NRC FORM 474 (1-90)
10 CFR 55.45(b), 55.4 and 55.5

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0138
EXPIRES: 9-30-92

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

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	DOCKET NUMBER
PALISADES NUCLEAR PLANT	50- 255
LICENSEE	**DATE**
CONSUMERS POWER COMPANY	6/11/90

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 55.45.
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

MIDLAND TRAINING CENTER
3249 E GORDONVILLE ROAD
MIDLAND, MI 48640

[X] 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 ATTACHED: REAL TIME, STEADY STATE, NORMAL OPERATION, TRANSIENT AND MALFUNCTION TEST ABSTRACTS

[X] 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 ATTACHED PERFORMANCE TEST SCHEDULE

[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 page(s) as necessary, and identify the item description being continued)*

NOT APPLICABLE

[X] 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.)*

NOT APPLICABLE

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
[signature]	Vice President - Nuclear Op	6-11-90

In accordance with 10 CFR § 55.6, 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: **One White Flint North, 11555 Rockville Pike, Rockville, MD**

Consumers
Power
Company

Nuclear Training Center — 3249 East Gordonville Road, Midland, MI 48640

PALISADES

SIMULATOR

CERTIFICATION

SUBMITTAL

CONSUMERS POWER COMPANY
PALISADES SIMULATOR CERTIFICATION REPORT

TABLE OF CONTENTS

SECTION A

CERTIFICATION OF PALISADES SIMULATION FACILITY

NRC FORM 474 (1-90)
10 CFR 55.45(b), 55.4 and 55.5

U.S. NUCLEAR REGULATORY COMMISSION

SIMULATION FACILITY CERTIFICATION

APPROVED BY OMB: NO. 3150-0138
EXPIRES: 9-30-92

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 120 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, 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
Palisades Nuclear Plant	50- 255
LICENSEE	**DATE**
Consumers Power Company	6/1/90

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 55.45.
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 [X] and describe fully on additional pages as necessary.

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

Midland Training Center
3249 E Gordonville Rd
Midland, MI 48640

[X] 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 attached: Real Time, Steady State, Normal Operation, Transient and Malfunction Test Abstracts

[X] 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 attached Performance Test Schedule

[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 page(s) as necessary, and identify the item description being continued)*

Not applicable

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

Not applicable

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

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: One White Flint North
11555 Rockville Pike
Rockville, MD

EXCEPTIONS TO ANSI/ANS-3.5-1985

1. Section 3.1.1 Normal Plant Evolutions

   This section states "The minimum evolutions that the simulator shall be capable of performing, using only operator action normal to the reference plant, are as follows:"

   "(7) Startup, shutdown and power operations with less than full reactor coolant flow;"

   RESPONSE

   Operating the plant with less than all 4 primary coolant pumps is NOT a normal plant evolution at Palisades. The plant does not allow startup and power operations with less than full primary coolant flow (reference Technical Specification T.S. 3.1). If this evolution becomes a part of our Standard Operating Procedures (SOP), a normal operations test will be developed to verify the simulator is capable of performing this SOP. This evolution was not tested.

2. Section 3.1.1 Normal Plant Evolutions

   This section states "The minimum evolutions that the simulator shall be capable of performing, using only operator action normal to the reference plant, are as follows:"

   "(10) Operator conducted surveillance testing on safety-related equipment or systems."

   RESPONSE

   All of the operator conducted surveillance testing on safety related equipment or systems are not included in the simulator performance test. Only the surveillance tests that are conducted entirely in the control room are included. The numerous other tests have data taken remotely, and are trained on as outlined in our Systematic Approach to Training (SAT) process.

3. Section 3.1.2 Plant Malfunctions

This section states "The malfunctions listed below shall be included:"

"(12) Control rod failure including stuck rods, uncoupled rods, drifting rods, rod drops, and misaligned rods;"

RESPONSE

The Palisades simulator does not have specific malfunctions for "uncoupled rods" or "drifting rods", but our present capabilities in the area of rod malfunctions are adequate to provide the operators with the necessary training related to rod operation (reference page D.8 for control rod malfunctions). The control panel indications and alarms, and the operating procedures utilized for our existing control rod malfunctions, would be the same as those for "uncoupled rods" and "drifting rods".

4. Section 3.2.2 Controls on Panels

This section states "The controls on panels and consoles that are simulated shall be designed to duplicate the size, shape, color, and configuration of the functionally simulated hardware of the reference plant."

"All functionally simulated and visually simulated hardware shall replicate that in the reference plant control room."

RESPONSE

All of the meters, recorders, switches, annunciators, controllers, etc. that function during normal, abnormal, and emergency evolutions are included in the simulator, as verified during the performance testing. However, during a detailed picture comparison made between the simulator and plant controls, numerous (approx. 100) differences in color, shape, location or size of controls on the panels were discovered.

This comparison also revealed many (approx. 300) differences in the instruments that are simulated. All of these items and other differences (ex. bezels, tags, annunciator windows, position dots, indicating lights, hole covers, screws, etc.) have been documented and are being tracked on a computerized database.

The significance of these items on an individual basis is very minor. This is supported by the lack of licensed

operator identification or complaints of physical fidelity in the 7 years of simulator usage. It is also supported by the favorable responses obtained on operator surveys during 1990 requalification training, regarding the physical fidelity of the simulator.

However, because of the numerical magnitude of differences, each of these items will be evaluated by the simulator's Technical Support Group (TSG), and recommendations will be presented to the Operations Curriculum Committee (OCC) regarding which items should be corrected. The OCC will make the final disposition of these items. The TSG will correct the differences as determined by the OCC. This process is proceduralized in the Midland Training Center (MTC) Local Instruction MTC 17.0, "SIMULATOR CERTIFICATION CONTROL PROGRAM".

Note: The OCC is responsible for determining the curricula for the Palisades plant operator training program. Individuals from the Operations Department, Simulator Training and Technical Support Group attend OCC meetings.

5. Section 3.3.2 Systems Operation or Functions Controlled Outside of the Control Room

This section states "The systems that are operated outside the control room or that provide some input to the simulation models and are necessary to perform reference plant evolutions described in 3.1.1 (Normal Plant Evolutions) ... shall be simulated."

RESPONSE

This criteria was met for all of the performance testing conducted on Normal Plant Evolutions. However, because not all surveillance testing is conducted at the simulator, not all systems operated outside the control room, that are necessary to perform surveillance tests, are simulated. This exception relates directly to exception 2.

SECTION B

GENERAL INFORMATION

GENERAL INFORMATION
PALISADES SIMULATOR AND PLANT

1) Owner: Sheridan Leasing Corporation
One American Plaza
Evanston, Illinois 60201

Operator: Consumers Power Company
212 W. Michigan Avenue
Jackson, Michigan 49201

Manufacturer: The Singer Company
Link Division, Silver Spring Operation
11800 Tech Road
Montgomery Industrial Park
Silver Spring, Maryland 20904

2) Reference Plant: Palisades Nuclear Plant
27780 Blue Star Memorial Highway
Covert, Michigan 49043

Type: Circulation - Pressurized Water Reactor (PWR)
NSSS - Combustion Engineering (CE)
Turbine - Westinghouse (WE)

Rating: Net Demonstrated Capacity - 777 MW (3-18-87)
Turbine Nameplate - 811.7 MW

3) Date Available for Training: February 24, 1983

4) Type of Report: Initial

GENERAL INFORMATION
SIMULATOR DESIGN DATA

The Palisades Simulator was built approximately 10 years after the Palisades Plant was operational. Actual plant information was utilized in the design and development of the Palisades simulator.

Updates to the simulator since delivery have also been based on actual plant information whenever available. The simulator is on distribution for selected plant information and any plant documents/information used in a simulator modification are listed in the simulator's Final Design Specification (FDS). This process is proceduralized in the Midland Training Center's (MTC) Local Instructions MTC 6.0 and MTC 9.0.

GENERAL INFORMATION
CONTROLLED OPERATING PROCEDURES

The operating procedures utilized at the Palisades Simulator are a "controlled copy" of the operating procedures utilized at the Palisades Plant. Also, the same document control procedure governing the issuance of the operating procedures is used (PALISADES NUCLEAR PLANT ADMINISTRATIVE PROCEDURE 10.43, "DOCUMENT DISTRIBUTION AND CONTROL") to ensure the procedures at the simulator are updated at the same time as those at the plant.

SECTION C

CONTROL ROOM COMPARISON

PALISADES SIMULATOR
vs
PALISADES CONTROL ROOM

PANEL ARRANGEMENT AND ENVIRONMENT

The following two diagrams of the Palisades Control Room and the Palisades Simulator Floor Plans are intended to show differences in layout and are not necessarily to scale. The dimensions shown are accurate within one inch.

DEGREE OF PANEL SIMULATION:

LAYOUT: The simulated control room panels and their layout give the appearance of being in the actual plant control room. The major differences are the rear of panels C12 and C13 are not simulated, C47, C47A and C115 are not simulated and the width of panels C04 and C06 is narrower. These deviations have minimal impact on training and the panels simulated do provide the controls, instrumentation, alarms and other man-machine interfaces necessary to conduct the Normal Plant Evolutions and respond to the Plant Malfunctions.

CONTROL ROOM ENVIRONMENT:

FLOORING: The flooring at the simulator is carpet of the same color as that at the Palisades plant.

CEILING: The ceiling in the simulator is significantly higher to accommodate the overhead viewing gallery.

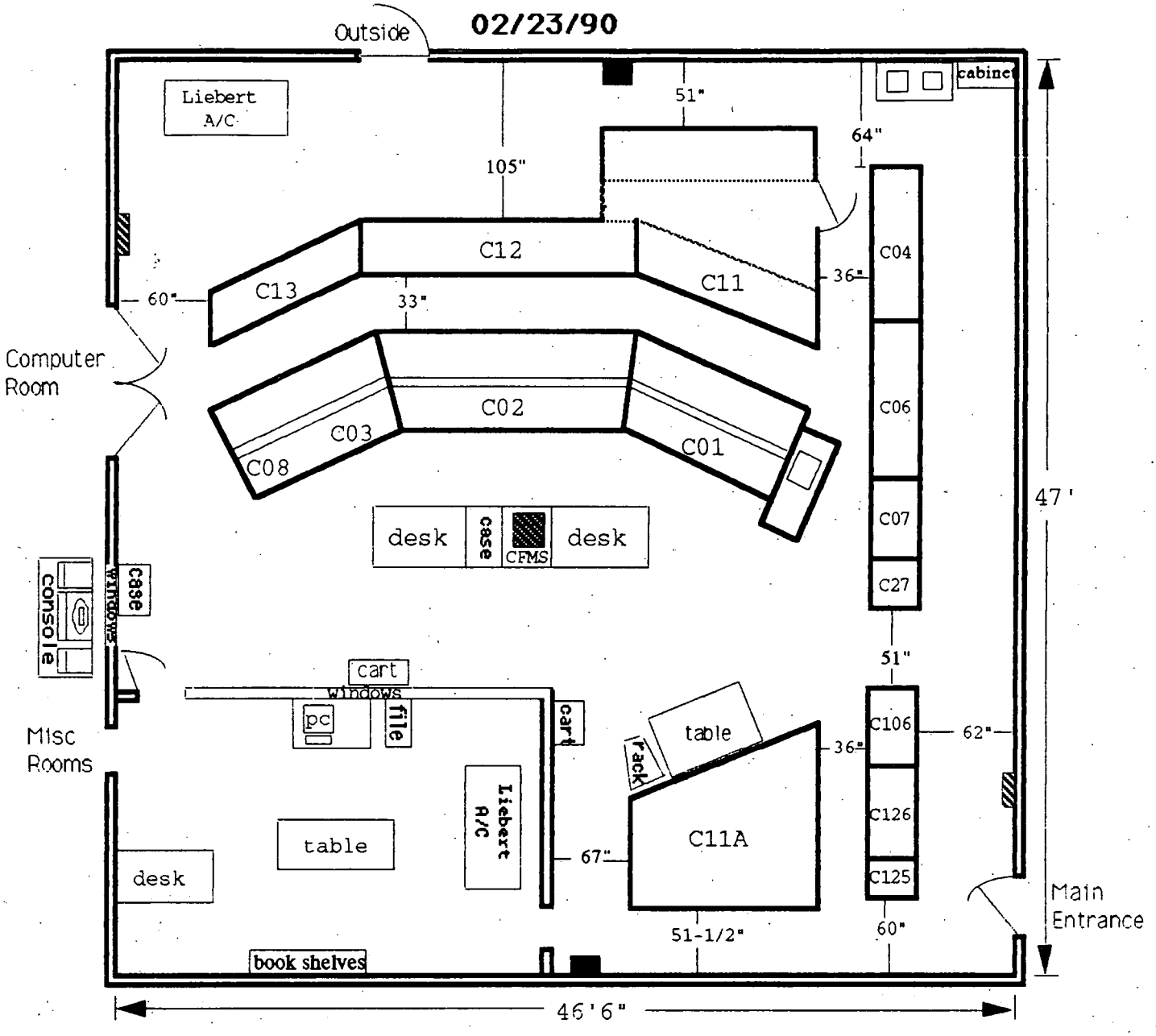
OBSTRUCTIONS: The simulator has the Liebert air conditioner that is an additional obstruction behind panel C13. The simulator is lacking cabinets behind C07, C27, C106, C126 and C125. The operators furniture and its location is similar to that in the actual plant. The face-front area of the control panels contain the same obstructions.

LIGHTING: The simulator lighting is brighter than that of the plant control room. However, all of the control panel instruments are easily seen with no degrading shadows or glare.

NOISE: Simulated noise is provided in the simulator environment. The nuclear startup channels are provided with an audio count rate, the turbine generator noise is simulated, the atmospheric steam dump valves and the secondary code relief valve noises are simulated.

COMMUNICATION: The operator communicates with the same communication systems at the simulator as at the plant. These include telephone (with identical telephone numbers), radios and direct. Instructors don hard hats with labeled job titles to represent desired individuals for direct communications.

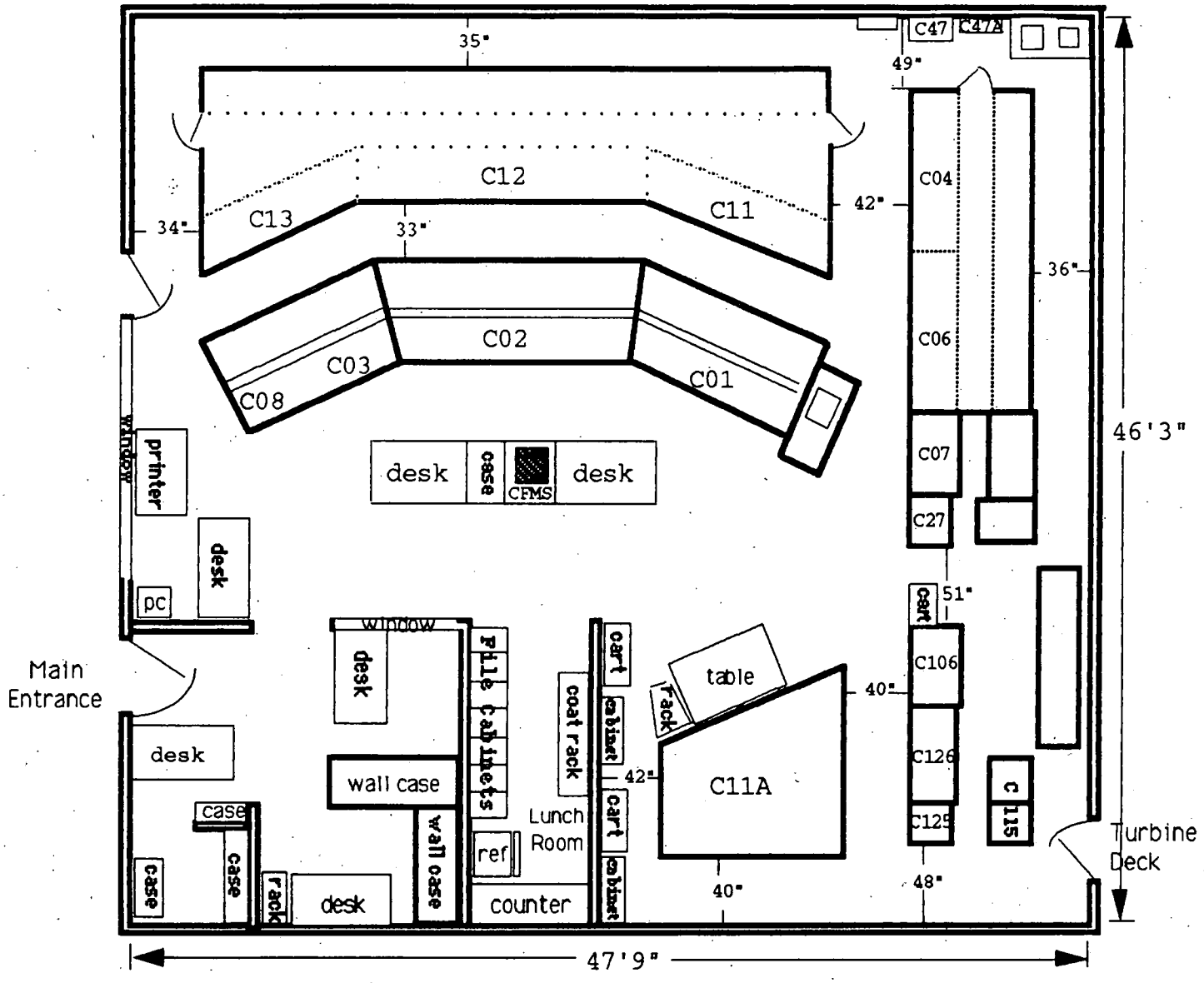
PALISADES
SIMULATOR FLOOR PLAN

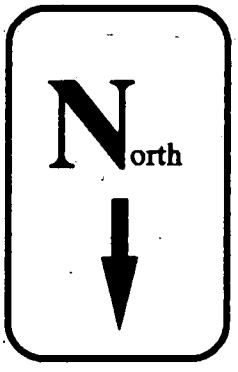


North

PALISADES
CONTROL ROOM FLOOR PLAN

02/23/90





REQUIRED

SYSTEMS

REQUIRED SYSTEMS LIST

Based on Simulator Training Scenario Listing.

Simulator Documentation used:
1) Simulator Module Final Design Specification (FDS),
2) Simulator FORTRAN code, and
3) Physical inspection of the simulator facility during evaluation.

PLANT SYSTEMS	SIMULATED	REQUIRED	NOTES
1) Primary Coolant System	Full	Yes	
2A) Chemical and Volume Sys Charging and Letdown; Concentrated Boric Acid	Partial	Yes	Boric Acid Heat Trace not simulated; Heat Trace controls not in Control Room.
2B) Chemical and Volume Control Sys - Purification and Chem Injection	Partial	Yes	Manual valves and chemical additive pumps not simulated.
3) Safety Injection and Shutdown Cooling System	Full	Yes	
4) Containment Spray and Iodine Removal System	Full	Yes	
5) Containment Air Cooling and Hydrogen Recombining	Partial	Yes	Hydrogen recombining controls not in Control Room (C.R.).
6) Reactor Control System	Full	Yes	
7) Main Steam System	Partial	Yes	S/G blowdown recirc. incomplete. S/G Blow down pump controls not in Control Room.
8) Main Turbine and Generating Systems	Partial	Yes	Generator Bus disconnect links not modeled. To be added after pending plant modification.
10) Extraction and Heater Drain System	Full	Yes	

REQUIRED SYSTEMS LIST

PLANT SYSTEMS	SIMULATED	REQUIRED	NOTES
11) Condensate System	Full	Yes	
12) Feedwater System	Full	Yes	
13) Air Ejector, Gland Steam Condenser and Condenser Vacuum Pump	Full	Yes	
14) Circulating Water and Chlorination Systems	Partial	Yes	Warm water recirc. not modeled. Contrls not in Control Room.
15) Service Water System	Partial	Yes	Manual throttle of service water from CCW Hx not modeled.
16) Component Cooling Water	Partial	Yes	dPC 0909 not modeled
17A) Clean Radioactive Waste 17B) Dirty Radioactive Waste	Partial	No	Only Engineering Safeguards Rm sumps are modeled; other pumps, filters and receivers assumed fully operable.
18A) Radioactive Waste-Gas 18B) Radioactive Waste Sys 18C) Radioactive Waste-Solid 18D) Spent Resin Handling	No	No	All gaseous & solid waste facilities are assumed fully operable.
19) Instrument Air System	Partial	Yes	No malfunctions or remote functions are provided for Inst. Air Driers...not controled from C.R.; I/O overrides allow Instr. to simulate symptoms of failures
20) High-Pressure Control Air System for Air-Operated Valves	Partial	Yes	Compressors assumed always in AUTO; Failure of 1 or more on loss of A-C power not modeled.

