
ED11	AC POWER BOARD ELECTRICAL FAULT (PB 13 SECTION C)
ED15	AC POWER BOARD ELECTRICAL FAULT (PB 15 SECTION A)
ED19	AC POWER BOARD ELECTRICAL FAULT (PB 16 SECTION B)
ED23	LOSS OF POWER TO INSTRUMENT CONTROL BUS 130 - NORMAL
ED28	TRANSFORMER FAULT (101N, 101S, BOTH)
EG02	GENERATOR AUTOMATIC VOLTAGE REGULATOR FAILS - INCREASE
EG06	GENERATOR HYDROGEN COOLING SYSTEM LEAKAGE
EG10	LOSS OF CONTROL AIR TO 345KV BREAKER (R915, R925, OR BOTH)
EG14	LOSS OF ALL 345KV POWER SOURCES
FP04	DC FOAM PUMP FAILURE
FP08	DIESEL ROOM FIRE DETECTION (DX-2113A, DX-2123B, DX-2141A, DA-2141, DX-2151B, DA-2151, D-2151, OR ANY)
FW02	FEEDWATER BOOSTER PUMP TRIP
FW06	SHAFT DRIVEN FEEDWATER PUMP CLUTCH FAILURE - DISENGAGE
FW10	FEEDWATER CONTROL VALVE 12 CONTROLLER FAILS - LOW
FW14	FEEDWATER MASTER CONTROLLER FAILS - HIGH
FW18	FEEDWATER CONDUCTIVITY INCREASE
FW22	FEEDWATER HEATER TUBE LEAK
FW26	CONDENSATE BYPASS SPRAY TO MAIN CONDENSER FLOW CONTROL VALVE (FCV 50-22) FAILS CLOSED
FW30	FW LINE BREAK INSIDE DRYWELL
HV01	REACTOR BUILDING EXHAUST FAN TRIP (11, 12, OR BOTH)
MC01	MAIN CONDENSER AIR INLEAKAGE
MC05	HOTWELL LEVEL CONTROLLERS IN AUTO FAIL - ÁS IS
MS03	ONE MSIV FAILS CLOSED (122)
MS11	LOSS OF COMPENSATION TO STEAM FLOW TRANSMITTER
NM04	SRM CHANNEL (11, 12, 13, 14, OR ANY) FAILURE - INOPERATIVE

MALF NUMBER	TITLE
NM08	SRM CHANNEL (11, 12, 13, 14, OR ANY) FAILURE - INOPERATIVE
NM12	IRM/APRM CHANNEL (11, 12, 13, 14, 15, 16, 17, 18, OR ANY) FAILURE - RECORDER
NM16	IRM/APRM CHANNEL (11, 12, 13, 14, 15, 16, 17, 18, OR ANY) FAILURE - RECORDER
NM20	APRM CHANNEL (11, 12, 13, 14, 15, 16, 17, 18, OR ANY) FAILURE - DOWNSCALE
NM24	APRM CHANNEL (11, 12, 13, 14, 15, 16, 17, 18, OR ANY) FAILURE - INOPERATIVE
NM28	ANY LPRM (X-Y-J) FAILURE - UPSCALE
NM32	ANY LPRM (X-Y-J) FAILURE - DOWNSCALE
NM33	TIP DETECTOR STUCK IN CORE
NM38	RECIRC FLOW CONVERTER CHANNEL (11, 12 BOTH) FAILURE - AS IS
OG02	OFFGAS RECOMBINER MIXING JET STEAM SUPPLY FAILS -OPEN
PC02	DRYWELL COOLING FAN TRIP (11, 12, 13, 14, 15, 16, ANY)
RD02	CONTROL ROD XX-YY FAILURE - DRIFT OUT
RD06	CONTROL ROD XX-YY FAILURE - SCRAMMED
RD10	CONTROL ROD XX-YY FAILURE - DRIFT OUT
RD14	CONTROL ROD XX-YY FAILURE - SCRAMMED
RD18	CONTROL ROD XX-YY FAILURE - DRIFT OUT
RD22	CONTROL ROD XX-YY FAILURE - SCRAMMED