REQUIRED SYSTEMS LIST

PLANT SYSTEMS	SIMULATED	REQUIRED	NOTES
21) Fire Protection Sys	Partial	Yes	Interfaces with SW provided; no other fire loads modeled. Alarm panel in C.R. not simulated.
22) Emergency Diesel Generator	Partial	Yes	Infinite Fuel Supply assumed.
23) Plant Heating System	No	No	
24) Ventilation and Air Conditioning System	Partial	Yes	Only evolutions controlled from C.R.are modeled; balance of system continuously operating.
25) Domestic Water System	No	No	
26) Makeup System	Partial	Yes	Storage tank fill valves simulated. Sources of makeup continuously operable
27) Fuel Pool System	Partial	Yes	C.R. controls simulated; Spent Fuel pool modeled as constant temp heat load/sink.
28) Fuel Handling System	No	No	
29) Shield Cooling System	Full	Yes	
30) Station Power	Partial	Yes	Bkrs/loads not controlled from C.R.; Assume normal unless malfunction imposed; Removal of main Gen. Bus links not simulated; Use of emergency reserve transformers not simulated
31) Plant Lignting and Communications	Partial	Yes	D.C. lighting not simulated; C.R. A-C lights on 1 circuit.

REQUIRED SYSTEMS LIST

PLANT SYSTEMS	SIMULATED	REQUIRED	NOTES
32) 345 KV Switchyard	Partial	Yes	Main Gen. Bus links not simulated; not all potential failures modeled.
33) Compressed Gas System	Partial	Yes	Gas supplies assumed continuously aval.
34) Data Logger System	Partial	Yes	Not all console commands are simulated.
35) Neutron Monitoring Sys	Partial	Yes	Provision to manually read incore NI's not simulated.
36) Reactor Protective Sys	Full	Yes	
37) Process Liquid Monitor System ..... 38) Gaseous Process Monitoring System ..... 39) Area Radiation Monitoring System	Partial	Yes	Only representative samples of C.R. instruments are simulated; simulated instruments representative of various monitors are consolidated on single panels in simulator; not all monitors with control/alarm functions are simulated.
40) Annunciators	Partial	Yes	All C.R. panel alarm windows simulated, but not all are functional, based on training value. Functional windows can be tripped/blocked via malfunctions or override.

SECTION D

INSTRUCTOR INTERFACE

INSTRUCTOR INTERFACE

The following indices of Initial Conditions, Malfunctions and Remote Functions represent the interfaces that were available at the time the performance test was initially conducted during the last quarter of 1988 and the first quarter of 1989. Changes to these interfaces continue to occur as conditions warrant.

INITIAL CONDITIONS

PALISADES SIMULATOR
INDEX OF INITIAL CONDITIONS

IC NUMBER	PLANT OPERATING CONDITIONS	BORON CONCEN IN PPM	TIME IN CORE LIFE
IC01	END OF REFUELING OUTAGE, PRESSURIZER DRAINED AND VENTED TO CONTAINMENT ATMOSPHERE. READY TO COMMENCE PLANT HEATUP.	1720	BOL
IC02	PLANT HEATUP IN PROGRESS FROM COLD SHUTDOWN. PRESSURIZER SOLID, SHUTDOWN COOLING IN SERVICE. NO PCPs RUNNING.	1759	BOL
IC03	CONTINUATION OF PLANT HEATUP. PRESSURIZER SOLID AND READY TO DRAW BUBBLE. 3 PCPs IN SERVICE. "A" HPSI PUMP IN SERVICE; AFW FLOW CONTROLLERS AT 165 GPM.	1772	BOL
IC04	PRIMARY AT NOP/NOT. SECONDARY COLD WITH MSIVs AND BYPASSES SHUT. READY TO PERFORM REACTOR AND PLANT STARTUP.	1185	BOL
IC05	PLANT AT NOP/NOT. PCS AT CRITICAL BORON CONCENTRATION. SHUTDOWN AND PART LENGTH RODS WITHDRAWN. MSIV BYPASS VALVES THROTTLED; VACUUM ESTABLISHED.	1089	BOL
IC06	REACTOR AT POWER IN PREPARATION FOR TURBINE ROLL. TURBINE METAL TEMPERATURE > 300 DEG F. "A" MFWP IN MANUAL, FRV BYPASSES IN MANUAL.	1074	BOL
IC07	MAIN TURBINE-GENERATOR ON LINE. READY FOR POWER ESCALATION.	1073	BOL
IC08	PLANT AT 41% POWER, EQUILIBRIUM XENON. READY FOR 2ND MFW PUMP START (CHEMISTRY HOLD COMPLETE).	861	BOL
IC09	PLANT AT 73% POWER, EQUILIBRIUM XENON.	792	BOL
IC10	PLANT AT FULL POWER, EQUILIBRIUM XENON.	727	BOL
IC11	READY FOR REACTOR STARTUP. SECONDARY HOT WITH MSIV BYPASSES THROTTLED. TURBINE COLD, XENON HAS DECAYED TO NEGLIGIBLE VALUE. ON AUXILIARY FEEDWATER.	799	MOL
IC12	NOT USED		
IC13	NOT USED		
IC14	PLANT STABLE AT 30% POWER FOLLOWING STARTUP FROM XENON FREE CONDITION. HAVE HELD POWER AT 30% FOR 2 HOURS WHILE CLEANING UP SECONDARY CHEMISTRY. XENON CONCENTRATION -1.3% dK/K AND INCREASING.	660	MOL

PALISADES SIMULATOR
INDEX OF INITIAL CONDITIONS

IC NUMBER	PLANT OPERATING CONDITIONS	BORON CONCEN IN PPM	TIME IN CORE LIFE
IC15	PLANT STABLE AT FULL POWER FOLLOWING RAPID POWER EXCALATION FROM APPROXIMATELY 20%. XENON CONCENTRATION 1.23% dK/K AND DECREASING. (IT WILL DECREASE TO @ 1.14% dK/K BEFORE BUILDING BACK IN).	592	MOL
IC16	FULL POWER, EQUILIBRIUM XENON CONDITIONS.	442	MOL
IC17	READY FOR REACTOR STARTUP, XENON FREE CONDITION. MSIVs CLOSED. BYPASSES THROTTLED.	451	EOL
IC18	PLANT AT 91% POWER FOLLOWING NORMAL CYCLE 7 POWER INCREASE FROM XENON FREE SHUTDOWN. XENON CONCENTRATION 2.30% dK/K.	193	EOL
IC19	READY TO GO WITH RAS - SI ACTIVE (FROM LARGE BREAK LOCA), SIRWT LEVEL 28%, CONTAINMENT SUMP LEVEL 94%.	1669	EOL
IC20	PLANT STABLE AT FULL POWER, XENON EQUILIBRIUM CONDITION.	99	EOL

MALFUNCTIONS

PALISADES SIMULATOR
INDEX OF MALFUNCTIONS

KEY

(G) = GENERIC - select the option [(A),(B),etc] or [1,2,etc]
(V) = VARIABLE - select the severity (0-100%)
- the severity defaults to 100% if not selected
(GV) = GENERIC and VARIABLE
BLANK = No selectable options for this malfunction

PALISADES SIMULATOR
INDEX OF MALFUNCTIONS

ANNUNCIATORS (AN) SYSTEM

AN01(G)	K11-C13 AUXILIARY SYSTEMS [1-72]
AN02(G)	K13-C13 SAFEGUARD SAFTY INJECT & ISOL [1-78]
AN03(G)	K21-C13 SIS SEQUENCE DISPLAY - LEFT [1-20]
AN04(G)	K22-C13 SIS SEQUENCE DISPLAY - RIGHT [1-20]
AN05(G)	K07-C12 PRIMARY SYS VOLUMN LVL PRESSURE [1-72]
AN06(G)	K09-C12 PRIM COOL PMP ST GEN & ROD DR [1-72]
AN07(G)	K01-C11 TURBINE CONDENSER & FEEDWATER [1-72]
AN08(G)	K03-C11 GENERATOR [1-36]
AN09(G)	K05-C11 ELECTRICAL AUX & DIESEL GEN [1-60]
AN10(G)	C06A RPS CHANNEL A [1-8]
AN11(G)	C06B RPS CHANNEL B [1-8]
AN12(G)	C06C RPS CHANNEL C [1-8]
AN13(G)	C06D RPS CHANNEL D [1-8]
AN14(G)	C106 COOLING TOWER MASTER SUPERVISORY [1-40]
AN15(G)	C126 CT PPS, DIL PPS AND IODINE REMOVAL [1-35]
AN16(G)	C125 H&V [1-12]
AN17(G)	LOSS OF POWER [(A)K01 (B)K02 (C)K03 (D)K05 (E)C06A (F)C06B (G)C06C (H)C06D (I)K07 (J)K09 (K)K11 (L)K13 (M)C106 (N)C125 (O)C126]

COMPONENT COOLING (CC) SYSTEM

CC01	LOSS CC WATER TO ALL PRIMARY COOLANT PUMPS
CC02(G)	LOSS CC WATER PUMP P52 [(A)A (B)B (C)C]
CC03(V)	LEAKAGE FROM CC WATER SYSTEM [0-100%]

CONTAINMENT (CH) SYSTEM

CH01(G)	CONTAIN SPRAY MANUAL INITIATION SIG FAIL CHANNEL [(A)LEFT (B)RIGHT]
CH02(G)	FALSE CONTAIN SPRAY INITIATION CHANNEL [(A)LEFT (B)RIGHT]
CH03(G)	CONTAIN AIR COOL FAN FAIL [(A)V-1 (B)V-2 (C)V-3 (D)V-4] [(A)A (B)B]
CH04	DELETED
CH05(G)	AUTO INITIATION FAILURE OF CONTAIN SPRAY CHANNEL [(A)LEFT (B)RIGHT]
CH06(G)	CONTROL ROOM HVAC FAN FAILURE [(A)TRAIN A (B)TRAIN B]
CH07	CONTAINMENT H2 (100% = 20% H2)

CHEMICAL & VOLUME CONTROL (CV) SYSTEM

CV01(V)	LETDOWN LINE LEAK INSIDE CONTAINMENT [0-100%]
CV02(V)	LETDOWN LINE LEAK INSIDE AUX BUILDING [0-100%]
CV03(G)	CHARGING PUMP TRIP P-55 [(A)A (B)B (C)C]
CV04(V)	CHARGING PUMP P-55A FLUID DRIVE FAILURE [0-100%]
CV05	LOSS LETDOWN PRES CONTROL HIGH
CV06	LOSS LETDOWN PRES CONTROL LOW
CV07(V)	LETDOWN HEAT EXCHAGER TUBE RUPTURE [0-100%]
CV08	LOSS OF CC WATER TO LETDOWN HEAT EXCHANGER
CV09	PURIFICATION FILTER F-54A HIGH DP
CV10	PRIMARY COOL SYS INADVERTENT DILUTION
CV11	PRIMARY COOL SYS INADVERTENT BORATION
CV12	MAKEUP CONTROL FAILURE IN ALL MODES EXCEPT MANUAL

CHEMICAL & VOLUME CONTROL (CV) SYSTEM (continued)

CV13(V)	VOLUME CONTROL TANK LEVEL CONTROL FAILURE [0-100%]
CV14	DELETED
CV15(V)	ACCIDENTAL RELEASE OF RADIOACTIVE LIQUID [0-100%]
CV16(V)	LEAK ON CHARGING LINE INSIDE CONTAINMENT [0-100%]

COOLING WATER (CW) SYSTEM

CW01(G)	LOSS OF COOLING TOWER PUMP P39 [(A)A (B)B]
CW02(G)	LOSS OF COOLING TOWER FAN 30 [(A)A (B)B] [(A)1 (B)2 (C)17 (D)18]

ELECTRICAL DISTRIBUTION (ED) SYSTEM

ED01	LOSS OF ALL OFF SITE POWER
ED02	LOSS OF R BUS
ED03(G)	LOSS OF 4160V BUS 1-[(A)A (B)B (C)F (D)G]
ED04(G)	LOSS OF 2400V BUS 1-[(A)C (B)D (C)E]
ED05(G)	LOSS OF 480V BUS [(A)11 (B)12 (C)13 (D)14 (E)19 (F)20 (G)71 (H)72 (I)73 (J)74 (K)75 (L)76 (M)77 (N)78 (O)90 (P)91 (Q)200]
ED06(G)	LOSS OF MOTOR CONTROL CENTER [(A)1 (B)2 (C)7 (D)8 (E)21 & 23 (F)22 & 24 (G)25 (H)26 (I)79 (J)80 (K)81 (L)82]
ED07	LOSS OF INSTRUMENT A-C BUS
ED08(G)	LOSS OF PREFERRED A-C BUS [(A)1 (B)2 (C)3 (D)4]
ED09(G)	LOSS OF 240V AC BUS [(A)1 (B)2]
ED10(G)	LOSS OF 125V DC BUS D-[(A)10 (B)11 (C)20 (D)21 (E)54 (F)55 (G)201 (H)205 (I)211]
ED11(G)	DIESEL GEN BREAKER FAILURE 1-[(A)1 (B)2]
ED12(G)	DIESEL GEN FAILURE TO AUTO START 1-[(A)1 (B)2]
ED13(G)	SI AUTO INITIATION SIGNAL FAILURE CHANNEL [(A)LEFT (B)RIGHT]
ED14(G)	DIESEL GEN FAILURE TO START 1-[(A)1 (B)2]

ELECTRICAL GENERATION (EG) SYSTEM

EG01	MAIN GENERATOR TRIP
EG02	CHANGED TO TC13
EG03	LOSS OF MAIN GENERATOR EXCITER
EG04	MAIN GEN AUTOMATIC VOLTAGE REGULATOR FAILURE
EG05	ABNORMAL GENERATOR HYDROGEN PRESSURE

FEEDPUMP TURBINE (FT) SYSTEM

FT01(G)	STEAM GEN FW PUMP TRIP P-1 [(A)A (B)B]

FEEDWATER (FW) SYSTEM

FW01(V)	LOSS OF CONDENSER VACUUM [0-100%]
FW02(V)	HOTWELL LEVEL CONTROL FAILURE [0-100%]
FW03(V)	CONDENSER TUBE LEAK [0-100%]

FEEDWATER (FW) SYSTEM (continued)

FW04(G)	CONDENSATE PUMP TRIP P-2 [(A)A (B)B]
FW05	CONDENSATE FILTER DEMINERALIZER HIGH DIFF PRES
FW06(GV)	STEAM GEN FEED REGULATING VALVE FAIL CV-[(A)0701 (B)0703] [0-100%]
FW07(G)	LOSS OF HEATER DRAIN PUMP P-10 [(A)A (B)B]
FW08(GV)	STARTUP STEAM GEN LEVL CONTROLLER FAIL LC-[(A)0734 (B)0735] [0-100%]
FW09(V)	FW LINE NO. 1 RUPTURE INSIDE CONTAINMENT [0-100%]
FW10(V)	FW LINE NO. 2 RUPTURE OUTSIDE CONTAINMENT [0-100%]
FW11(V)	FW LINE RUPTURE AT FW PUMP SUCTION CROSSOVER PIPE [0-100%]
FW12(GV)	HIGH PRESS FW HEATER TUBE FAILURE E-6 [(A)A (B)B] [0-100%]
FW13(GV)	LOW PRESS FW HEATER TUBE FAILURE E-1 [(A)A (B)B] [0-100%]
FW14(G)	LOSS OF AFW PUMP SUCTION SUPPLY FROM T-2
FW15(V)	REDUCED AUXILIARY FEEDWATER FLOW TO E-50A [0-100%]
FW16(G)	FAILURE OF AFW PUMP P-8 [(A)A (B)B (C)C]
FW17(V)	AFW PUMP P-8A BEARING FAILURE [0-100%]
FW18(G)	AFW TO STEAM GEN SUPPLY CONTROL VALVE INADVERTENT COLOSURE CV-[(A)737A (B)736A (C)749 (D)727]
FW19(GV)	AFW PUMP DISCHARGE LINE RUPTURE [(A/B)A (C)B] [0-100%]
FW20	DELETED

INSTRUMENT AIR (IA) SYSTEM

IA01(V)	LOSS OF INSTRUMENT AIR [0-100%]
IA02	LOSS OF NITROGEN BACKUP STATION 1 AUX FW
IA03	LOSS OF NITROGEN BACKUP STATION 2 FW & MS

MAIN STEAM (MS) SYSTEM

MS01(G)	STEAM GEN ISOLATION VALVE FAILS TO SHUT CV-[(A)0510 (B)0501]
MS02(G)	STEAM GEN ISOLATION VALVE INADVERTENT CLOSURE CV-[(A)0510 (B)0501]
MS03(GV)	MAIN STEAMLINE RUPTURE INSIDE CONTAINMENT [(A)1 (B)2] [0-100%]
MS04	MAIN STEAMLINE RUPTURE OUTSIDE OF CONTAINMENT
MS05(V)	STEAMLINE LEAK OUTSIDE OF CONTAINMENT [0-100%]
MS06(GV)	MAIN STEAM RELIEF VALVE LEAKAGE RV-[(A)0706 (B)0711] [0-100%]
MS07	ATMOSPHERIC DUMP VALVE CV-0781 FAILED OPEN
MS08	ATMOSPHERIC DUMP VALVES FAILED CLOSED
MS09	TURBINE BYPASS VALVE CONTROLLER FAILURE
MS10	ATMOSPHERIC DUMP AND TURBINE BYPASS VALVE INADVERTENTLY OPEN
MS11	TURBINE BYPASS VALVE INADVERTENT OPENING
MS12	CHANGED TO RX15
MS13	GLAND SEAL SUPPLY REGULATOR CV-0514 FAILURE
MS14	MAIN TURBINE GLAND SEAL HIGH PRESSURE

PROCESS COMPUTER (PC) SYSTEM

PC01(G)	COMPUTER FAILURE [(A)PRIMARY VARIAN REACTOR DATA LOGGER (B)FW PURITY DATA LOGGER (C)CRITICAL FUNCTION MONITOR]
PC02(G)	THERMAL MARGIN MONITOR POWER FAIL ON CHANNEL [(A)A (B)B (C)C (D)D]

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PRIMARY COOLANT (RC) SYSTEM

RC01	HOT LEG RUPTURE
RC02	COLD LEG RUPTURE
RC03(V)	SMALL UNISOLATABLE PCS COOLANT LEAK [0-100GPM]
RC04(V)	UNISOLATABLE PRIMARY COOLANT SYSTEM LEAK IN CONTAINMENT [0-1000GPM]
RC05	CORE BARREL FAIL
RC06(G)	PRIMARY COOLANT PUMP TRIP P-50 [(A)A (B)B (C)C (D)D]
RC07	PRIMARY COOLANT PUMP P-50A SHAFT BREAK
RC08	PRIMARY COOLANT PUMP P-50B SEIZED ROTOR
RC09(G)	PRIMARY COOLANT PUMP LOSS OF LUBE OIL P-50 [(A)A (B)B (C)C (D)D]
RC10	PRIMARY COOLANT PUMP P-50B AC & DC HIGH PRESSURE LIFT PUMPS FAILURE
RC11	PRIMARY COOLANT PUMP P-50A HIGH LUBE OIL LEVEL DUE TO CCS LEAKAGE
RC12(G)	PRIMARY COOLANT PUMP LOWER MECH SEAL FAIL P-50 [(A)A (B)B (C)C (D)D]
RC13(G)	PRIMARY COOLANT PUMP MIDDL MECH SEAL FAIL P-50 [(A)A (B)B (C)C (D)D]
RC14(G)	PRIMARY COOLANT PUMP UPPER MECH SEAL FAIL P-50 [(A)A (B)B (C)C (D)D]
RC15(G)	PRIMARY COOLANT PUMP VAPOR SEAL FAIL P-50 [(A)A (B)B (C)C (D)D]
RC16(G)	HIGH VIBRATION ON PRIMARY COOLANT PUMP P-50 [(A)A (B)B (C)C (D)D]
RC17(V)	PRESSURIZER SPRAY VALVE FAILURE CV-1057 [0-100%]
RC18(V)	PRESSURIZER SPRAY VALVE FAILURE CV-1059 [0-100%]
RC19(V)	PRESSURIZER PWR OPERATED RELIEF VALVE LEAK PRV-1042 [0-100%]
RC20(V)	PRESSURIZER PWR OPERATED RELIEF VALVE LEAK PRV-1043 [0-100%]
RC21(V)	PRESSURIZER SAFETY RELIEF VALVE LEAKAGE RV-1040 [0-100%]
RC22(V)	FAILED FUEL ELEMENT [0-100%]

CONTROL RODS (RD) SYSTEM

RD01	FAILURE OF AUTOMATIC WITHDRAWL PROHIBIT (AWP) TO INITIATE
RD02	FAILURE OF REGULATOR GROUP LIMIT SWITCHES TO BLOCK SHUTDOWN GROUP ROD INSERTION
RD03	FAILURE OF SHUTDOWN GROUP LIMIT SWITCHES TO BLOCK REGULATING GROUP ROD WITHDRAWL
RD04(G)	UNCONTROLED GROUP WITHDRAWL [(A)SHUTDOWN GROUP A (B)SHUTDOWN GROUP B (C)REGULATING GROUP 1 (D)REGULATING GROUP 2 (E)REGULATING GROUP 3 (F)REGULATING GROUP 4 (G)POWER SHAPING GROUP FAILURE
RD05(G)	UNCONTROLED GROUP INSERTION [(A)SHUTDOWN GROUP A (B)SHUTDOWN GROUP B (C)REGULATING GROUP 1 (D)REGULATING GROUP 2 (E)REGULATING GROUP 3 (F)REGULATING GROUP 4 (G)POWER SHAPING GROUP FAILURE
RD06(G)	UNCONTROLLED WITHDRAWL OF AN INDIVIDUAL CRDM [1-45]
RD07(G)	UNCONTROLLED INSERTION OF AN INDIVIDUAL CRDM [1-45]
RD08	CONTROL RODS FAIL TO MOVE ON DEMAND IN ANY MANUAL MODE
RD09(G)	CONTROL ROD MALOPERATION (SINGLE CRDM CONTROLS) [1-45]
RD10(G)	STUCK CONTROL ROD (UNTRIPABLE) [1-45]
RD11(G)	FAILURE OF CONTROL ROD DRIVE MECHANISM TO MOVE ON DEMAND [1-45]
RD12(G)	DROPPED CONTROL ROD [1-45]
RD13(G)	ROD (PIP) POSITION INDICATION FAILURE [1-45]
RD14(G)	EJECTED ROD ACCIDENT [1-45]

RADIATION MONITORING (RM) SYSTEM

RM01 CHANGED TO RC22
RM02 DELETED
RM03 CHANGED TO CV15
RM04(V) ACCIDENTAL RELEASE OF GASEOUS WASTE
RM05(G) HI CONTAIN RADIATION CHANNEL A RE-[(A)1805 (B)1806 (C)1807 (D)1808]
RM06(G) AREA MONITOR HI RADIATION:

(A)RIA-2300 EAST ENG. SAFEGUARDS RM
(B)RIA-2301 RADWASTE SER. CORRIDOR
(C)RIA-2302 RADWASTE CONTROL AREA
(D)RIA-2303 2.4KV SW. GR. RM
(E)RIA-2304 CONTROLLED LAB CORRIDOR
(F)RIA-2305 ACCESS CONTROL STATION
(G)RIA-2306 ELEVATOR EL. 607
(H)RIA-2307 CONTAIN PURGE, UNIT RM
(I)RIA-2308 RADWASTE DEMIN. RM
(J)RIA-2309 CORRIDOR - EL. 625
(K)RIA-2310 MAIN CONTROL RM ENTRANCE
(L)RIA-2311 TURBINE OPER. FLOOR
(M)RIA-2312 LUNCH ROOM
(N)RIA-2313 SPENT FUEL POOL RM
(O)RIA-2314 AIR ROOM
(P)RIA-2315 AIR LOCK
(Q)RIA-2316 FUEL HANDLING AREA
(R)RIA-1805 CONTAIN BLDG EL 590
(S)RIA-1806 CONTAIN BLDG EL 590
(T)RIA-1807 CONTAIN BLDG EL 590
(U)RIA-1808 CONTAIN BLDG EL 590
(V)RIA-5711 RADWASTE ADD VENT
(W)RIA-5712 FUEL HANDLING AREA RADWASTE VENTILATION MONITOR

RM07(GV) PROCESS MONITOR HIGH RADIATION [(A)-(T) see below] [0-100%]
RM08(G) PROCESS MONITOR LOW RADIATION [(A)-(R) see below]

(A)RIA-0631 CONDENSER OFF GAS
(B)RIA-1113 WASTE GAS
(C)RIA-2318 STACK GAS
(D)RIA-2319 STACK GAS
(E)RIA-1817 CONTAIN BLDG GAS
(K)RIA-1049 RADWASTE DISCHARGE
(L)RIA-1323 CIRCULATING WATER
(M)RIA-2320 BLOWDOWN TANK VENT
(N)RIA-5211 TURBINE BLDG SUMP
(O)RIA-0202A CVCS (F)RIA-1809 RADWASTE VENTILATION (P)RIA-0202B CVCS
(G)RIA-0915 ENG SAFEGUARDS RM VENT
(H)RIA-0707 STEAM GEN BLOWDOWN
(Q)RIA-2323 MAIN STEAM
(R)RIA-2324 MAIN STEAM (I)RIA-0833 SER WATER DISCHARGE (S)RIA-2321 CONTAINMENT GAMMA
(J)RIA-0915 COMPONT COOLING WATER
(T)RIA-2322 CONTAINMENT GAMMA

REACTOR PROTECTION (RP) SYSTEM

RP01(G) NOISY STARTUP RANGE CHANNEL [(A)1 (B)2]
RP02(G) STARTUP RANGE HI VOLTAGE FAILURE CHANNEL [(A)1 (B)2]
RP03(G) STARTUP RANGE PRE-AMP MODULE FAILURE CHANNEL [(A)1 (B)2]
RP04(G) STARTUP RANGE HI RATE OF CHANGE OUTPUT CHANNEL [(A)1 (B)2]
RP05(G) STARTUP RANGE OUTPUT LEVEL FAILS UPSCALE CHANNEL [(A)1 (B)2]
RP06(G) LOGARITHMIC HI VOLTAGE POWER SUPPLY FAILURE CHANNEL [(A)3 (B)4]
RP07(G) LOGARITHMIC LOW (RELATIVE) OUTPUT SIGNAL CHANNEL [(A)3 (B)4]
RP08(G) LOGARITHMIC HI RATE OF CHANGE OUTPUT CHANNEL [(A)3 (B)4]
RP09(G) LOGARITHMIC OUTPUT LEVEL FAILS UPSCALE CHANNEL [(A)3 (B)4]
RP10(G) LOGARITHMIC LOWER LIMIT CUT-OFF FAILURE CHANNEL [(A)3 (B)4]
RP11(G) POWER RANGE SAFETY DETECTOR HIGH VOLTAGE POWER SUPPLY FAILURE CHANNEL [(A)5 (B)6 (C)7 (D)8]
RP12(G) POWER RANGE SAFETY SUBCHANNEL "A" FAILURE DOWNSCALE CHANNEL [(A)5 (B)6 (C)7 (D)8]
RP13(G) POWER RANGE SAFETY SUBCHANNEL "B" FAILURE DOWNSCALE CHANNEL [(A)5 (B)6 (C)7 (D)8]
RP14(G) POWER RANGE SAFETY SUMMED POWER SIGNAL FAILS UPSCALE CHANNEL [(A)5 (B)6 (C)7 (D)8]

REACTOR PROTECTION (RP) SYSTEM (continued)

RP15	POWER RANGE SAFETY CHANNEL COMPARATOR AVERAGER OUTPUT FAILS LOW
RP16	POWER RANGE SAFETY CHANNEL COMPARATOR AVERAGER OUTPUT FAILS HIGH
RP17(G)	POWER RANGE CONTROL OUTPUT FAILS HIGH CHANNEL [(A)9 (B)10]
RP18(G)	POWER RANGE CONTROL OUTPUT FAILS LOW CHANNEL [(A)9 (B)10]
RP19	FAILURE OF AUTOMATIC REACTOR TRIP
RP20	FAILURE OF MANUAL REACTOR TRIP
RP21(G)	LOSS OF REACTOR PROTECTION SYSTEM CHANNEL [(A)1 (B)2 (C)3 (D)4]
RP22(GV)	HOT LEG #1 RTD FAILURE TE-0122H-[(A)A (B)B (C)C (D)D] [0-100%]
RP23(GV)	HOT LEG #2 RTD FAILURE TE-0122H-[(A)A (B)B (C)C (D)D] [0-100%]
RP24(GV)	COLD LEG #1 RTD FAILURE TE-0112C-[(A)A (B)B (C)C (D)D] [0-100%]
RP25(GV)	COLD LEG #2 RTD FAILURE TE-0112C-[(A)A (B)B (C)C (D)D] [0-100%]
RP26(GV)	PRESSURIZER PRESSURE SAFETY CHANNEL TRANSMITTER FAILS HIGH PT-0102-[(A)A (B)B (C)C (D)D] [0-100%]
RP27(GV)	STEAM GENERATOR #1 PROTECTION CHANNEL LEVEL TRANSMITTER FAILURE LT-0751-[(A)A (B)B (C)C (D)D] [0-100%]
RP28(GV)	STEAM GENERATOR #2 PROTECTION CHANNEL LEVEL TRANSMITTER FAILURE LT-0752-[(A)A (B)B (C)C (D)D] [0-100%]
RP29(G)	STEAM GENERATOR PRESSURE TRANSMITTER OUTPUT FAILURE HIGH [(A)PT-0751 (B)PT-0752] [(A)A (B)B (C)C (D)D]
RP30(G)	STEAM GENERATOR PRESSURE TRANSMITTER OUTPUT FAILURE LOW [(A)PT-0751 (B)PT-0752] [(A)A (B)B (C)C (D)D]

REACTOR REGULATION (RX) SYSTEM

RX01(V)	HOT LEG #1 CONTROL CHANNEL RTD FAILURE TE-0111H [0-100%]
RX02(V)	HOT LEG #2 CONTROL CHANNEL RTD FAILURE TE-0121H [0-100%]
RX03(GV)	COLD LEG #1 CONTROL CHANNEL RTD FAILURE TE-0111-[(A)A (B)B] [0-100%]
RX04(GV)	COLD LEG #2 CONTROL CHANNEL RTD FAILURE TE-0121-[(A)A (B)B] [0-100%]
RX05(G)	PRESSURIZER PRESSURE CONTROL FAILS IN HI DIRECTN PT-0101 [(A)A (B)B]
RX06(G)	PRESSURIZER PRESSURE CONTROL FAILS IN LO DIRECTN PT-0101 [(A)A (B)B]
RX07(G)	PRESSURIZER LEVEL CONTROL UPSCALE DEMAND LT-0101 [(A)A (B)B]
RX08(G)	PRESSURIZER LEVEL CONTROL DOWNSCALE DEMAND LT-0101 [(A)A (B)B]
RX09	LOSS OF PRESSURIZER LEVEL CONTROL SIGNAL TO CVCS
RX10(GV)	STEAM GENERATOR LEVEL CONTROL TRANMITTER FAILURE LT-[(A)0701 (B)0702 (C)0703 (D)0704] [0-100%]
RX11(G)	FEED REGULATING VALVE ERRATIC OPERATION FRV-CV-[(A)0701 (B)0703]
RX12(G)	PRESSURIZER HEATER GROUPS FAIL OFF [(A)PROPORTIONAL GROUP 1 (B)PROPORTIONAL GROUP 2 (C)BACKUP GROUP 1 (D)BACKUP GROUP 2 (E)BACKUP GROUP 3 (F)BACKUP GROUP 4]
RX13	PRESSURIZER PROPORTIONAL HEATER GROUP 1 REDUCED CAPACITY
RX14(GV)	FEED WATER FLOW TRANSMITTER FAILURE FT-[(A)0701 (B)0703] [0-100%]
RX15(GV)	MAIN STEAM FLOW TRANSMITTER FAILURE FT-[(A)0702 (B)0704] [0-100%]

STEAM GENERATOR (SG) SYSTEM

SG01(GV)	STEAM GENERATOR TUBE RUPTURE [(A)1 (B)2] [0-100%]

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SAFETY INJECTION (SI) SYSTEM

SI01(G)	HI PRESSURE SAFETY INJECT PUMP FAILURE P-66 [(A)A (B)B (C)C]
SI02(G)	LO PRESSURE SAFETY INJECT PUMP FAILURE P-67 [(A)A (B)B]
SI03(G)	CONTAINMENT SPRAY PUMP FAILURE P-54 [(A)A (B)B (C)C]
SI04(G)	LOW SAFETY INJECT TANK PRESSURE FAILURE T-82 [(A)A (B)B (C)C (D)D]
SI05(G)	LOW SAFETY INJECT TANK LEVEL FAILURE T-82 [(A)A (B)B (C)C (D)D]
SI06	CHANGED TO ED13
SI07(G)	SAFTY INJECT MANUAL INITIATION SIGNAL FAIL CHANEL [(A)LEFT (B)RIGHT]
SI08(G)	FALSE SAFETY INJECTION INITIATION CHANNEL [(A)LEFT (B)RIGHT]
SI09	CHANGED TO CH05
SI10(G)	FAILURE OF AUTOMATIC CHANGEOVER TO ACTUATE CHANEL [(A)LEFT (B)RIGHT]
SI11(GV)	SHUTDOWN COOLING HEAT EXCHANGER TUBE LEAK E-60 [(A)A (B)B] [0-100%]
SI12(G)	INCREASING SAFETY INJECTION TANK LEVEL T-82 [(A)A (B)B (C)C (D)D]
SI13	SHUTDOWN COOLING RELIEF VALVE RV-0401 FAILS OPEN

SERVICE WATER (SW) SYSTEM

SW01	LOSS OF TURBINE LUBE OIL COOLING
SW02	LOSS OF SERVICE WATER TO GENERATOR HYDROGEN COOLERS
SW03	DELETED
SW04(G)	LOSS OF SERVICE WATER PUMP P-7 [(A)A (B)B (C)C]
SW05(G)	COMPONENT COOLING HEAT EXCHANGER SERVICE WATER OUTLET VALVE FAILURE SHUT [(A)E-54A & CV-0821 (B)E-54B & CV-0822]
SW06(V)	SERVICE WATER HEADER "A" PIPING RUPTURE [0-100%]
SW07(V)	SERVICE WATER HEADER "B" PIPING RUPTURE [0-100%]

TURBINE CONTROL (TC) SYSTEM

TC01	MAIN TURBINE TRIP
TC02	FAILURE OF TURBINE AUTOMATIC TRIP ACTUATION
TC03(G)	TURBINE CONTROL VALVE FAILURE OPEN CV-[(A)1 (B)2 (C)3 (D)4]
TC04(G)	TURBINE CONTROL VALVE FAILURE SHUT CV-[(A)1 (B)2 (C)3 (D)4]
TC05(G)	TURBINE CONTROL VALVE FAILS AS IS CV-[(A)1 (B)2 (C)3 (D)4]
TC06	DELETED
TC07	DELETED
TC08(V)	MAIN TURBINE SPEED CONTROL FAILURE [0-100%]
TC09	MAIN TURBINE FIRST STAGE PRESSURE TRANSMITER (INPUT TO EHC) FAILS HI
TC10	MAIN TURBINE FIRST STAGE PRESSURE TRANSMITER (INPUT TO EHC) FAILS LO
TC11	LOAD-POWER MISMATCH (JUMPER AT PLANT DISABLED)
TC12(G)	ELECTROHYDRAULIC CONTROL FLUID PUMP FAILURE [(A)A (B)B]
TC13(V)	LOAD REJECTION [0-100%]

TURBINE (TU) SYSTEM

TU01(V)	MAIN TURBINE HIGH VIBRATION [0-100%]
TU02	TURBINE EXHAUST HOOD SPRAY INOPERABLE
TU03(V)	LOSS OF MAIN TURBINE LUBE OIL [0-100%]
TU04	LOSS OF EMERGENCY BEARING OIL PUMP
TU05	MAIN TURBINE TURNING GEAR FAILURE

REMOTE FUNCTIONS

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		RANGE	STATUS	
COMPONENT COOLING (CC) SYSTEM				
CC08	PUMP P52A		NORMAL	RACKOUT
CC09	PUMP P52C		NORMAL	RACKOUT
CC10	PUMP P52C		NORMAL	RACKOUT
CONTAINMENT (CH) SYSTEM				
CH10	PURGE EXHAUST V1806		NORMAL	DISABLE
CORE (CR) SYSTEM				
CR01	INCREASE/DECREASE EXCESS REACTIVITY		OFF	ON
CR02	REACTIVITY METER	-1% to +1% DK/K	(value)	
CHEMICAL & VOLUME CONTROL (CV) SYSTEM				
CV21	MIXED BED DEMIN BORON SATURATION		N/SATUR	SATUR
CV22	BORIC ACID TANK T-53A BORON CONCENT	0 to 2000 ppm	(value)	
CV23	BORIC ACID TANK T-53B BORON CONCENT	0 to 2000 ppm	(value)	
CV24	BORIC ACID TANK T-53A LEVEL CHANGE		INACTIVE	ACTIVE
CV25	BORIC ACID TANK T-53B LEVEL CHANGE		INACTIVE	ACTIVE
CV26	WASTE DISTILLATE WATER TO TANK T-90		OUT SERV	IN SERV
CV27	DEMIN WATER TO T-939,OR T-2,OR T-81		OUT SERV	IN SERV
CV28	SIRW MAKEUP FILL LINE, V2157		CLOSED	OPEN
CV29	SPOOL PIECE HOOKUP AND VALVES OPS		DISCONN	CONNECT
CV30	H2 SUPPLY TO VCT		CLOSED	OPEN
CV31	N2 SUPPLY TO VCT		CLOSED	OPEN
CV32	CHARGING PUMP P-55A RACKOUT		NORMAL	RACKOUT
CV33	CHARGING PUMP P-55B RACKOUT		NORMAL	RACKOUT
CV34	CHARGING PUMP P-55C RACKOUT		NORMAL	RACKOUT
CV35	CONCENT BORIC ACID PUMP P-56A RACKOUT		NORMAL	RACKOUT
CV36	CONCENT BORIC ACID PUMP P-56B RACKOUT		NORMAL	RACKOUT
CV37	CHARGING PUMP DISCHARGE HEADER V2195		OPEN	CLOSED
CV38	SERVICE OF DEBORATION EXCHANGER T-52		CLOSED	OPEN
CV39	VOLUME CONTROL TANK T54 BORON CONCENT	0 to 2000 ppm	(value)	
CV40	BORONOMETER RANGE SELECTION NO.1	0 to 550 ppm	INACTIVE	ACTIVE
CV41	BORONOMETER RANGE SELECTION NO.2	500 to 1050 ppm	INACTIVE	ACTIVE
CV42	BORONOMETER RANGE SELECTION NO.3	1000 to 1550 ppm	INACTIVE	ACTIVE
CV43	BORONOMETER RANGE SELECTION NO.4	1500 to 2050 ppm	INACTIVE	ACTIVE
CV44	DOMESTIC WATER USAGE		INACTIVE	ACTIVE
CV45	DELETED			
CV46	CHG PUMP P-55B POWER BUS		NORMAL	ALTRNTE
CV47	CHG PUMP P-55C POWER BUS		NORMAL	ALTRNTE
CV48	P-55B & C ALTERNATE POWER BREAKER		OPEN	CLOSE

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		RANGE	STATUS	
COOLING WATER (CW) SYSTEM				
CW07	BLOWDOWN LINE VALVE (7-712 CWS)		OPEN	CLOSED
CW08	BLOWDOWN LINE VALVE (7-714 CWS)		OPEN	CLOSED
CW09	PUMP P39A RACKOUT		NORMAL	RACKOUT
CW10	PUMP P39B RACKOUT		NORMAL	RACKOUT
CW11	PUMP P40A RACKOUT		NORMAL	RACKOUT
CW12	PUMP P40B RACKOUT		NORMAL	RACKOUT
CW13	VACUUM PRIMING SYS LINE UP FOR EAST WATER BOX, MAIN COND		OFF	ON
CW14	VACUUM PRIMING SYS LINE UP FOR WEST WATER BOX, MAIN COND		OFF	ON
CW15	LAKE WATER TEMPERATURE	35 to 80 Deg F	(value)	
CW16	AMBIENT AIR TEMPERATURE (OUTDOOR)	0 to 100 Dg F	(value)	
CW17	CIRCULATING WATER PH	5 to 9 Ph	(value)	
CW18	CIRCULATING WATER CONDUCTIVITY	10 to 1000 UMHO	(value)	
ELECTRICAL DISTRIBUTION (ED) SYSTEM				
ED18	SHUT AND OPEN MOD 26H5		OPEN	CLOSE
ED19	CHANGE GRID FREQUENCY	0 to 100%	(value)	
ED20	CHANGE GRID VOLTAGE	-10 to +10 KV	(value)	
ED21	4160V BUS 1F ALT SUPPLY BKR		RACKOUT	RACKIN
ED22	4160V BUS 1G ALT SUPPLY BKR		RACKOUT	RACKIN
ED23	CROSS-TIE BUS 11 THRU BUS 12		OPEN	CLOSE
ED24	CROSS-TIE BUS 12 THRU BUS 11		OPEN	CLOSE
ED25	CROSS-TIE BUS 13 THRU BUS 14		OPEN	CLOSE
ED26	CROSS-TIE BUS 14 THRU BUS 13		OPEN	CLOSE
ED27	D/G 1-1 TROUBLE ALARM CLEAR		NORMAL	CLEAR
ED27	DEFEAT UNDERVOLTAGE RELAY LEFT CHANNEL		NORMAL	CLEAR
ED28	D/G 1-2 TROUBLE ALARM CLEAR		NORMAL	DEFEAT
ED28	DEFEAT UNDERVOLTAGE RELAY RIGHT CHANNEL		NORMAL	DEFEAT
FEEDPUMP TURBINE (FT) SYSTEM				
FT06	FEEDWATER TURBINE-K7A RESET	0 to 30 psig	(value)	
FT07	FEEDWATER TURBINE-K7B RESET	0 to 30 psig	(value)	
FEEDWATER (FW) SYSTEM				
FW24	HOGGING AIR EJECTOR INLET VALVE 106AE/CV-0633		OPEN	CLOSE
FW25	MAIN AIR EJECTOR INLET VALVE 640AE/114AE		OPEN	CLOSE
FW26	HEATER ISOLATION VALVES 0720CD & 0725CD / BYPASS VALVE 0722CD		NORMAL	BYPASS
FW27	HEATER ISOLATION VALVES 0721CD & 0726CD / BYPASS VALVE 0724CD		NORMAL	BYPASS