RD26	CONTROL ROD XX-YY FAILURE - DRIFT OUT
RD30	CONTROL ROD XX-YY FAILURE - SCRAMMED
RD34	LOSS OF CRD INSTRUMENT AIR PRESSURE
RD38	REACTOR MANUAL CONTROL SYSTEM TIMER MALFUNCTION - WITHDRAW
RM01	DRAWER INOPERATIVE FOR ANY PROCESS RADIATION MONITOR SIMULATED (INSTRUCTOR SELECT)
RM06	ANY PROCESS RADIATION MONITOR FAILURE
RP06	REACTOR VESSEL ISOLATION
RP12	RPV LT 36-04A FAILED HI/LO/AS IS
RP16	RPV LT 36-07B FAILED HI/LO/AS IS
RP20	RPS 11 DRYWELL PT FAILED HIGH/LOW/AS IS
RP24	LOSS OF BOTH UPS 162A & 162B
RR02	RECIRCULATION PUMP 11 FIELD BREAKER TRIP
RR06	RECIRCULATION PUMP 12 DRIVE BREAKER TRIP
RR10	RECIRCULATION PUMP 12 INCOMPLETE START SEQUENCE
RR14	RECIRCULATION PUMP 13 CONTROL SIGNAL FAILURE
RR18	RECIRCULATION PUMP 14 SEIZURE
RR22	RECIRCULATION PUMP 15 FIELD BREAKER TRIP
RR29	RECIRCULATION LOOP RUPTURE
RR33	RECIRCULATION PUMP LOWER (INNER) SEAL FAILURE - PUMP 11
RR37	REACTOR VESSEL PRESSURE INDICATOR FAILURE - AS IS (ID76C)
RR41	REACTOR VESSEL LEVEL INDICATION (CONTROL SYSTEM) FAILURE - UPSCALE (ID59D)
RR45	REACTOR VESSEL LEVEL INDICATION (WIDE RANGE SAFETY SYSTEM) FAILURE - DOWNSCALE (LI 36-19, CH 11)
RR49	REACTOR VESSEL LEVEL INDICATION (FUEL ZONE SAFETY SYSTEM) FAILURE - DOWNSCALE
RR53	REACTOR VESSEL LEVEL TRANSMITTER (LOCAL - REACTOR PROTECTION SYSTEM INPUT) FAILS - AS IS

MALF NUMBER	TITLE
RR57	REACTOR VESSEL PRESSURE TRANSMITTER (LOCAL - REACTOR PROTECTION SYSTEM INPUT) FAILS - HIGH
RR61	REACTOR VESSEL PRESSURE TRANSMITTER (LOCAL - CONTROL SYSTEM INPUT) FAILS - LOW
RR65	REACTOR RECIRCULATION PUMP 15 TACHOMETER FAILS - HIGH
RR69	REACTOR RECIRCULATION PUMP M/A STATION FAILURE - DECREASE (11, 12, 13, 14, 15, OR ANY)
RR73	INCOMPLETE RECIRC PUMP STARTUP (11, 12, 13, 14, 15, OR ANY), 80/IA80 SETPOINT OFF
RR74	RPV INSTRUMENT NOZZLE N12 SHEAR.
RR78	RPV INSTRUMENT NOZZLE N16B SHEAR
RR82	RPV INSTRUMENT NOZZLE N15B SHEAR
RR86	RPV LLL CH12 VAR LEG SHEAR
RR87	FUEL ZONE LEVEL INST. FLASHING
RW01	ROD WORTH MINIMIZER FAILURE
RX04	INCREASED ROD WORTH FOR ANY CONTROL ROD
SC02	SHUTDOWN COOLING HEAT EXCHANGER TUBE LEAK (11, 12, 13, OR ANY)
TC04	ELECTRICAL PRESSURE REGULATOR FAILS - HIGH
TC08	MECHANICAL PRESSURE REGULATOR FAILS - LOW
TC12	ALL BYPASS VALVES FAIL - CLOSED
TU03	MAIN TURBINE HIGH ECCENTRICITY