		RANGE	STATUS	
FEEDWATER (FW) SYSTEM (continued)				
FW28	FEEDWATER REGULATING VALVE BYPASS VALVE 0707FW		CLOSE	OPEN
FW29	FEEDWATER REGULATING VALVE BYPASS VALVE 0705FW		CLOSE	OPEN
FW30	HEATER E-6A ISOLATION AND BYPASS 115FW & 0706FW		NORMAL	BYPASS
FW31	HEATER E-6B ISOLATION AND BYPASS 114FW & 0708FW		NORMAL	BYPASS
FW32	CONDENSATE PUMPS DISCHARGE VALVE 102/103CD		OPEN	CLOSE
FW33	CONDENSATE PUMP P-2A BREAKER RACKOUT		NORMAL	RACKOUT
FW34	CONDENSATE PUMP P-2B BREAKER RACKOUT		NORMAL	RACKOUT
FW35	HEATER DRAIN PUMP P-10A BREAKER RACKOUT		NORMAL	RACKOUT
FW36	HEATER DRAIN PUMP P-10B BREAKER RACKOUT		NORMAL	RACKOUT
FW37	SUCTION SUPPLY TO AFW P-8A AND B		CST(T-2)	FIREPRT
FW38	SUCTION SUPPLY TO AFW P-8C		CST(T-2)	SERVWTR
FW39	S/G DIFF PRESS SENSOR BYPASS CHANNEL A		NORMAL	BYPASS
FW40	S/G DIFF PRESS SENSOR BYPASS CHANNEL B		NORMAL	BYPASS
FW41	STM GEN A LEVEL LOW SENSOR BYPASS		NORMAL	BYPASS
FW42	STM GEN B LEVEL LOW SENSOR BYPASS		NORMAL	BYPASS
FW43	AFAS SUBSYSTEM		ARMED	RESET
FW44	FOGG SUBSYSTEM ARMED/RESET		ARMED	RESET
FW45	K8 PCV-0521A BYPASS (MV-150FW)		CLOSE	OPEN
FW46	CONDENSER VACUUM PUMP P-910		OFF	ON
MAIN STEAM (MS) SYSTEM				
MS18	ADV AIR SUPPLY ISOLATION VALVE (S/G B) CA-0779		CLOSE	OPEN
MS19	ADV AIR SUPPLY ISOLATION VALVE (S/G B) CA-0780		CLOSE	OPEN
MS20	ADV AIR SUPPLY ISOLATION VALVE (S/B A) CA-0781		CLOSE	OPEN
MS21	ADV AIR SUPPLY ISOLATION VALVE (S/G A) CA-0782		CLOSE	OPEN
MS22	DRAIN VALVES CV-0515, 0517, 0518, 0519, 0523, 0532, 0520		CLOSE	OPEN
MS23	GLAND STEAM CONDENSER EXHAUSTER C-1A		STOP	START
MS24	GLAND STEAM CONDENSER EXHAUSTER C-1B		STOP	START
MS25	MSIV SOLENOID VALVES RELATCH		TRIPPED	LATCHED
MS26	AUX BOILER STEAM SUPPLY		OUTSERV	INSERV
MS27	MSIV BYPASS VLV MO-0510 MANUAL OPER		CTL-ROOM	MANUAL
MS28	MSIV BYPASS VLV MO-0510 MANUAL POS	0 to 100%	(value)	
MS29	MSIV BYPASS VLV MO-0501 MANUAL OPER		CTL-ROOM	MANUAL
MS30	MSIV BYPASS VLV MO-0501 MANUAL POS	0 to 100%	(value)	

PALISADES SIMULATOR
INDEX OF REMOTE FUNCTIONS

	PROCESS COMPUTER (PC) SYSTEM	RANGE	STATUS	
PC03	CHAN A / CHAN C BEING DISPLAYED		CHAN A	CHAN C
PC04	CHAN B / CHAN D BEING DISPLAYED		CHAN B	CHAN D
PC05	CHANGE TMM (A) BIAS (delta T)	-10% to +10%	(value)	
PC06	CHANGE TMM (B) BIAS (delta T)	-10% to +10%	(value)	
PC07	CHANGE TMM (C) BIAS (delta T)	-10% to +10%	(value)	
PC08	CHANGE TMM (D) BIAS (delta T)	-10% to +10%	(value)	
	PRIMARY COOLANT (RC) SYSTEM			
RC26	ACTUAL BORON CONCENTRATION		1772.1 (ACT)	
RC27	PRESSURIZER/REACTOR VESSEL/PC LOOPS BORON CONCENTRATION	0 to 2000 PPM	(value)	
RC28	PRESSURIZER VENT VALVE		OPEN	CLOSE
RC30	PCP-50A RACKOUT		NORMAL	RACKOUT
RC31	PCP-50B RACKOUT		NORMAL	RACKOUT
RC32	PCP-50C RACKOUT		NORMAL	RACKOUT
RC33	PCP-50D RACKOUT		NORMAL	RACKOUT
	REACTOR PROTECTION (RP) SYSTEM			
RP35	REACTOR BREAKER TO CLUTCH PWR BREAKER		NORMAL	RESET
RP36	HIGH VOLT FOR START-UP RANGE CHANNELS		OFF	ON
RP37	C-150 NI CABINENT FUSES		OUT	IN
	REACTOR REGULATION (RX) SYSTEM			
RX17	LTOP SET POINTS (A) PSIA		575	310
RX18	LTOP SET POINTS (B) PSIA		575	310
	STEAM GENERATOR (SG) SYSTEM			
SG06	OVERRIDE FOR FLASH TANK LEVEL HIGH TRIP CV-0738, 0739, 0770 & 0771		OUT	IN
	SAFETY INJECTION (SI) SYSTEM			
SI16	V3225 SHUTDOWN HX TO SIRW TANK		CLOSE	OPEN
SI17	DELETED			
SI18	V3231 DISCHARGE OF CONTAINMENT SPRAY PUMP P-54A		CLOSE	OPEN
SI19	V3221 DISCHARGE OF CONTAINMENT SPRAY PUMP P-54B		CLOSE	OPEN
SI20	V3203 DISCHARGE OF CONTAINMENT SPRAY PUMP P-54C		CLOSE	OPEN
SI21	CONTAINMENT SPRAY ISOLATION VALVES 3258,3259		CLOSE	OPEN
SI22	DELETED			

SAFETY INJECTION (SI) SYSTEM (continued)		RANGE	STATUS	
SI23	RACKOUT HP PUMP 66A		NORMAL	RACKOUT
SI24	RACKOUT HP PUMP 66B		NORMAL	RACKOUT
SI25	DELETED			
SI26	RACKOUT LP PUMP 67A		NORMAL	RACKOUT
SI27	RACKOUT LP PUMP 67B		NORMAL	RACKOUT
SI28	RACKOUT CS PUMP 54A		NORMAL	RACKOUT
SI29	RACKOUT CS PUMP 54B		NORMAL	RACKOUT
SI30	RACKOUT CS PUMP 54C		NORMAL	RACKOUT
SI31	HP PUMP 66A RECIRC TO SIRWT VLV 3188		OPEN	CLOSE
SI32	HP PUMP 66B RECIRC TO SIRWT VLV 3179		OPEN	CLOSE
SI33	OPEN BREAKERS 52-167 & 52-271		NORMAL	OPEN
SI34	LP PUMP 67A RECIRC TO SIRWT VLV 3203		OPEN	CLOSE
SI35	LP PUMP 67B RECIRC TO SIRWT VLV 3194		OPEN	CLOSE
SI36	CS PUMP 54A RECIRC TO SIRWT VLV 3232		OPEN	CLOSE
SI37	CS PUMP 54B RECIRC TO SIRWT VLV 3222		OPEN	CLOSE
SI38	CS PUMP 54C RECIRC TO SIRWT VLV 3210		OPEN	CLOSE
SI39	DISABLE CV3006 HX BYPASS VALVE OPEN		NORMAL	OPEN
SI40	VLV 3234 SI TANK DRAIN TO SIRWT		OPEN	CLOSE
SI41	RACKOUT SI TANK 82A DISCHG VLV MO-3041		NORMAL	RACKOUT
SI42	RACKOUT SI TANK 82B DISCHG VLV MO-3045		NORMAL	RACKOUT
SI43	RACKOUT SI TANK 82C DISCHG VLV MO-3049		NORMAL	RACKOUT
SI44	RACKOUT SI TANK 82D DISCHG VLV MO-3052		NORMAL	RACKOUT
SI45	SI TANK 82-A STEP LEVEL CHANGE	0 to 1 (x100%)	(value)	
SI46	SI TANK 82-B STEP LEVEL CHANGE	0 to 1 (x100%)	(value)	
SI47	SI TANK 82-C STEP LEVEL CHANGE	0 to 1 (x100%)	(value)	
SI48	SI TANK 82-D STEP LEVLE CHANGE	0 to 1 (x100%)	(value)	
SI49	NAOH TANK T-103 DISCHARGE VLVS CV-0438A,B		ENERG	DEENG
SI50	HYDRAZINE TANK T-102 ISOLATION VALVES 3354, 3355		OPEN	CLOSE

SERVICE WATER (SW) SYSTEM			
SW12	FIRE PROTECTION TO SW HDR A VALVE	CLOSED	OPEN
SW13	FIRE PROTECTION TO SW HDR B VALVE	CLOSED	OPEN
SW14	PUMP P7A RACKOUT	NORMAL	RACKOUT
SW15	PUMP P7B RACKOUT	NORMAL	RACKOUT
SW16	PUMP P7C RACKOUT	NORMAL	RACKOUT
SW17	FIRE PROTECTION TO AIR COMP COOLERS	CLOSED	OPEN
SW18	HDR C ISOLATION VLV BYPASS SW101	CLOSED	OPEN
SW19	PUMP P-9A STOP	NORMAL	STOP

TURBINE CONTROL (TC) SYSTEM			
TC17	EH PANEL ALARM BYPASS (VPL & MAN)	NORMAL	BYPASS
TC18	RESET RELAYS 386P AND 386C	NORMAL	RESET

TURBINE (TU) SYSTEM			
TU10	LUBE OIL VAPOR EXTRACTOR	FAN 1	FAN 2

ADDITIONAL FEATURES

PALISADES SIMULATOR
ADDITIONAL INSTRUCTOR/TRAINING FEATURES

1. Ability to store 40 initial conditions with the additional ability to "protect" any number of them from accidental destruction. Currently there are 20 IC's protected, and these are listed in the "Index of Initial Conditions".

2. Ability to take snapshots of simulator operating scenarios. We currently have the ability to store 20 different snapshots without affecting protected IC's.

3. Ability to invoke fast time (@ 1 - 60 times real time, depending on variable) for selected parameters.

4. Ability to invoke slow time (@ 1/3 real time) for all simulation.

5. Ability to backtrack up to 60 minutes of simulation (in 1 minute increments) and then proceed again from that point.

6. Ability to record up to 20 minutes of a scenario and replay the events that took place at 1/3 real time.

7. Ability to freeze simulation, including visual indication on the control panels via the radio call light.

8. Ability to give notification when the simulator exceeds operating limits. When the simulation exceeds the limits of the following parameters, the simulator automatically goes into freeze, and a light flashes on the instructors console. It is then possible to determine the parameter and the limit exceeded.

PARAMETER	DESIGN RANGE	REFERENCE	LIMITS
C.B. Press	-3 to +55 psig	USAR 5.8	+10 to +107.1 psia
C.B. Rad	Up to 3.22 E5 R/hr	SEP Appx B; USAR Tab 11-1	1 E-2 to 3.3 E5 R/hr
C.B. Temp	50 to 283 deg F	USAR 5.8	32 to 289 deg F
CVCS CB	0 to 17,200 ppm	USAR Tab 9-2	0 to 17,544 ppm
Condenser FWPCDR press	Up to 5 psig	W.I.L. 1250-159	0 to 20.4 psia
PC Boron	0 to 1720 ppm	USAR Tab 9-20	0 to 4908 ppm
PCS Mass	10,900 cu ft vol	USAR 4.2	0 to 702,758 lbs
Pzr Mass	1,500 cu ft vol	USAR 4.2	0 to 96,084 lbs
Pzr Press	Up to 2,500 psia	ATWS Analysis	10 to 3188 psia

PALISADES SIMULATOR
ADDITIONAL INSTRUCTOR/TRAINING FEATURES

PARAMETER	DESIGN RANGE	REFERENCE	LIMITS
Rx Power	Up to 2650 MWt		0 to 3312.5 MWt
S/G Mass	0 to 571,400 lbs	USAR 4.3	582,828 lbs
S/G Press	Up to 1000 psia	USAR 4.3	0 to 1061 psia
Turbine Speed	0 to 1980 r/min	USAR 5.5.2	0 to 3764 r/min

NOTE: Parameters may be added to this list as necessary.

SECTION E

SIMULATOR PERFORMANCE TEST ABSTRACTS

SIMULATOR TEST RT01 ABSTRACT

1. NAME AND DESCRIPTION OF TEST

RT01 is a simulator real time test that involves the operation of the control rods. Rod #1 was timed to record the amount of time required to withdraw it from 8 inches to 100 inches withdrawn.

2. ANSI/ANS-3.5-1985 RELATIONSHIP

3.1.1 PARTIAL - (Real Time)

3. TEST DATES

RT01 was conducted in March, 1989.

4. INITIAL CONDITIONS

Initial condition was IC4, plant at hot shutdown condition, with all rods in.

5. FINAL CONDITIONS/DURATION OF TEST

Final condition was plant at hot shutdown with control rod #1 withdrawn to 100 inches.

This test required approximately 20 minutes to complete.

6. BASELINE DATA

The baseline data is from control rod drive mechanism (CRDM) design data where the ramp rate is stated for the rod drives.

7. DEFICIENCIES

None.

8. EXCEPTIONS TO ANSI/ANS-3.5-1985

No exceptions taken.

SIMULATOR TEST RT02 ABSTRACT

1. NAME AND DESCRIPTION OF TEST

RT02 is a simulator real time test that involves the turbine acceleration rate. With the plant in hot standby condition, the turbine speed was stabilized at 90 rpm. The rate of change for turbine speed was selected at 50 rpm and initiated. The turbine speed was set to ramp from 90 rpm to 1100 rpm. When trubine speed reached 100 rpm, a stopwatch was started and let run until turbine speed reached 1100 rpm at which point it was stopped.

2. ANSI/ANS-3.5-1985 RELATIONSHIP

3.1.1 PARTIAL - (Real Time)

3. TEST DATES

RT02 was conducted in March, 1989.

4. INITIAL CONDITIONS

Initial condition was IC6, plant at hot standby condition, at 5% reactor power. Turbine speed at 0 rpm.

5. FINAL CONDITIONS/DURATION OF TEST

Final condition was plant at hot standby with turbine speed at 1100 rpm.

This test required approximately 20 minutes to complete.

6. BASELINE DATA

The baseline data is the calculated amount of time required to increase turbine speed 1000 rpm at an acceleration rate of 50 rpm.

7. DEFICIENCIES

None.

8. EXCEPTIONS TO ANSI/ANS-3.5-1985

No exceptions taken.

SIMULATOR TEST RT03 ABSTRACT

1. NAME AND DESCRIPTION OF TEST

RT03 is a simulator real time test that involves a volume change of the chemical and volume control system (CVCS). In particular, the level change of the volume control tank was measured and timed under controlled conditions.

2. ANSI/ANS-3.5-1985 RELATIONSHIP

3.1.1 PARTIAL - (Real Time)

3. TEST DATES

RT03 was conducted in March, 1989.

4. INITIAL CONDITIONS

Initial condition was IC10, plant at full power condition, with volume control tank at 80% level.

5. FINAL CONDITIONS/DURATION OF TEST

Final condition was plant at full power with volume control tank at 70% level.

This test required approximately 30 minutes to complete.

6. BASELINE DATA

The baseline data is the calculated amount of time required to decrease the level of the volume control tank 10% at a flow rate of 40 gpm.

7. DEFICIENCIES

The following simulator deficiency was noted during performance of this test:

A. FLOW RATE OF CVCS vs LEVEL CHANGE IN THE VCT SDR-89-055

This simulator deficiency report (SDR) is scheduled to be corrected as indicated in the enclosed "Paltrack" report listing.

8. EXCEPTIONS TO ANSI/ANS-3.5-1985

No exceptions taken.

SIMULATOR TEST RT04 ABSTRACT

1. NAME AND DESCRIPTION OF TEST

RT04 is a simulator real time test that involves the turbine/generator loading rate. The rate of change for generator loading was selected at 0.1% per minute and initiated. The elapsed time was then recorded for a 2% load change.

2. ANSI/ANS-3.5-1985 RELATIONSHIP

3.1.1 PARTIAL - (Real Time)

3. TEST DATES

RT04 was conducted in March, 1989.

4. INITIAL CONDITIONS

Initial condition was IC10, plant at full power condition.

5. FINAL CONDITIONS/DURATION OF TEST

Final condition was plant at 2% less than initial condition of full power and generator output.

This test required approximately 30 minutes to complete.

6. BASELINE DATA

The baseline data is the calculated amount of time required to change the load 2% at a rate of change equal to 0.1% per minute.

7. DEFICIENCIES

The following simulator deficiency was noted during performance of this test:

A. GENERATOR LOADING/UNLOADING RATE TOO SLOW SDR-89-051

This simulator deficiency report (SDR) is scheduled to be corrected as indicated in the enclosed "Paltrack" report listing.

8. EXCEPTIONS TO ANSI/ANS-3.5-1985

No exceptions taken.

SIMULATOR TEST RT05 ABSTRACT

1. NAME AND DESCRIPTION OF TEST

RT05 is a simulator real time test. This timing test is based on interval timers set by various simulation programs. The smallest resolution of these timers is 0.1 second.

The test of real time operation is performed as part of our normal Training Load Save process, after the new software has been accepted. The simulator is run for a period of 10 minutes and counters for each software module keep track of the number of times the module was completely executed. These results are then compared to predicted values. This technique provides a 0.2% resolution for modules running 1 time/second and up to 0.02% for modules running 10 times/second.

2. ANSI/ANS-3.5-1985 RELATIONSHIP

3.1.1 PARTIAL - (Real Time)

3. TEST DATES

This test was last conducted in January, 1990, and is repeated 3 to 4 times each year following Training Load Saves.

4. INITIAL CONDITIONS

Initial condition was IC10, 80% plant power, for the January, 1990 test.

5. FINAL CONDITIONS/DURATION OF TEST

The simulation is allowed to run approximately 10 minutes without operator intervention. The 10 minute interval is then timed with a stop watch. The January 1990 performance level achieved was 100% of the expected frames being executed.

The duration of the test is approximately 25 minutes.

6. BASELINE DATA

The baseline data is our objective to maintain simulator performance above 99.5%, that is, to skip less than 0.5% of the frames expected to be executed over the 10 minute period (the simulator is expected to run 10 frames/second). In March of 1989, the simulator was operated at 99% and no perceptible differences were detected when events were timed in the simulated control room.

7. DEFICIENCIES

None.

8. EXCEPTIONS TO ANSI/ANS-3.5-1985

No exceptions taken.

STEADY

STATE

TEST

ANS-3.5-1985 RELATIONSHIP	CPCO TEST	PAGE NUMBER
4.1 and 3.1.1 (9) PARTIAL- (HEAT BALANCE)	N007	E.8 - E.9

STEADY STATE TESTS

ACCEPTANCE CRITERIA

A. CRITICAL PARAMETERS

The following critical parameters must agree with plant data within +/-2% and not vary from their initial values by more than +/-2% over a one hour period :

MegaWatts Thermal (MWt)
MegaWatts Electrical (MWe)
Cold Leg Temperature (Tc)
Hot Leg Temperatute (Th)
FeedWater Flow (FWF)
Steam Generator Pressure (SGP)
Primary Coolant Flow (PCF)
Pressurizer Pressure (Pzr Press)

B. NON-CRITICAL PARAMETERS

All other parameters must agree with plant data within +/-10%, and not detract from training .

C. PERCENT DEVIATION

$$\frac{\text{(Simulator Value) - (Plant Value)}}{\text{(Range of Instrument)*}} \times 100\%$$

*If no range is available, such as LED displays, the instrument loop range is used.

SIMULATOR TEST N007 ABSTRACT

1. NAME AND DESCRIPTION OF TEST

N007 is a simulator performance test that compares thermal power to generated electrical power, reactor coolant system temperature to steam generator pressure, feedwater flow to reactor thermal power, a mass balance of the pressurizer and a mass balance of a steam generator at three discrete power levels. They are 99.7%, 75% and 50% of full power. The simulator was stabilized for 60 minutes at each power level with data collection occurring at least 3 times within this period. These tests were accomplished following applicable Palisades' general operating procedures.

2. ANSI/ANS-3.5-1985 RELATIONSHIP

3.1.1 (9) PARTIAL - (Heat Balance)
4.1

3. TEST DATES

N007 was conducted in March, 1990.

4. TESTED PARAMETERS

The parameters and their ranges monitored by strip chart, with a resolution of 0.5 seconds, are as follows:

Parameter	Instrumentation Ranges
A. PRESSURIZER LEVEL	0-100%
B. #1 HOT LEG TEMP.	0-615 DEG F.
C. #1 COLD LEG TEMP.	0-600 DEG F.
D. THERMAL POWER	0-100%
E. GROSS ELECTRIC OUTPUT	0-1000 MWe
F. NET ELECTRIC OUTPUT	0-1000 MWe
G. #2 HOT LEG TEMP.	0-615 DEG F.
H. #2 COLD LEG TEMP.	0-600 DEG F.
I. PRESSURIZER PRESSURE	1500-2500 PSIA.
J. STM. GEN. PRESS. E-50 A	0-1000 PSIA.
K. STM. GEN. LEVEL E-50 A	0-100%
L. WIDE RANGE LOG (#3) (NI)	1.0E-8% TO 125% FULL POWER
M. STEAM FLOW E-50 A	0 TO 5.76E+6 LB PER HOUR
N. FEED FLOW E-50 A	0 TO 5.76E+6 LB PER HOUR
O. STM. GEN. PRESS. E-50 B	0-1000 PSIA.
P. STM. GEN. LEVEL E-50 B	0-100%
Q. STEAM FLOW E-50 B	0 TO 5.76E+6 LB PER HOUR
R. FEED FLOW E-50 B	0 TO 5.76E+6 LB PER HOUR
S. T-AVERAGE	0-625 DEG F.
T. PRESSURIZER WATER TEMP.	0-1000 DEG F.

In addition to the parameters listed above, the following items were also tested to verify simulator stability and accuracy.

A. PCP AMPERES
B. PRESSURIZER HEATER TRANSFORMER AMPERES
C. CHARGING AND LETDOWN FLOW
D. CHARGING AND LETDOWN TEMPERATURE
E. STEAM FLOW
F. FEEDWATER FLOW
G. STEAM TEMPERATURE
H. POWER LEVEL

5. INITIAL CONDITIONS

Initial conditions were:
IC10, plant at full power, then stabilized at 99.7% full power,
IC10, plant at full power, then stabilized at 75.0% full power,
IC8, plant at 50% full power.

6. STABILITY PERIOD/DURATION OF TEST

The simulator was stabilized for a minimum of 60 minutes at each power level.

This test required approximately 16 hours to complete.

7. BASELINE DATA

The baseline data is from Palisades plant operating procedures GOP12; actual plant log sheets dated May 3, 4, and 5, 1988, CFMS full power log, plant log dated May 15, 1988 (99.7% full power), CFMS 75% full power log, plant log sheets dated February 7, 1990, CFMS 50% full power log, plant strip charts dated May 3, 1988; plant documentation Technical Data Book (the steam generator pressure was compared in each case to the plant performance curve), the instrument index M-675; and subject matter experts.

8. DEFICIENCIES

The following simulator deficiencies were noted during performance of this test.

A. MAIN FEEDWATER FLOW A/B STM. GENERATOR	SDR-89-085
B. STEAM PRESSURE A/B STM. GENERATOR	SDR-86-017
C. LETDOWN TEMPERATURE FROM PCS	SDR-89-009
D. PRESSURIZER HEATER AMPERES	SDR-87-093
E. ELECTRICAL OUTPUT INDICATION (GROSS & NET)	SDR-90-030
F. PRESSURIZER LEVEL OSCILLATIONS	SDR-90-035

The simulator deficiency report SDR-89-009 has been corrected; the remaining SDR's are scheduled to be corrected as indicated in the "Paltrack" report listing.

9. EXCEPTIONS TO ANSI/ANS-3.5-1985

No exceptions taken.

NORMAL

OPERATION

TESTS

ANS-3.5-1985 RELATIONSHIP	CPCO TEST	PAGE NUMBER
3.1.1 (1)	N001	E.11 - E.12
3.1.1 (2) & (3)	N002	E.13 - E.14
3.1.1 (4) & (9)	N003	E.15 - E.16
3.1.1 (5)	N004	E.17 - E.18
3.1.1 (6)	N005	E.19 - E.20
3.1.1 (8)	N006	E.21 - E.22
3.1.1 (10)	N008	E.23 - E.24
3.1.1 (7)	EXCEPTION 1.	A.2

Note: CPCO test N007 is a steady state test. It's abstract is on pages E.8 - E.9.

NORMAL OPERATIONS TESTS

ACCEPTANCE CRITERIA

A. If applicable, parameters must meet acceptance criteria of plant Startup Tests.

B. Parameter values must change in same direction as expected for same transient on the plant, and not violate physical laws .

C. Alarms and Auto Actions must occur only as expected for the same transient on the plant .

N001

PLANT STARTUP

(COLD TO HOT STANDBY)

ANS-3.5-1985
RELATIONSHIP

3.1.1 (1)

SIMULATOR TEST N001 ABSTRACT

1. NAME AND DESCRIPTION OF TEST

N001 is a simulator performance test that involves a normal plant startup from a cold shutdown condition to a hot standby condition. This evolution was accomplished following applicable Palisades' general operating procedures.

2. ANSI/ANS-3.5-1985 RELATIONSHIP

3.1.1 (1)

3. TEST DATES

N001 was conducted in March, 1989.

4. TESTED PARAMETERS

The parameters and their ranges monitored by strip chart, with a resolution of 0.5 seconds, are as follows:

Parameter	Instrumentation Ranges
A. PRESSURIZER LEVEL	0-100%
B. #1 HOT LEG TEMP.	0-615 DEG F.
C. #1 COLD LEG TEMP.	0-600 DEG F.
D. PCS FLOW	0-100%
E. CONTAINMENT PRESSURE	0-100 PSIA.
F. CONTAINMENT TEMP.	0-400 DEG F.
G. #2 HOT LEG TEMP.	0-615 DEG F.
H. #2 COLD LEG TEMP.	0-600 DEG F.
I. PRESSURIZER PRESSURE	1500-2500 PSIA.
J. STM. GEN. PRESS. E-50 A	0-1000 PSIA.
K. STM. GEN. LEVEL E-50 A	0-100%
L. WIDE RANGE LOG (#3) (NI)	1.0E-8% TO 125% FULL POWER
M. STEAM FLOW E-50 A	0 TO 5.76E+6 LB PER HOUR
N. FEED FLOW E-50 A	0 TO 5.76E+6 LB PER HOUR
O. STM. GEN. PRESS. E-50 B	0-1000 PSIA.
P. STM. GEN. LEVEL E-50 B	0-100%
Q. STEAM FLOW E-50 B	0 TO 5.76E+6 LB PER HOUR
R. FEED FLOW E-50 B	0 TO 5.76E+6 LB PER HOUR
S. T-AVERAGE	0-625 DEG F.
T. PRESSURIZER WATER TEMP.	0-1000 DEG F.

In addition to the parameters listed above, the following items were also tested to verify simulator stability and accuracy.

A. SERVICE WATER SYSTEM
B. COMPONENT COOLING WATER SYSTEM
C. LOW TEMP. OVERPRESSURE PROTECTION EQUIP.
D. CONTAINMENT BUILDING VENTILATION SYSTEM
E. RADWASTE VENTILATION SYSTEM
F. FUEL HANDLING AND RADWASTE SYSTEM

G. ENGINEERED SAFEGUARDS ROOMS VENTILATION EQUIPMENT
H. SAFETY INJECTION SYSTEM
I. CONTAINMENT SPRAY SYSTEM
J. CHEMICAL AND VOLUME CONTROL SYSTEM
K. SHUTDOWN COOLING SYSTEM
L. PRIMARY COOLANT SYSTEM
M. MAIN STEAM SYSTEM
N. STEAM GEN. BLOWDOWN SYSTEM
O. CIRCULATING AND DILUTION WATER SYSTEMS
P. CONDENSATE SYSTEM
Q. PRESSURIZER PRESSURE AND LEVEL CONTROL EQUIPMENT
R. TURBINE TURNING GEAR EQUIPMENT
S. CONTROL ROD DRIVE MECHANISMS EQUIPMENT
T. NUCLEAR INSTRUMENTATION
U. AUXILIARY FEED WATER SYSTEM

5. INITIAL CONDITIONS

Initial condition was IC1, plant at cold shutdown condition.

6. FINAL CONDITIONS/DURATION OF TEST

The simulator was methodically changed from the cold shutdown condition to the hot standby condition.

This test required approximately thirteen hours to complete.

7. BASELINE DATA

The baseline data is from plant procedures SOP1, SOP2, SOP3, SOP7, SOP14, SOP16, SOP24, GOP2 and GOP3; actual plant data Test T-187 dated 2/26/86 and 5/24/86; and subject matter experts.

8. DEFICIENCIES

The following simulator deficiencies were noted during performance of this test.

A.	PRIMARY COOLANT PUMP AMPERES	SDR-89-057
B.	PRESSURIZER PRESSURE	SDR-89-059
C.	CONDENSATE PUMP AMPERES	SDR-89-058
D.	COOLING TOWER PUMP BASIN LEVEL	SDR-89-003
E.	PRESSURIZER LEVEL	SDR-87-120
F.	VOLUME CONTROL TANK LEVEL	SDR-89-055/056

The simulator deficiency report SDR-89-003 has been corrected; the remaining SDR's are open and are scheduled to be corrected as indicated in the "Paltrack" report listing.

9. EXCEPTIONS TO ANSI/ANS-3.5-1985

No exceptions taken.

N002

NUCLEAR STARTUP FROM HOT STANDBY TO RATED POWER and TURBINE STARTUP AND GENERATOR SYNCHRONIZATION

ANS-3.5-1985
RELATIONSHIP

3.1.1 (2) & (3)

SIMULATOR TEST N002 ABSTRACT

1. NAME AND DESCRIPTION OF TEST

N002 is a simulator performance test that involves a normal plant startup from hot standby to full power, including turbine startup and generator synchronization. This evolution was accomplished by following applicable Palisades' general operating procedures.

2. ANSI/ANS-3.5-1985 RELATIONSHIP

3.1.1 (2)
3.1.1 (3)

3. TEST DATES

N002 was conducted in March, 1989.

4. TESTED PARAMETERS

The parameters and their ranges monitored by strip chart, with a resolution of 0.5 seconds, are as follows:

PARAMETER	INSTRUMENTATION RANGES
A. PRESSURIZER LEVEL	0-100%
B. #1 HOT LEG TEMP.	0-615 DEG F.
C. #1 COLD LEG TEMP.	0-600 DEG F.
D. PCS FLOW	0-100%
E. CONTAINMENT PRESSURE	0-100 PSIA.
F. CONTAINMENT TEMP.	0-400 DEG F.
G. #2 HOT LEG TEMP.	0-615 DEG F.
H. #2 COLD LEG TEMP.	0-600 DEG F.
I. PRESSURIZER PRESSURE	1500-2500 PSIA.
J. STM. GEN. PRESSURE E-50 A	0-1000 PSIA.
K. STM. GEN. LEVEL E-50 A	0-100%
L. WIDE RANGE LOG (#3) (NI)	1.0E-8% TO 125% FULL POWER
M. STM. FLOW E-50 A	0-5.76E+6 LB PER HR.
N. FEED FLOW E-50 A	0-5.76E+6 LB PER HR.
O. STM. GEN. PRESSURE E-50 B	0-1000 PSIA.
P. STM. GEN LEVEL E-50 B	0-100%
Q. STM. FLOW E-50 B	0-5.76E+6 LB PER HR.
R. FEED FLOW E 50 B	0-5.76E+6 LB PER HR.
S. T-AVERAGE	0-625 DEG F.
T. PRESSURIZER WATER TEMP.	0-1000 DEG F.

In addition to the parameters listed above, the following items were also tested to verify simulator stability and accuracy.

A. MAIN STM. SYSTEM
B. FEED WATER SYSTEM
C. DIESEL GENERATORS
D. TURBINE GENERATOR SYSTEM

E. CONDENSATE SYSTEM
F. SWITCHYARD, STATION POWER AND START-UP POWER SYSTEMS
G. CIRCULATING WATER SYSTEM
H. CHEMICAL AND VOLUME CONTROL SYSTEM
I. CONTROL ROD DRIVE MECHANISMS

5. INITIAL CONDITIONS

The initial condition for this test was IC6, plant at hot standby condition.

6. FINAL CONDITIONS/DURATION OF TEST

The simulator was methodically changed from the hot standby condition to full power, including turbine startup and generator synchronization.

This test took approximately six hours to complete.

7. BASELINE DATA.

Baseline data is from plant procedures SOP30, GOP4, GOP5 and GOP12; and subject matter experts.

8. DEFICIENCIES

The following deficiency was noted during performance of this test:

DIESEL GENERATOR STATUS LIGHTS SDR-89-007

This simulator deficiency report (SDR) has been corrected.

9. EXCEPTIONS TO ANSI/ANS-3.5-1985

No exceptions taken.

N003

REACTOR TRIP FOLLOWED BY RECOVERY TO RATED POWER and CORE PERFORMANCE TESTING

ANS-3.5-1985
RELATIONSHIP

3.1.1 (4) & (9)

SIMULATOR TEST N003 ABSTRACT

1. NAME AND DESCRIPTION OF TEST

N003 is a simulator performance test that involves a full power reactor trip, followed by trip recovery and return to full power. The trip recovery and return to full power was accomplished using applicable Palisades' plant procedures.

2. ANSI/ANS-3.5-1985 RELATIONSHIP

3.1.1 (4)
3.1.1 (9) PARTIAL - (Heat Balance, Control Rod Worth and Estimated Critical Prediction)

3. TEST DATES

N003 was conducted in March, 1989.

4. TESTED PARAMETERS

The parameters and their ranges monitored by strip chart, with a resolution of 0.5 seconds, are as follows:

PARAMETER	INSTRUMENTATION RANGES
A. PRESSURIZER LEVEL	0-100%
B. #1 HOT LEG TEMP.	0-615 DEG F.
C. #1 COLD LEG TEMP.	0-600 DEG F.
D. PCS FLOW	0-100%
E. CONTAINMENT PRESSURE	0-100 PSIA.
F. CONTAINMENT TEMP.	0-400 DEG F.
G. #2 HOT LEG TEMP.	0-615 DEG F.
H. #2 COLD LEG TEMP.	0-600 DEG F.
I. PRESSURIZER PRESSURE	1500-2500 PSIA.
J. STM. GEN. PRESSURE E-50 A	0-1000 PSIA.
K. STM. GEN. LEVEL E-50 A	0-100%
L. WIDE RANGE LOG (#3) (NI)	1.0E-8% TO 125% FULL POWER
M. STM. FLOW E-50 A	0-5.76E+6 LB PER HOUR
N. FEED FLOW E-50 A	0-5.76E+6 LB PER HOUR
O. STM. GEN. PRESSURE E-50 B	0-1000 PSIA.
P. STM. GEN. LEVEL E-50 B	0-100%
Q. STEAM FLOW E-50 B	0-5.76E+6 LB PER HOUR
R. FEED FLOW E-50 B	0-5.76E+6 LB PER HOUR
S. T-AVERAGE	0-625 DEG F.
T. PRESSURIZER WATER TEMP.	0-1000 DEG F.

In addition to the parameters listed above, the following items were also tested to verify simulator stability and accuracy.

A. REACTOR AND TURBINE TRIP INDICATIONS
B. STATION POWER, STARTUP POWER AND ELECTRICAL DISTRIBUTION
C. DIESEL GENERATORS
D. MAIN FEED WATER SYSTEM

E. MAIN STEAM SYSTEM
F. CHEMICAL AND VOLUME CONTROL SYSTEM
G. MAIN TURBINE SYSTEM
H. CONTROL ROD DRIVE EQUIPMENT
I. AUX. FEEDWATER SYSTEM

5. INITIAL CONDITIONS

The initial condition for the test was IC10, plant at full power.

6. FINAL CONDITIONS/DURATION OF TEST

A full power reactor trip followed by trip recovery and return to full power.

This test took approximately seven hours to complete.

7. BASELINE DATA

The baseline data is from Palisades plant operating procedures SOP30, GOP12, and EOP1; actual plant data PTR 2 dated July, 1980; and subject matter experts.

8. DEFICIENCIES

The following deficiencies were noted during performance of this test:

A. STEAM GEN. LEVEL RECORDER LR0701 AND LR0703	SDR-89-062
B. DIESEL GEN. INDICATING LIGHTS (K6B)	SDR-89-007

The simulator deficiency report SDR-89-007 has been corrected and SDR-89-062 is scheduled to be corrected as indicated in the "Paltrack" report listing.

9. EXCEPTIONS TO ANSI/ANS-3.5-1985

No exceptions taken.

N004

OPERATIONS AT HOT STANDBY

ANS-3.5-1985
RELATIONSHIP

3.1.1 (5)

SIMULATOR TEST N004 ABSTRACT

1. NAME AND DESCRIPTION OF TEST

N004 is a simulator performance test that involves operations at hot standby under steady state conditions. These operations were accomplished by following applicable Palisades' operating procedures.

2. ANSI/ANS-3.5-1985 RELATIONSHIP

3.1.1 (5)

3. TEST DATES

N004 was conducted in March, 1989.

4. TESTED PARAMETERS

The parameters and their ranges monitored by strip chart, with a resolution of 0.5 seconds, are as follows:

PARAMETER	INSTRUMENTATION RANGES
A. PRESSURIZER LEVEL	0-100%
B. #1 HOT LEG TEMPERATURE	0-615 DEG. F.
C. #1 COLD LEG TEMPERATURE	0-600 DEG. F.
D. PCS FLOW	0-100%
E. CONTAINMENT PRESSURE	0-100 PSIA.
F. CONTAINMENT TEMPERATURE	0-400 DEG. F.
G. #2 HOT LEG TEMPERATURE	0-615 DEG. F.
H. #2 COLD LEG TEMPERATURE	0-600 DEG. F.
I. PRESSURIZER PRESSURE	1500-2500 PSIA.
J. STM GEN. PRESSURE E-50 A	0-1000 PSIA.
K. STM GEN. LEVEL E-50 A	0-100%
L. WIDE RANGE LOG (#3) (NI)	1.0E-8% TO 125% FULL POWER
M. STEAM FLOW E-50 A	0-5.76E+6 LB PER HOUR
N. FEED FLOW E-50 A	0-5.76E+6 LB PER HOUR
O. STM GEN. PRESSURE E-50 B	0-1000 PSIA.
P. STM GEN. LEVEL E-50 B	0-100%
Q. STEAM FLOW E-50 B	0-5.76E+6 LB PER HOUR
R. FEED FLOW E-50 B	0-5.76E+6 LB PER HOUR
S. T-AVERAGE	0-625 DEG. F.
T. PRESSURIZER WATER TEMP.	0-1000 DEG. F.

In addition to the parameters listed in above, the following items were also tested to verify simulator stability and accuracy.

A. STM. GEN. PRESSURE
B. TURBINE BYPASS VALVE OPERATION
C. AUX. FEEDWATER FLOW
D. STEAM GEN. LEVELS

SIMULATOR TEST N004 ABSTRACT

5. INITIAL CONDITIONS

The initial condition for this test was IC6, plant at hot standby condition.

6. STABILITY PERIOD/DURATION OF TEST

The simulator was stabilized for a 60 minute period in a hot standby condition.

This test took approximately two hours to complete.

7. BASELINE DATA

The baseline data is from actual plant calorimetric data, and subject matter experts.

8. DEFICIENCIES

The following deficiency was noted during performance of this test:

AUX. FEED FLOW 0727 0749 SDR-89-040

This simulator deficiency report (SDR) has been corrected.

9. EXCEPTIONS TO ANSI/ANS-3.5-1985

No exceptions taken.

N005

LOAD CHANGES

ANS-3.5-1985
RELATIONSHIP

3.1.1 (6)

SIMULATOR TEST N005 ABSTRACT

1. NAME AND DESCRIPTION OF TEST

N005 is a simulator performance test that involves load changes greater than or equal to 10% of load/power. Turbine valve testing was also included in this test. The test begins at full power, then was adjusted to 93.9% of turbine load with all applicable equipment in service per standard operating procedures. The load was reduced to 84.5%, then was further reduced to completely close #4 governer valve, at which time turbine valve testing was performed (reactor power at this time was 74.5%). All of the steps were performed using control rods and/or dilution. The evolutions performed were accomplished by following applicable Palisades' operating procedures.

2. ANSI/ANS-3.5-1985 RELATIONSHIP

3.1.1 (6)

3. TEST DATES

N005 was conducted in March, 1989.

4. TESTED PARAMETERS

The parameters and their ranges monitored by strip chart, with a resolution of 0.5 seconds, are as follows:

PARAMETER	INSTRUMENTATION RANGES
A. PRESSURIZER LEVEL	0-100%
B. #1 HOT LEG TEMPERATURE	0-615 DEG. F.
C. #1 COLD LEG TEMPERATURE	0-600 DEG. F.
D. PCS FLOW	0-100%
E. CONTAINMENT PRESSURE	0-100 PSIA.
F. CONTAINMENT TEMPERATURE	0-400 DEG. F.
G. #2 HOT LEG TEMPERATURE	0-615 DEG. F.
H. #2 COLD LEG TEMPERATURE	0-600 DEG. F.
I. PRESSURIZER PRESSURE	1500-2500 PSIA.
J. STM. GEN. PRESSURE E-50 A	0-1000 PSIA.
K. STM. GEN. LEVEL E-50 A	0-100%
L. WIDE RANGE LOG (#3) (NI)	1.0E-8% TO 125% FULL POWER
M. STM. FLOW E-50 A	0-5.76E+6 LB PER HOUR
N. FEED FLOW E-50 A	0-5.76E+6 LB PER HOUR
O. STM. GEN. PRESSURE E-50 B	0-1000 PSIA.
P. STM. GEN. LEVEL E-50 B	0-100%
Q. STM. FLOW E-50 B	0-5.76E+6 LB PER HOUR
R. FEED FLOW E-50 B	0-5.76E+6 LB PER HOUR
S. T-AVERAGE	0-625 DEG. F.
T. PRESSURIZER WATER TEMP.	0-1000 DEG. F.

In addition to the parameters listed on the previous page, the following items were also tested to verify simulator stability and accuracy.

A. TURBINE CONTROL VALVE POSITION VALVES 1,2,3,4.
B. TURBINE CONTROLS AND INDICATIONS.

5. INITIAL CONDITIONS

The initial condition for this test was IC10, plant at full power.

6. FINAL CONDITIONS/DURATION OF TEST

The load was reduced to 74.5%, at which time turbine valve testing was performed. Then the power level was raised to the initial value.

This test took approximately two hours to complete.

7. BASELINE DATA

The baseline data is from General Operating Procedures (GOP) 6 and 7, Standard Operating Procedure (SOP) 8, Alarm Response Procedures (ARP) 1 and 2, and subject matter experts.

8. DEFICIENCIES

The following deficiency was noted during performance of this test:

MAIN GENERATOR POWER METER SDR-89-063

This simulator deficiency report (SDR) is scheduled to be corrected as indicated in the "Paltrack" report listing.

9. EXCEPTIONS TO ANSI/ANS-3.5-1985

No exceptions taken.

N006

PLANT SHUTDOWN FROM RATED POWER TO HOT STANDBY AND COOLDOWN TO COLD SHUTDOWN CONDITIONS

ANS-3.5-1985
RELATIONSHIP

3.1.1 (8)

SIMULATOR TEST N006 ABSTRACT

1. NAME AND DESCRIPTION OF TEST

N006 is a simulator performance test that involves a normal controlled shutdown from full power to a cold shutdown condition. This evolution was accomplished following applicable Palisades' general operating procedures.

2. ANSI/ANS-3.5-1985 RELATIONSHIP

3.1.1 (8)

3. TEST DATES

N006 was conducted in March, 1989.

4. TESTED PARAMETERS

The parameters and their ranges monitored by strip chart, with a resolution of 0.5 seconds, are as follows:

Parameter	Instrumentation Ranges
A. PRESSURIZER LEVEL	0-100%
B. #1 HOT LEG TEMP.	0-615 DEG F.
C. #1 COLD LEG TEMP.	0-600 DEG F.
D. PCS FLOW	0-100%
E. CONTAINMENT PRESSURE	0-100 PSIA.
F. CONTAINMENT TEMP.	0-400 DEG F.
G. #2 HOT LEG TEMP.	0-615 DEG F.
H. #2 COLD LEG TEMP.	0-600 DEG F.
I. PRESSURIZER PRESSURE	1500-2500 PSIA.
J. STM. GEN. PRESS. E-50 A	0-1000 PSIA.
K. STM. GEN. LEVEL E-50 A	0-100%
L. WIDE RANGE LOG (#3) (NI)	1.0E-8% TO 125% FULL POWER
M. STEAM FLOW E-50 A	0 TO 5.76E+6 LB PER HOUR
N. FEED FLOW E-50 A	0 TO 5.76E+6 LB PER HOUR
O. STM. GEN. PRESS. E-50 B	0-1000 PSIA.
P. STM. GEN. LEVEL E-50 B	0-100%
Q. STEAM FLOW E-50 B	0 TO 5.76E+6 LB PER HOUR
R. FEED FLOW E-50 B	0 TO 5.76E+6 LB PER HOUR
S. T-AVERAGE	0-625 DEG F.
T. PRESSURIZER WATER TEMP.	0-1000 DEG F.

In addition to the parameters listed above, the following items were also tested to verify simulator stability and accuracy.

A. CVCS CONTROLS AND INDICATIONS
B. TURBINE CONTROLS
C. MAIN FEEDWATER SYSTEM
D. DIESEL GENERATORS
E. AUX. FEEDWATER SYSTEM
F. ATMOSPHERIC STEAM DUMP VALVES

G. PRIMARY COOLANT SYSTEM
H. SHUTDOWN COOLING SYSTEM

5. INITIAL CONDITIONS

Initial condition was IC10, plant at full power.

6. FINAL CONDITIONS/DURATION OF TEST

The simulator was methodically changed from full power to a cold shutdown condition.

This test required approximately nine hours to complete.

7. BASELINE DATA

The baseline data is from Palisades plant operating procedures SOP1, SOP6, SOP7, SOP12, GOP5, and EOP2; plant drawing E256, sheet 3, revision 7; and subject matter experts.

8. DEFICIENCIES

The following simulator deficiencies were noted during performance of this test.

A. DIESEL GEN. STATUS LIGHTS	SDR-89-007
B. ATMOSPHERIC STEAM DUMP VALVE IND. LIGHTS	SDR-89-064
C. PRIMARY COOLANT FLOW	SDR-89-055
D. SHUTDOWN COOLING FLOW INDICATION	SDR-87-010

The simulator deficiency report SDR-89-007 has been corrected; SDR-89-064, SDR-89-055 and SDR-87-010 are scheduled to be corrected as indicated in the "Paltrack" report listing.

9. EXCEPTIONS TO ANSI/ANS-3.5-1985

No exceptions taken.

N007

(is a steady state test. It's abstract is on pages E.8 - E.9)

N008

OPERATOR CONDUCTED SURVEILLANCE TESTING ON SAFETY-RELATED EQUIPMENT OR SYSTEMS

ANS-3.5-1985
RELATIONSHIP

3.1.1 (10)

SIMULATOR TEST N008 ABSTRACT

1. NAME AND DESCRIPTION OF TEST

N008 is a simulator performance test that involves technical specification surveillance tests normally conducted by the control room operators. These tests were accomplished following applicable Palisades' general operating procedures.

The tests that were conducted are as follows:

A. REACTOR PROTECTION SYSTEM (RPS) MATRIX LOGIC TESTS (M03)
B. POWER DEPENDANT INSERTION LIMIT (PDIL) AND CONTROL RODS OUT OF SEQUENCE ALARMS TESTING (MO8)

2. ANSI/ANS-3.5-1985 RELATIONSHIP

3.1.1 (10)

3. TEST DATES

N008 consists of three sections. Sections 1 and 2 of N008 were conducted in March, 1989. Section 3 was conducted in March, 1990.

4. TESTED PARAMETERS

The parameters and their ranges monitored by strip chart, with a resolution of 0.5 seconds, are as follows:

Parameter	Instrumentation Ranges
A. PRESSURIZER LEVEL	0-100%
B. #1 HOT LEG TEMP.	0-615 DEG F.
C. #1 COLD LEG TEMP.	0-600 DEG F.
D. PCS FLOW	0-100%
E. CONTAINMENT PRESSURE	0-100 PSIA.
F. CONTAINMENT TEMP.	0-400 DEG F.
G. #2 HOT LEG TEMP.	0-615 DEG F.
H. #2 COLD LEG TEMP.	0-600 DEG F.
I. PRESSURIZER PRESSURE	1500-2500 PSIA.
J. STM. GEN. PRESS. E-50 A	0-1000 PSIA.
K. STM. GEN. LEVEL E-50 A	0-100%
L. WIDE RANGE LOG (#3) (NI)	1.0E-8% TO 125% FULL POWER
M. STEAM FLOW E-50 A	0 TO 5.76E+6 LB PER HOUR
N. FEED FLOW E-50 A	0 TO 5.76E+6 LB PER HOUR
O. STM. GEN. PRESS. E-50 B	0-1000 PSIA.
P. STM. GEN. LEVEL E-50 B	0-100%
Q. STEAM FLOW E-50 B	0 TO 5.76E+6 LB PER HOUR
R. FEED FLOW E-50 B	0 TO 5.76E+6 LB PER HOUR
S. T-AVERAGE	0-625 DEG F.
T. PRESSURIZER WATER TEMP.	0-1000 DEG F.

SIMULATOR TEST N008 ABSTRACT

In addition to the parameters listed on the previous page, the following items were also tested to verify simulator stability and accuracy.

A. RPS TEST SWITCHES AND INDICATIONS (TRIP LIGHTS)
B. PDIL OUT OF SEQUENCE ALARMS (PIP)/(PRIMARY DATA LOGGER)

5. INITIAL CONDITIONS

Initial condition was IC10, plant at full power.

6. FINAL CONDITIONS/DURATION OF TEST

The simulator was maintained at full power for the duration of the test.

This test required approximately five hours to complete.

7. BASELINE DATA

The baseline data is from plant surveillance test procedures M03 and M08; and subject matter experts.

8. DEFICIENCIES

The following simulator deficiencies were noted during performance of this test.

A. RPS AC AND DC INDICATION LAMPS	SDR-89-065
B. PIP WOULD NOT ALLOW SECTION 3 OF TEST N008 TO BE COMPLETED.	SDR-89-046
C. PPDIL & PDIL HORNS DO NOT ACTUATE AS REQUIRED	SDR-90-049

The simulator deficiency report SDR-89-046 has been corrected, SDR-89-065 and SDR-90-049 are scheduled to be corrected as indicated in the "Paltrack" report listing.

9. EXCEPTIONS TO ANSI/ANS-3.5-1985

All of the operator conducted surveillance testing on safety related equipment or systems are not included in the simulator performance testing. These two technical specification (TS) surveillance tests are the only ones that are conducted entirely in the control room. The numerous other TS surveillance tests are performed by starting and stopping equipment from the control room, then taking data locally.

TRANSIENT

TESTS

ANS-3.5-1985 RELATIONSHIP	CPCO TEST	PAGE NUMBER
B2.2 (1)	T001	E.26 - E.27
B2.2 (2)	T002	E.28 - E.29
B2.2 (3)	T003	E.30 - E.31
B2.2 (4)	T004	E.32 - E.33
B2.2 (5)	T005	E.34 - E.35
B2.2 (6)	T006	E.36 - E.37
B2.2 (7)	T007	E.38 - E.39
B2.2 (9)	T008	E.40 - E.41
B2.2 (8)	T009	E.42 - E.43
B2.2 (10) & 3.1.2 (10)	T010	E.44 - E.45

TRANSIENT TESTS

ACCEPTANCE CRITERIA

A. If applicable, parameters must meet acceptance criteria of plant Startup Tests.

B. Parameter values must change in same direction as expected for same transient on the plant, and not violate physical laws .

C. Alarms and Auto Actions must occur only as expected for the same transient on the plant .

T001

MANUAL REACTOR TRIP

ANS-3.5-1985
RELATIONSHIP

B2.2 (1)

SIMULATOR TEST T001 ABSTRACT

1. NAME AND DESCRIPTION OF TEST

T001 is a simulator performance test that involves a manual reactor trip transient, an uncomplicated reactor trip from full power. This evolution was accomplished following applicable Palisades' standard operating procedures (SOP) and emergency operating procedures (EOP). The normal plant equipment was simulated to be in service and/or operable per SOP's.

2. ANSI/ANS-3.5-1985 RELATIONSHIP

Appendix B, B2.2(1)

3. TEST DATES

T001 was conducted in April, 1990.

4. TESTED PARAMETERS

The parameters and their ranges monitored by strip chart, with a resolution of 0.5 seconds, are as follows:

Parameter	Instrumentation Ranges
A. PRESSURIZER LEVEL	0-100%
B. #1 HOT LEG TEMP.	0-615 DEG F.
C. #1 COLD LEG TEMP.	0-600 DEG F.
D. PCS FLOW	0-100%
E. CONTAINMENT PRESSURE	0-100 PSIA.
F. CONTAINMENT TEMP.	0-400 DEG F.
G. #2 HOT LEG TEMP.	0-615 DEG F.
H. #2 COLD LEG TEMP.	0-600 DEG F.
I. PRESSURIZER PRESSURE	1500-2500 PSIA.
J. STM. GEN. PRESS. E-50 A	0-1000 PSIA.
K. STM. GEN. LEVEL E-50 A	0-100%
L. WIDE RANGE LOG (#3) (NI)	1.0E-8% TO 125% FULL POWER
M. STEAM FLOW E-50 A	0 TO 5.76E+6 LB PER HOUR
N. FEED FLOW E-50 A	0 TO 5.76E+6 LB PER HOUR
O. STM. GEN. PRESS. E-50 B	0-1000 PSIA.
P. STM. GEN. LEVEL E-50 B	0-100%
Q. STEAM FLOW E-50 B	0 TO 5.76E+6 LB PER HOUR
R. FEED FLOW E-50 B	0 TO 5.76E+6 LB PER HOUR
S. T-AVERAGE	0-625 DEG F.
T. PRESSURIZER WATER TEMP.	0-1000 DEG F.

In addition to the parameters listed above, the following items were also tested to verify simulator stability and accuracy.

A. REACTOR TRIP ALARM
B. CONTROL ROD POSITION INDICATION
C. POWER LEVEL (NI 03 AND 04) AND START UP RATE
D. RPS CLUTCH POWER SUPPLY INDICATION

E. FEEDPUMP HIGH AND LOW PRESSURE THROTTLE AND TRIP VALVE INDICATION
F. FEEDPUMP SPEED
G. TURBINE STOP AND GOVERNOR
H. STATION POWER AND START-UP POWER INDICATION
I. DIESEL GENERATOR STATUS/INDICATION
J. S/G LEVEL
K. PRESSURIZER HEATER INDICATION
L. SUBCOOLDED MARGIN MONITOR
M. PRESSURIZER PRESSURE AND LEVEL
N. AUX FEEDPUMP STATUS, FLOW AND PRESSURE
O. BUS 1C AND 1D VOLTAGE AND ALARMS
P. DC VOLATAGE ALARMS
Q. SERVICE WATER PUMPS STATUS, PRESSURE
R. COMPONENT COOLING WATER PUMPS STATUS, PRESSURE & TEMPERATURE
S. COMPRESSED AIR STATUS
T. PCS DIFFERENTIAL TEMPERATURE AND AVERAGE TEMPERATURE
U. CONTAINMENT BLDG INTEGRITY: PRESSURE, TEMPERATURE AND RADIATION

5. INITIAL CONDITIONS

Initial condition was IC10, plant at full power condition.

6. FINAL CONDITIONS/DURATION OF TEST

Final condition was plant at hot shutdown.

This test required approximately 1 hour to complete.

7. BASELINE DATA

The baseline data is from actual Plant Trip Report dated July 2, 1980; Palisades plant operating procedure EOP1; and subject matter experts.

8. DEFICIENCIES

The following simulator deficiency was noted during performance of this test.

A. DIESEL GENERATOR STATUS LIGHTS SDR-89-007

This simulator deficiency report (SDR) has been corrected.

9. EXCEPTIONS TO ANSI/ANS-3.5-1985

No exceptions taken.

T002

SIMULTANEOUS TRIP OF ALL FEEDWATER PUMPS

ANS-3.5-1985
RELATIONSHIP

B2.2 (2)

SIMULATOR TEST T002 ABSTRACT

1. NAME AND DESCRIPTION OF TEST

T002 is a simulator performance test that involves a feedwater pump transient, a full power reactor trip initiated by low steam generator level, which resulted from the loss of both S/G feed pumps. This evolution was accomplished following applicable Palisades' standard operating procedures (SOP) and emergency operating procedures (EOP). The normal plant equipment was simulated to be in service and/or operable per SOP's.

2. ANSI/ANS-3.5-1985 RELATIONSHIP

Appendix B, B2.2(2)

3. TEST DATES

T002 was conducted in March, 1989.

4. TESTED PARAMETERS

The parameters and their ranges monitored by strip chart, with a resolution of 0.5 seconds, are as follows:

Parameter	Instrumentation Ranges
A. PRESSURIZER LEVEL	0-100%
B. #1 HOT LEG TEMP.	0-615 DEG F.
C. #1 COLD LEG TEMP.	0-600 DEG F.
D. PCS FLOW	0-100%
E. CONTAINMENT PRESSURE	0-100 PSIA.
F. CONTAINMENT TEMP.	0-400 DEG F.
G. #2 HOT LEG TEMP.	0-615 DEG F.
H. #2 COLD LEG TEMP.	0-600 DEG F.
I. PRESSURIZER PRESSURE	1500-2500 PSIA.
J. STM. GEN. PRESS. E-50 A	0-1000 PSIA.
K. STM. GEN. LEVEL E-50 A	0-100%
L. WIDE RANGE LOG (#3) (NI)	1.0E-8% TO 125% FULL POWER
M. STEAM FLOW E-50 A	0 TO 5.76E+6 LB PER HOUR
N. FEED FLOW E-50 A	0 TO 5.76E+6 LB PER HOUR
O. STM. GEN. PRESS. E-50 B	0-1000 PSIA.
P. STM. GEN. LEVEL E-50 B	0-100%
Q. STEAM FLOW E-50 B	0 TO 5.76E+6 LB PER HOUR
R. FEED FLOW E-50 B	0 TO 5.76E+6 LB PER HOUR
S. T-AVERAGE	0-625 DEG F.
T. PRESSURIZER WATER TEMP.	0-1000 DEG F.

In addition to the parameters listed above, the following items were also tested to verify simulator stability and accuracy.

A. VARIOUS STATION POWER SUPPLY BREAKER TRIP/UNDERVOLTAGE ALARMS
B. PRESSURIZER HEATER STATUS INDICATION
C. FEEDPUMP SUCTION PRESSURE

D. FEEDPUMP HIGH PRESSURE/LOW PRESSURE THROTTLE & TRIP VALVE INDICATION
E. GENERATOR BREAKER STATUS
F. STATION POWER AND START-UP POWER BREAKER STATUS INDICATION
G. DIESEL GENERATOR STATUS INDICATION
H. POWER LEVEL AND START-UP RATE
I. AUX FEEDPUMP STATUS, FLOW AND PRESSURE
J. STEAM GENERATOR LEVEL
K. PRESSURIZER LEVEL AND PRESSURE
L. PCS/CORE DELTA TEMPERATURE AND AVERAGE TEMPERATURE
M. CONTROL ROD POSITION INDICATION
N. C AND D BUS VOLTAGE
O. BATTERY CHARGERS TROUBLE ALARM
P. 125V DC BUS UNDERVOLTAGE/TROUBLE ALARM
Q. SERVICE WATER PRESSURE AND PUMP INDICATION
R. COMPONENT COOLING WATER PRESSURE, TEMPERATURE AND PUMP INDICATION
S. COMPRESSED AIR STATUS
T. SUBCOOLED MARGIN MONITOR
U. CONTAINMENT INTEGRITY: PRESSURE, TEMPERATURE AND RADIATION

5. INITIAL CONDITIONS

Initial condition was IC10, plant at full power condition.

6. FINAL CONDITIONS/DURATION OF TEST

Final condition was plant at hot shutdown.

This test required approximately 1/2 hour to complete.

7. BASELINE DATA

The baseline data is from actual Plant Trip Report dated October, 28, 1982; Palisades plant operating procedure EOP1; and subject matter experts.

8. DEFICIENCIES

The following simulator deficiencies were noted during performance of this test.

A. DIESEL GENERATOR STATUS LIGHTS	SDR-89-007
B. PRESSURIZER PRESSURE	SDR-89-047
C. STEAM GENERATOR LEVEL	SDR-89-040

The simulator deficiency reports SDR-89-007 and SDR-89-040 have been corrected; SDR-89-047 is scheduled to be corrected as indicated in the "Paltrack" report listing.

9. EXCEPTIONS TO ANSI/ANS-3.5-1985

No exceptions taken.

T003

SIMULTANEOUS CLOSURE OF ALL MAIN STEAM ISOLATION VALVES

ANS-3.5-1985
RELATIONSHIP

B2.2 (3)

SIMULATOR TEST T003 ABSTRACT

1. NAME AND DESCRIPTION OF TEST

T003 is a simulator performance test that involves the closure of all main steam isolation valves transient, a full power reactor trip resulting from a loss of heat sink, (MSIVs closed without a turbine trip). This evolution was accomplished following applicable Palisades' standard operating procedures (SOP) and emergency operating procedures (EOP). The normal plant equipment was simulated to be in service and/or operable per SOP's.

2. ANSI/ANS-3.5-1985 RELATIONSHIP

Appendix B, B2.2(3)

3. TEST DATES

T003 was conducted in March, 1989.

4. TESTED PARAMETERS

The parameters and their ranges monitored by strip chart, with a resolution of 0.5 seconds, are as follows:

Parameter	Instrumentation Ranges
A. PRESSURIZER LEVEL	0-100%
B. #1 HOT LEG TEMP.	0-615 DEG F.
C. #1 COLD LEG TEMP.	0-600 DEG F.
D. PCS FLOW	0-100%
E. CONTAINMENT PRESSURE	0-100 PSIA.
F. CONTAINMENT TEMP.	0-400 DEG F.
G. #2 HOT LEG TEMP.	0-615 DEG F.
H. #2 COLD LEG TEMP.	0-600 DEG F.
I. PRESSURIZER PRESSURE	1500-2500 PSIA.
J. STM. GEN. PRESS. E-50 A	0-1000 PSIA.
K. STM. GEN. LEVEL E-50 A	0-100%
L. WIDE RANGE LOG (#3) (NI)	1.0E-8% TO 125% FULL POWER
M. STEAM FLOW E-50 A	0 TO 5.76E+6 LB PER HOUR
N. FEED FLOW E-50 A	0 TO 5.76E+6 LB PER HOUR
O. STM. GEN. PRESS. E-50 B	0-1000 PSIA.
P. STM. GEN. LEVEL E-50 B	0-100%
Q. STEAM FLOW E-50 B	0 TO 5.76E+6 LB PER HOUR
R. FEED FLOW E-50 B	0 TO 5.76E+6 LB PER HOUR
S. T-AVERAGE	0-625 DEG F.
T. PRESSURIZER WATER TEMP.	0-1000 DEG F.

In addition to the parameters listed above, the following items were also tested to verify simulator stability and accuracy.

A. MSIV POSITION INDICATION
B. STEAM GENERATOR PRESSURE AND LEVEL

C. PCS TEMPERATURE
D. PRESSURIZER LEVEL
E. REACTOR TRIP ALARM
F. CONTROL ROD POSITION
G. REACTOR POWER AND START-UP RATE INDICATION
H. RPS CLUTCH POWER SUPPLY INDICATION
I. FEEDPUMP HIGH PRESSURE AND LOW PRESSURE TRIP AND THROTTLE VALVE POSITION
J. FEEDPUMP SPEED INDICATION
K. TURBINE STOP AND CONTROL VALVE POSITION INDICATION
L. GENERATOR BREAKER INDICATION
M. STATION POWER/START-UP POWER BREAKER INDICATION
N. DIESEL GENERATOR STATUS LIGHTS AND FREQUENCY INDICATION
O. PRESSURIZER HEATER INDICATION
P. SUBCOOLED MARGIN MONITOR INDICATION
Q. AUX FEEDWATER PUMP STATUS, PRESSURE AND FLOW INDICATION

5. INITIAL CONDITIONS

Initial condition was IC10, plant at full power condition.

6. FINAL CONDITIONS/DURATION OF TEST

Final condition was plant at hot shutdown.

This test required approximately 3/4 hour to complete.

7. BASELINE DATA

The baseline data is from actual Plant Trip Report dated May 19, 1986; and subject matter experts.

8. DEFICIENCIES

The following simulator deficiency was noted during performance of this test:

A. DIESEL GENERATOR STATUS LIGHTS SDR-89-007

This simulator deficiency report (SDR) has been corrected.

9. EXCEPTIONS TO ANSI/ANS-3.5-1985

No exceptions taken.

T004

SIMULTANEOUS TRIP OF ALL REACTOR COOLANT PUMPS

ANS-3.5-1985
RELATIONSHIP

B2.2 (4)

SIMULATOR TEST T004 ABSTRACT

1. NAME AND DESCRIPTION OF TEST

T004 is a simulator performance test that involves a primary coolant pumps trip transient; a full power reactor trip initiated by a low flow condition resulting from the simultaneous trip of all four primary coolant pumps. This evolution was accomplished following applicable Palisades' standard operating procedures (SOP) and emergency operating procedures (EOP). The normal plant equipment was simulated to be in service and/or operable per SOP's.

2. ANSI/ANS-3.5-1985 RELATIONSHIP

Appendix B, B2.2(4)

3. TEST DATES

T004 was conducted in March, 1989.

4. TESTED PARAMETERS

The parameters and their ranges monitored by strip chart, with a resolution of 0.5 seconds, are as follows:

Parameter	Instrumentation Ranges
A. PRESSURIZER LEVEL	0-100%
B. #1 HOT LEG TEMP.	0-615 DEG F.
C. #1 COLD LEG TEMP.	0-600 DEG F.
D. PCS FLOW	0-100%
E. CONTAINMENT PRESSURE	0-100 PSIA.
F. CONTAINMENT TEMP.	0-400 DEG F.
G. #2 HOT LEG TEMP.	0-615 DEG F.
H. #2 COLD LEG TEMP.	0-600 DEG F.
I. PRESSURIZER PRESSURE	1500-2500 PSIA.
J. STM. GEN. PRESS. E-50 A	0-1000 PSIA.
K. STM. GEN. LEVEL E-50 A	0-100%
L. WIDE RANGE LOG (#3) (NI)	1.0E-8% TO 125% FULL POWER
M. STEAM FLOW E-50 A	0 TO 5.76E+6 LB PER HOUR
N. FEED FLOW E-50 A	0 TO 5.76E+6 LB PER HOUR
O. STM. GEN. PRESS. E-50 B	0-1000 PSIA.
P. STM. GEN. LEVEL E-50 B	0-100%
Q. STEAM FLOW E-50 B	0 TO 5.76E+6 LB PER HOUR
R. FEED FLOW E-50 B	0 TO 5.76E+6 LB PER HOUR
S. T-AVERAGE	0-625 DEG F.
T. PRESSURIZER WATER TEMP.	0-1000 DEG F.

In addition to the parameters listed above, the following items were also tested to verify simulator stability and accuracy.

A. R BUS STATUS INDICATION AND SWITCHYARD ALARMS
B. COOLING TOWER AND CONDENSER STATUS AND ALARMS

C. REACTOR TRIP ALARM
D. CONTROL ROD STATUS (POSITION INDICATION)
E. RPS STATUS (POWER SUPPLY INDICATION)
F. REACTOR POWER LEVEL
G. PRIMARY COOLANT PUMP STATUS, ON/OFF INDICATION AND AMPS
H. GENERATOR FIELD BREAKER STATUS
I. DIESEL GENERATOR STATUS
J. CONTROL ROOM LIGHTING
K. BUS 1A AND 1B STATUS, BREAKER INDICATION AND VOLTAGE
L. NATURAL CIRCULATION VERIFICATION: CORE EXIT THERMOCOUPLES, PCS T/COLD AND SUBCOOLING INDICATION

5. INITIAL CONDITIONS

Initial condition was IC10, plant at full power condition.

6. FINAL CONDITIONS/DURATION OF TEST

Final condition was plant at hot shutdown.

This test required approximately 3/4 hour to complete.

7. BASELINE DATA

The baseline data is from Emergency Operating Procedures (EOP) 1 and 8, Alarm Response Procedures (ARP) 4 and 5, and subject matter experts.

8. DEFICIENCIES

The following simulator deficiency was noted during performance of this test.

A. DIESEL GENERATOR STATUS LIGHTS SDR-89-007

This simulator deficiency report (SDR) has been corrected.

9. EXCEPTIONS TO ANSI/ANS-3.5-1985

No exceptions taken.

T005

TRIP OF ANY SINGLE REACTOR COOLANT PUMP

ANS-3.5-1985
RELATIONSHIP

B2.2 (5)

SIMULATOR TEST T005 ABSTRACT

1. NAME AND DESCRIPTION OF TEST

T005 is a simulator performance test that involves a primary coolant pump transient; a full power reactor trip initiated by a low flow condition resulting from the trip of a single primary coolant pump. This evolution was accomplished following applicable Palisades' standard operating procedures (SOP) and emergency operating procedures (EOP). The normal plant equipment was simulated to be in service and/or operable per SOP's.

2. ANSI/ANS-3.5-1985 RELATIONSHIP

Appendix B, B2.2(5)

3. TEST DATES

T005 was conducted in March, 1989.

4. TESTED PARAMETERS

The parameters and their ranges monitored by strip chart, with a resolution of 0.5 seconds, are as follows:

Parameter	Instrumentation Ranges
A. PRESSURIZER LEVEL	0-100%
B. #1 HOT LEG TEMP.	0-615 DEG F.
C. #1 COLD LEG TEMP.	0-600 DEG F.
D. PCS FLOW	0-100%
E. CONTAINMENT PRESSURE	0-100 PSIA.
F. CONTAINMENT TEMP.	0-400 DEG F.
G. #2 HOT LEG TEMP.	0-615 DEG F.
H. #2 COLD LEG TEMP.	0-600 DEG F.
I. PRESSURIZER PRESSURE	1500-2500 PSIA.
J. STM. GEN. PRESS. E-50 A	0-1000 PSIA.
K. STM. GEN. LEVEL E-50 A	0-100%
L. WIDE RANGE LOG (#3) (NI)	1.0E-8% TO 125% FULL POWER
M. STEAM FLOW E-50 A	0 TO 5.76E+6 LB PER HOUR
N. FEED FLOW E-50 A	0 TO 5.76E+6 LB PER HOUR
O. STM. GEN. PRESS. E-50 B	0-1000 PSIA.
P. STM. GEN. LEVEL E-50 B	0-100%
Q. STEAM FLOW E-50 B	0 TO 5.76E+6 LB PER HOUR
R. FEED FLOW E-50 B	0 TO 5.76E+6 LB PER HOUR
S. T-AVERAGE	0-625 DEG F.
T. PRESSURIZER WATER TEMP.	0-1000 DEG F.

In addition to the parameters listed above, the following items were also tested to verify simulator stability and accuracy.

A. PCP STATUS INDICATION: LIGHTS AND AMPERES
B. RPS TRIP INDICATION

C. REACTOR TRIP ALARM
D. AUX FEEDWATER FLOW
E. STEAM GENERATOR LEVEL
F. PCS/PRESSURIZER LEVEL AND PRESSURE
G. SAFETY INJECTION SYSTEM/PUMPS, VALVES AND ALARMS
H. SERVICE WATER PUMPS STATUS
I. COMPONENT COOLING WATER PUMPS STATUS

5. INITIAL CONDITIONS

Initial condition was IC10, plant at full power condition.

6. FINAL CONDITIONS/DURATION OF TEST

Final condition was plant at hot shutdown.

This test required approximately 1/2 hour to complete.

7. BASELINE DATA

The baseline data is from actual Plant Trip Report dated February 1, 1979 and Zero Power Test Report - 7; and subject matter experts.

8. DEFICIENCIES

The following simulator deficiencies were noted during performance of this test.

A. RPS TRIP LIGHTS	SDR-89-049
B. STEAM GENERATOR LEVEL INDICATION	SDR-89-050

These simulator deficiency reports (SDR) are scheduled to be corrected as indicated in the "Paltrack" report listing.

9. EXCEPTIONS TO ANSI/ANS-3.5-1985

No exceptions taken.

T006

MAIN TURBINE TRIP
(MAXIMUM POWER LEVEL WHICH DOES NOT RESULT IN IMMEDIATE REACTOR TRIP)

ANS-3.5-1985
RELATIONSHIP

B2.2 (6)

SIMULATOR TEST T006 ABSTRACT

1. NAME AND DESCRIPTION OF TEST

T006 is a simulator performance test that involves a turbine trip without a direct reactor trip transient; a full power trip of the main turbine generator without a direct trip of the reactor. This evolution was accomplished following applicable Palisades' standard operating procedures (SOP) and emergency operating procedures (EOP). The normal plant equipment was simulated to be in service and/or operable per SOP's.

2. ANSI/ANS-3.5-1985 RELATIONSHIP

Appendix B, B2.2(6)

3. TEST DATES

T006 was conducted in March, 1989.

4. TESTED PARAMETERS

The parameters and their ranges monitored by strip chart, with a resolution of 0.5 seconds, are as follows:

Parameter	Instrumentation Ranges
A. PRESSURIZER LEVEL	0-100%
B. #1 HOT LEG TEMP.	0-615 DEG F.
C. #1 COLD LEG TEMP.	0-600 DEG F.
D. PCS FLOW	0-100%
E. CONTAINMENT PRESSURE	0-100 PSIA.
F. CONTAINMENT TEMP.	0-400 DEG F.
G. #2 HOT LEG TEMP.	0-615 DEG F.
H. #2 COLD LEG TEMP.	0-600 DEG F.
I. PRESSURIZER PRESSURE	1500-2500 PSIA.
J. STM. GEN. PRESS. E-50 A	0-1000 PSIA.
K. STM. GEN. LEVEL E-50 A	0-100%
L. WIDE RANGE LOG (#3) (NI)	1.0E-8% TO 125% FULL POWER
M. STEAM FLOW E-50 A	0 TO 5.76E+6 LB PER HOUR
N. FEED FLOW E-50 A	0 TO 5.76E+6 LB PER HOUR
O. STM. GEN. PRESS. E-50 B	0-1000 PSIA.
P. STM. GEN. LEVEL E-50 B	0-100%
Q. STEAM FLOW E-50 B	0 TO 5.76E+6 LB PER HOUR
R. FEED FLOW E-50 B	0 TO 5.76E+6 LB PER HOUR
S. T-AVERAGE	0-625 DEG F.
T. PRESSURIZER WATER TEMP.	0-1000 DEG F.

In addition to the parameters listed above, the following items were also tested to verify simulator stability and accuracy.

A. STEAM GENERATOR LEVEL
B. PCS TEMPERATURE
C. PRESSURIZER LEVEL AND PRESSURE

D. RPS STATUS
E. CONTROL ROD POSITION
F. AUX FEEDWATER FLOW

5. INITIAL CONDITIONS

Initial condition was IC10, plant at full power condition.

6. FINAL CONDITIONS/DURATION OF TEST

Final condition was plant at hot shutdown.

This test required approximately 1 hour to complete.

7. BASELINE DATA

The baseline data is from actual Plant Trip Report dated January 26, 1983 and a Transient Analysis of full load rejection without a direct reactor trip (ref. A-NT-88-02).

8. DEFICIENCIES

The following simulator deficiency was noted during performance of this test.

A. PRESSURIZER PRESSURE SDR-89-047

This simulator deficiency report (SDR) is scheduled to be corrected as indicated in the "Paltrack" report listing.

9. EXCEPTIONS TO ANSI/ANS-3.5-1985

No exceptions taken.

T007

MAXIMUM RATE POWER RAMP

(100% DOWN TO APPROXIMATELY 75% AND BACK UP TO 100%)

ANS-3.5-1985
RELATIONSHIP

B2.2 (7)

SIMULATOR TEST T007 ABSTRACT

1. NAME AND DESCRIPTION OF TEST

T007 is a simulator performance test that involves a maximum rate load change transient; beginning at full power, ramping down to 75% full power at a rate of 200% per minute, then ramping up to full power. This evolution was accomplished following applicable Palisades' standard operating procedures (SOP) and emergency operating procedures (EOP). The normal plant equipment was simulated to be in service and/or operable per SOP's.

2. ANSI/ANS-3.5-1985 RELATIONSHIP

Appendix B, B2.2(7)

3. TEST DATES

T007 was conducted in March, 1989.

4. TESTED PARAMETERS

The parameters and their ranges monitored by strip chart, with a resolution of 0.5 seconds, are as follows:

Parameter	Instrumentation Ranges
A. PRESSURIZER LEVEL	0-100%
B. #1 HOT LEG TEMP.	0-615 DEG F.
C. #1 COLD LEG TEMP.	0-600 DEG F.
D. PCS FLOW	0-100%
E. CONTAINMENT PRESSURE	0-100 PSIA.
F. CONTAINMENT TEMP.	0-400 DEG F.
G. #2 HOT LEG TEMP.	0-615 DEG F.
H. #2 COLD LEG TEMP.	0-600 DEG F.
I. PRESSURIZER PRESSURE	1500-2500 PSIA.
J. STM. GEN. PRESS. E-50 A	0-1000 PSIA.
K. STM. GEN. LEVEL E-50 A	0-100%
L. WIDE RANGE LOG (#3) (NI)	1.0E-8% TO 125% FULL POWER
M. STEAM FLOW E-50 A	0 TO 5.76E+6 LB PER HOUR
N. FEED FLOW E-50 A	0 TO 5.76E+6 LB PER HOUR
O. STM. GEN. PRESS. E-50 B	0-1000 PSIA.
P. STM. GEN. LEVEL E-50 B	0-100%
Q. STEAM FLOW E-50 B	0 TO 5.76E+6 LB PER HOUR
R. FEED FLOW E-50 B	0 TO 5.76E+6 LB PER HOUR
S. T-AVERAGE	0-625 DEG F.
T. PRESSURIZER WATER TEMP.	0-1000 DEG F.

In addition to the parameters listed above, the following items were also tested to verify simulator stability and accuracy.

A. PCS TEMPERATURE
B. PRESSURIZER PRESSURE AND LEVEL

C. STEAM GENERATOR LEVEL AND PRESSURE
D. REACTOR POWER

5. INITIAL CONDITIONS

Initial condition was IC10, plant at full power condition.

6. FINAL CONDITIONS/DURATION OF TEST

The final conditions for this test was the plant at full power with normal plant equipment in service and/or operable.

This test required approximately 1/2 hour to complete.

7. BASELINE DATA

The baseline data is actual plant 60% Power Test Report - 9.

8. DEFICIENCIES

None.

9. EXCEPTIONS TO ANSI/ANS-3.5-1985

No exceptions taken.

T008

MAXIMUM SIZE UNISOLABLE MAIN STEAM LINE RUPTURE

ANS-3.5-1985
RELATIONSHIP

B2.2 (9)

SIMULATOR TEST T008 ABSTRACT

1. NAME AND DESCRIPTION OF TEST

T008 is a simulator performance test that involves a main steam line break transient; beginning at full power and invoking an unisolable main steam line break. This evolution was accomplished following applicable Palisades' standard operating procedures (SOP) and emergency operating procedures (EOP). The normal plant equipment was simulated to be in service and/or operable per SOP's.

2. ANSI/ANS-3.5-1985 RELATIONSHIP

3.1.2 (15), (16), (19) and (20)
Appendix B, B2.2(9)

3. TEST DATES

T008 was conducted in March, 1989.

4. TESTED PARAMETERS

The parameters and their ranges monitored by strip chart, with a resolution of 0.5 seconds, are as follows:

Parameter	Instrumentation Ranges
A. PRESSURIZER LEVEL	0-100%
B. #1 HOT LEG TEMP.	0-615 DEG F.
C. #1 COLD LEG TEMP.	0-600 DEG F.
D. CONTAINMENT SUMP LEVEL	0-66 INCHES
E. CONTAINMENT PRESSURE	0-100 PSIA.
F. CONTAINMENT TEMP.	0-400 DEG F.
G. #2 HOT LEG TEMP.	0-615 DEG F.
H. #2 COLD LEG TEMP.	0-600 DEG F.
I. PRESSURIZER PRESSURE	1500-2500 PSIA.
J. STM. GEN. PRESS. E-50 A	0-1000 PSIA.
K. STM. GEN. LEVEL E-50 A	0-100%
L. WIDE RANGE LOG (#3) (NI)	1.0E-8% TO 125% FULL POWER
M. STM. GEN. "A" STEAM FLOW	0 TO 5.76E+6 LB PER HOUR
N. CONTAINMENT WATER LEVEL	0-90 INCHES ABOVE 590' 4.25"
O. STM. GEN. PRESS. E-50 B	0-1000 PSIA.
P. STM. GEN. LEVEL E-50 B	0-100%
Q. STM. GEN. "B" STEAM FLOW	0 TO 5.76E+6 LB PER HOUR
R. SI REFUELING WATER TANK LEVEL	0-100%
S. PRESSURIZER PRESSURE	0-2500 PSIA
T. REACTIVITY	RHO < 0.5 TO RHO > 0.5

In addition to the parameters listed above, the following items were also tested to verify simulator stability and accuracy.

A. REACTOR POWER LEVEL
B. AVERAGE TEMPERATURE/REFERENCE TEMPERATURE
C. STEAM GENERATOR PRESSURE AND LEVEL

D. PRESSURIZER PRESSURE AND LEVEL
E. MAIN FEEDWATER SYSTEM STATUS
F. TURBINE CONTROLS
G. DIESEL GENERATOR CONTROLS AND STATUS
H. CVCS CONTROLS AND STATUS
I. SUBCOOLED MARGIN MONITOR

5. INITIAL CONDITIONS

Initial condition was IC20, plant at full power condition.

6. FINAL CONDITIONS/DURATION OF TEST

Final condition was plant at hot shutdown.

This test required approximately 1 hour to complete.

7. BASELINE DATA

The baseline data is from General Operating Procedures (GOP) 5 and 6, Standard Operating Procedure (SOP) 8, Alarm Response Procedures (ARP) 1 and 2, Off Normal Procedure (ONP) 9, and subject matter experts.

8. DEFICIENCIES

None.

9. EXCEPTIONS TO ANSI/ANS-3.5-1985

No exceptions taken.

T009

MAXIMUM SIZE REACTOR COOLANT SYSTEM RUPTURE COMBINED WITH LOSS OF ALL OFFSITE POWER

ANS-3.5-1985
RELATIONSHIP

B2.2 (8)

SIMULATOR TEST T009 ABSTRACT

1. NAME AND DESCRIPTION OF TEST

T009 is a simulator performance test that involves a large break loss of coolant accident without standby power transient. This evolution was accomplished following applicable Palisades' standard operating procedures (SOP) and emergency operating procedures (EOP). The normal plant equipment was simulated to be in service and/or operable per SOP's.

2. ANSI/ANS-3.5-1985 RELATIONSHIP

3.1.2 (1b), (1c), (3), (15), (16) and (19)
Appendix B, B2.2(8)

3. TEST DATES

T009 was conducted in March, 1989.

4. TESTED PARAMETERS

The parameters and their ranges monitored by strip chart, with a resolution of 0.5 seconds, are as follows:

Parameter	Instrumentation Ranges
A. PRESSURIZER LEVEL	0-100%
B. #1 HOT LEG TEMP.	0-615 DEG F.
C. #1 COLD LEG TEMP.	0-600 DEG F.
D. CONTAINMENT SUMP LEVEL	0-66 INCHES
E. CONTAINMENT PRESSURE	0-100 PSIA.
F. CONTAINMENT TEMP.	0-400 DEG F.
G. #2 HOT LEG TEMP.	0-615 DEG F.
H. #2 COLD LEG TEMP.	0-600 DEG F.
I. PRESSURIZER PRESSURE	1500-2500 PSIA.
J. STM. GEN. PRESS. E-50 A	0-1000 PSIA.
K. STM. GEN. LEVEL E-50 A	0-100%
L. WIDE RANGE LOG (#3) (NI)	1.0E-8% TO 125% FULL POWER
M. PCS ENTHALPY	0-1000 BTU PER POUND
N. CONTAINMENT WATER LEVEL 4.25"	0-90 INCHES ABOVE 590'
O. PRESSURIZER LIQUID TEMPERATURE	0-1000 DEG F.
P. PCS INLET FLOW	0-100%
Q. REACTOR WATER LEVEL	0-50 FEET
R. SI REFUELING WATER TANK LEVEL	0-100%
S. SUBCOOLED MARGING MONITOR	0-500 DEG F.
T. RAD MONITOR (RIA 1805)	1-10.0E+7 MR/HOUR

In addition to the parameters listed above, the following items were also tested to verify simulator stability and accuracy.

A. SAFETY INJECTION SYSTEM TANK LEVELS, VALVE POSITION AND PUMP STATUS

B. DIESEL GENERATOR STATUS: INDICATING LIGHTS, FREQUENCY AND VOLTAGE
C. SWITCHYARD STATUS
D. 1C AND 1D BUS VOLTAGE
E. CVCS STATUS AND CHARGING PUMP INDICATION
F. BORIC ACID PUMP STATUS
G. SERVICE WATER PUMP STATUS
H. COMPONENT COOLING WATER PUMP STATUS
I. CONTAINMENT AIR COOLER STATUS
J. CONTAINMENT SPRAY PUMP STATUS
K. CONTAINMENT ISOLATION STATUS

5. INITIAL CONDITIONS

Initial condition was IC10, plant at full power condition.

6. FINAL CONDITIONS/DURATION OF TEST

Final condition was plant at hot shutdown.

This test required approximately 1 hour to complete.

7. BASELINE DATA

The baseline data is from Palisades plant operating procedure EOP4; plant electrical drawing E209; and subject matter experts.

8. DEFICIENCIES

The following simulator deficiency was noted during performance of this test.

A. DIESEL GENERATOR STATUS LIGHTS SDR-89-007

This simulator deficiency report (SDR) has been corrected.

9. EXCEPTIONS TO ANSI/ANS-3.5-1985

No exceptions taken.

T010

SLOW PRIMARY SYSTEM DEPRESSURIZATION TO SATURATED CONDITION USING PRESSURIZER RELIEF OR SAFETY VALVE STUCK OPEN
and
LOSS OF ALL FEEDWATER (NORMAL AND EMERGENCY)

ANS-3.5-1985
RELATIONSHIP

B2.2 (10)
and
3.1.2 (10)

SIMULATOR TEST T010 ABSTRACT

1. NAME AND DESCRIPTION OF TEST

T010 is a simulator performance test that involves a failed open pressurizer relief valve transient; a slow depressurization to saturation conditions, with no initial input from the high pressure safety injection pumps. This evolution was accomplished following applicable Palisades' standard operating procedures (SOP) and emergency operating procedures (EOP). The normal plant equipment was simulated to be in service and/or operable per SOP's.

2. ANSI/ANS-3.5-1985 RELATIONSHIP

3.1.2 (10)
Appendix B, B2.2(10)

3. TEST DATES

T010 was conducted in March, 1989.

4. TESTED PARAMETERS

The parameters and their ranges monitored by strip chart, with a resolution of 0.5 seconds, are as follows:

Parameter	Instrumentation Ranges
A. PRESSURIZER LEVEL	0-100%
B. #1 HOT LEG TEMP.	0-615 DEG F.
C. #1 COLD LEG TEMP.	0-600 DEG F.
D. CONTAINMENT SUMP LEVEL	0-66 INCHES
E. CONTAINMENT PRESSURE	0-100 PSIA.
F. CONTAINMENT TEMP.	0-400 DEG F.
G. #2 HOT LEG TEMP.	0-615 DEG F.
H. #2 COLD LEG TEMP.	0-600 DEG F.
I. PRESSURIZER PRESSURE	1500-2500 PSIA.
J. STM. GEN. "A" PRESSURE	0-1000 PSIA.
K. STM. GEN. "A" LEVEL	0-100%
L. REACTIVITY	RHO = -0.5 TO RHO = +0.5
M. PCS VOIDS	0-1
N. STM. GEN. "B" LEVEL	0-100%
O. PRESSURIZER LIQUID TEMPERATURE	0-1000 DEG F.
P. PCS INLET FLOW	0-100%
Q. REACTOR WATER LEVEL	0-50 FEET
R. AUDIBLE COUNTRATE INPUT	0-5000 CPS
S. SUBCOOLED MARGIN MONITOR	0-500 DEG F.
T. PRESSURIZER MOV FLOW (1042/3)	0-180,000 LB/HOUR

In addition to the parameters listed above, the following items were also tested to verify simulator stability and accuracy.

A. HPSI PUMP STATUS
B. PRESSURIZER POWER OPERATED RELIEF VALVES STATUS

C. ELECTRO HYDRAULIC PUMP STATUS
D. RPS REACTOR TRIP STATUS AND ALARM
E. RPS PRESSURIZER HIGH PRESSURE PRE-TRIP AND TRIP ALARMS
F. SAFETY VALVE AND/OR PRESSURE OPERATED RELIEF VALVE (PORV) OPEN ALARM

5. INITIAL CONDITIONS

Initial condition was IC10, plant at full power condition.

6. FINAL CONDITIONS/DURATION OF TEST

Final condition was plant at hot shutdown.

This test required approximately 1 hour to complete.

7. BASELINE DATA

The baseline data is from the FSAR Section 14.17, Emergency Operating Procedures (EOP) 1 and 4, Alarm Response Procedures (EOP) 4 and 5, and subject matter experts.

8. DEFICIENCIES

None.

9. EXCEPTIONS TO ANSI/ANS-3.5-1985

No exceptions taken.

MALFUNCTION

TESTS

ANS-3.5-1985 RELATIONSHIP	CPCO TEST	PAGE NUMBER
3.1.2 (1) (a)	M185	E.62
3.1.2 (1) (b)	M024*	E.49
3.1.2 (1) (c)	M027*	E.50
3.1.2 (1) (d)	M117*	E.57
3.1.2 (2)	M001*	E.47
3.1.2 (3)	M002*	E.47
3.1.2 (4)	M006*	E.48
3.1.2 (5)	M043*	E.51
3.1.2 (6)	M197*	E.62
3.1.2 (7)	M196	E.62
3.1.2 (8)	M017*	E.49
3.1.2 (9)	M063*	E.53
3.1.2 (10)	T010	E.44 - E.45
3.1.2 (11)	M057	E.52
3.1.2 (12)	M124*	E.58
3.1.2 (13)	M128*	E.58
3.1.2 (14)	M120	E.58
3.1.2 (15)	M045*	E.51
3.1.2 (16)	M058*	E.53
3.1.2 (17)	M071*	E.54
3.1.2 (18)	M181*	E.61
3.1.2 (19)	M066*	E.53
3.1.2 (20)	M088*	E.55
3.1.2 (21)	M140*	E.59
3.1.2 (22)	M205*	E.63
3.1.2 (23)	M110*	E.57
3.1.2 (24)	M158	E.60
3.1.2 (25)	N/A BWR	

* Indicates there is more than one CPCO Malfunction Test that addresses the ANS-3.5-1985 requirement. For a complete listing, refer to reverse side.

ANS-3.5-1985 RELATIONSHIP	CPCO TEST
3.1.2 (1) (a)	M185
3.1.2 (1) (b)	M024, M026, M027, M028, M032, M033, M052, M100, M120, T009
3.1.2 (1) (c)	M024, M027, M052, M101, M102, M134, T009
3.1.2 (1) (d)	M117, M118
3.1.2 (2)	M001, M082, M201
3.1.2 (3)	M002, M008, M009, M014, M045-M056, M057.5, T009
3.1.2 (4)	M006, M047, M104-M107, M109, M114
3.1.2 (5)	M043, M063
3.1.2 (6)	M001, M057, M082, M197, M198, M200, M201-M203
3.1.2 (7)	M196
3.1.2 (8)	M001, M017, M019, M057, M109, M201
3.1.2 (9)	M063, M066, M068, M071, M072, M073, M075
3.1.2 (10)	T010
3.1.2 (11)	M057
3.1.2 (12)	M124-M134
3.1.2 (13)	M128, M130, M131
3.1.2 (14)	M120
3.1.2 (15)	M007, M043, M045, M046, M058, M059, M062, M063, M066, M071, M072, M073, M092, M204, M205, M219, T008, T009
3.1.2 (16)	M008, M043, M045, M046, M058, M059, M062, M063, M066, M071-M073, M204, T008, T009
3.1.2 (17)	M010, M011, M036, M037, M057, M062, M071, M072, M073, M085, M122-M126, M191-M193
3.1.2 (18)	M174-M178, M181, M182
3.1.2 (19)	M006, M042, M045, M046, M052, M058, M059, M062, M066, M068, M071-M073, M075, M082, M086, M088, M094, M102, M104, M106, M126, M160, M185, M204, M207, M215, T008, T009
3.1.2 (20)	M071, M072, M073, M085, M088-M090, T008
3.1.2 (21)	M140-M158
3.1.2 (22)	M002, M005-M007, M010-M019, M022, M031, M032, M034, M035, M038, M039, M041-M044, M051-M053, M060-M062, M068-M070, M086, M091-M098, M108, M115, M116, M136-M139, M159-M184, M191-M193, M205-M208, M211-M213, M216
3.1.2 (23)	M002-M004, M014, M020, M021, M025, M029, M030, M036, M037, M051-M053, M057, M076-M084, M103, M110-M114, M135, M186-M190, M194-M196, M208, M215, M217-M221
3.1.2 (24)	M158
3.1.2 (25)	N/A BWR

MALFUNCTION TESTS

ACCEPTANCE CRITERIA

A. If applicable, parameters must meet acceptance criteria of plant Startup Tests.

B. Parameter values must change in same direction as expected for same transient on the plant, and not violate physical laws .

C. Alarms and Auto Actions must occur only as expected for the same transient on the plant .

SIMULATOR TESTS M001 - M221 ABSTRACT

1. NAME AND DESCRIPTION OF TEST

M001 through M221 are malfunction tests that test various aspects of all the malfunctions that were available on the Palisades simulator as of June, 1988. Malfunctions added after this date were tested and accepted in accordance with approved simulator modification procedures.

2. ANSI/ANS-3.5-1985 RELATIONSHIP

3.1.2 (1)-(9) and (11)-(25). See Transient Test T010 for (10).

3. TEST DATES

M001 - M221 were conducted between November 1988 and March 1989.

4. AVAILABLE OPTIONS

A listing of the malfunctions available on the Palisades simulator and the options available for each malfunction are identified in the "PALISADES SIMULATOR INDEX OF MALFUNCTIONS", included with this submittal on pages D.4 - D.11.

5. TESTED OPTIONS

Following is a list of the Malfunction tests and the options that were tested. The "OPTIONS TESTED" relate to the available options as listed in the "INDEX OF MALFUNCTIONS" on pages D.4 - D.11.

TEST	ANSI-3.5 3.1.2	IC	MALF	OPTIONS TESTED	PARAMETERS/SYSTEMS MONITORED
M001	(2)	10	AN01	1	"CONT INSTRUMENT AIR PRESS"
	(6)			37	"SERVICE WATER PUMP TRIP"
	(8)			72	"CCW SURGE TANK HI/LO LEVEL"
M002	(23)	10	AN02	1	"SHIELD COOLING PUMPS TRIP"
	(3)			11 & 32	"SAFETY INJECTION BLOCK RELAY"
	(22)			78	"CONT ISOL & SI RIGHT SIDE CONTROL CIRCUIT UNDERVOLTAGE"
M003	(23)	10	AN03	2	"CONT COOLER RECIRC FAN V-4A"
				12	"BORIC ACID GRAVITY FEED MO-2170"
M004	(23)	10	AN04	3	"CHARGING PUMP P55-A"
				13	"HP SI PUMP P66-A"
M005	(22)	10	AN05	1	"REGEN HX TUBE OUTLET HI TEMP"
				36	"BORIC ACID CRITICAL HEAT TRACE SYSTEM TROUBLE"
				72	"LOOP #2 HOT LEG HI TEMPERATURE"

SIMULATOR TESTS M001 - M221 ABSTRACT

TEST	ANSI-3.5 3.1.2	IC	MALF	OPTIONS TESTED	PARAMETERS/SYSTEMS MONITORED
M006	(4)	10	AN06	1	"PCP P-50A TRIP"
	(22)			36	"GROUP #3 POWER DEPENDENT INSERTION LIMIT"
	(19)			72	"REACTOR TRIP"
M007	(15)	10	AN07	1	"TURBINE TRIP"
	(22)			36	"DIRTY AND/OR CLEAN OIL STORAGE TANK HIGH LEVEL"
				72	"MOISTURE SEPARATOR DRAIN TANK T5 HIGH HP-LOW LEVEL"
M008	(16)	10	AN08	1	"GENERATOR TRIP"
	(3)			15	"GENERATOR FIELD GROUND"
				36	"SWITCHYARD ACB TRIP"
M009	(3)	10	AN09	1	"4160V BUS 1A BKR 252-101 TRIP"
				30	"START-UP TRANSFORMERS TROUBLE"
				60	"D/G DAY TANK T-25 HIGH/LOW LEVEL"
M010	(22)	10	AN10	1	"VARIABLE HIGH POWER LEVEL CHANNEL TRIP"
	(17)			8	"LOW LEVEL S/G 1 CHANNEL PRE-TRIP"
M011	(17)	10	AN11	1	"LOW LEVEL S/G 2 CHANNEL PRE-TRIP"
	(22)			8	"HIGH-PRESSURE PRESSURIZER CHANNEL PRE-TRIP"
M012	(22)	10	AN12	3	"LOSS OF LOAD CHANNEL TRIP"
				8	"LOW NEUTRON DETECTOR VOLTAGE (CHANNEL 3-8)
M013	(22)	10	AN13	1	"ZERO POWER MODE BYPASS"
				8	"NUCLEAR DELTA T POWER DEVIATION/ T-INLET OFF NORMAL/CALCULATOR TROUBLE CHANNEL D"
M014	(3)	10	AN14	1	"START-UP TRANSFORMER 1-3 PROTECTION CIRCUIT UNDERVOLTAGE"
	(22)			30	"COOLING TOWER E-30 B FIRE"
	(23)			40	"CONTROLS/INDICATION TRANSFERRED TO C-150/C-150A"
M015	(22)	10	AN15	1	"COOLING TOWER PUMP P39A HI TEMP OR OVERLOAD"
				18	"DILUTION WATER PUMP P-40A TRIP"
M016	(22)	10	AN16	1	"RADWASTE AREA LOW TEMP V-67"
				9	"MAIN STEAM PENETRATION ROOM HIGH TEMPERATURE"

SIMULATOR TESTS M001 - M221 ABSTRACT

TEST	ANSI-3.5 3.1.2	IC	MALF	OPTIONS TESTED	PARAMETERS/SYSTEMS MONITORED
M017	(8) (22)	10	CC01	---	"CV-0911 CCW CONTAINMENT ISOLATION VALVE POSITION; PCP COOLING WATER LOW FLOW ALARM STATUS FOR EACH PUMP; PCP TEMPERATURE INDICATION FOR EACH PUMP; PCP HIGH TEMPERATURE ALARM STATUS FOR EACH PUMP; PURIFICATION DEMINERALIZER ISOLATION VALVE CV-2023 POSITION INDICATION; BORONOMETER AND PROCESS RADIATION MONITOR VALVE CV-2014 POSITION INDICATION"
M018	(22)	10	CC02	A	"CCW SURGE TANK LEVEL INDICATION"
M019	(8) (22)	10	CC03	10%, 50% & 100%	"CCW SURGE TANK LEVEL INDICATION; CCW PUMP INDICATION; CCW SYSTEM ALARMS; PCPs COOLING WATER FLOW ALARMS"
M020	(23)	5	CH01	A	"CONTAINMENT ISOL VALVES STATUS"
M021	(23)	4	CH02	A	"ALARM STATUS ON PANEL K13 - C13; CONTAINMENT SPRAY PUMPS STATUS; LOW PRESSURE SI PUMPS STATUS; HIGH PRESSURE SI PUMPS STATUS; CHARGING PUMPS STATUS; BORIC ACID PUMPS STATUS; SAFETY INJECTION VALVES STATUS; S/G BLOW DOWN VALVES STATUS; CONTAINMENT AIR COOLER FAN STATUS"
M022	(22)	10	CH03	A	"CONTAINMENT AIR COOLER STATUS"
M023			CH04		DELETED (Failure of Containment Purge Valve CV1806 - This 48" valve no longer exists at Palisades)
M024	(1)b (1)c	10	CH05	A	"CHARGING PUMP STATUS; BORIC ACID PUMPS STATUS; HIGH PRESSURE SI PUMPS STATUS; LOW PRESSURE SI PUMPS STATUS; CONTAINMENT SPRAY PUMPS STATUS; SERVICE WATER PUMPS STATUS; CONTAINMENT AIR COOLER FAN STATUS; SI VALVE STATUS; CONTAINMENT SPRAY FLOW INDICATION"
M025	(23)	10	CH06	A	"CONTROL ROOM HVAC INDICATION"
M026	(1)b	10	CH07	25%, 50% & 100%	"CONTAINMENT BUILDING HYDROGEN INSTRUMENTATION"

SIMULATOR TESTS M001 - M221 ABSTRACT

TEST	ANSI-3.5 3.1.2	IC	MALF	OPTIONS TESTED	PARAMETERS/SYSTEMS MONITORED
M027	(1)b (1)c	10	CV01	10%, 50% & 100%	"CVCS INDICATION; CONTAINMENT BLDG HUMIDITY; RADIATION AND SUMP LEVEL"
M028	(1)b	10	CV02	10%, 50% & 100%	"CVCS INDICATION; RADWASTE BLDG VENTILATION INDICATION; RAD MONITOR LEVEL AND FLOW"
M029	(23)	10	CV03	A	"CHARGING PUMPS INDICATION AND ALARMS; CVCS INSTRUMENTATION"
M030	(23)	10	CV04	0% & 100%	"CHARGING PUMPS INDICATION; CVCS INSTRUMENTATION"
M031	(22)	10	CV05	---	"INTERMEDIATE PRESSURE CONTROL VALVE INDICATION (CVCS)"
M032	(1)b (22)	10	CV06	---	"CVCS INSTRUMENTATION; QUENCH TANK LEVEL INDICATION"
M033	(1)b	10	CV07	20% & 100%	"CVCS INDICATION; CCW SURGE TANK INDICATION"
M034	(22)	10	CV08	---	"CVCS INDICATION AND ALARMS"
M035	(22)	10	CV09	---	"CVCS INDICATION; RADWASTE PANEL (C40) ALARMS"
M036	(17) (23)	10	CV10	---	"PRIMARY MAKE-UP SYSTEM TO CVCS INDICATION; NUCLEAR POWER AND PCS TEMPERATURE INDICATION; CONTROL ROD POSITION INDICATION AND CONTROLS"
M037	(17) (23)	20	CV11	---	"CONCENTRATED BORIC SYSTEM TO CVCS INDICATION; CVCS INDICATION"
M038	(22)	10	CV12	---	"CVCS AND BORIC ACID PUMPS INDICATION"
M039	(22)	10	CV13	10%, 80% & 100%	"CVCS INDICATION"
M040			CV14		DELETED (Boronometer failure - The boronometer is not in use at plant)
M041	(22)	10	CV15	5%, 10% & 70%	"VOLUME CONTROL TANK INDICATION; RADWASTE AREA VENTILATION; RADIATION LEVEL AND ALARMS"
M042	(1) (19) (22)	10	CV16	20%, 40% & 100%	"CVCS INDICATION; PRESSURIZER LEVEL INDICATION; CONTAINMENT BLDG INDICATION AND RADIATION LEVELS"

SIMULATOR TESTS M001 - M221 ABSTRACT

TEST	ANSI-3.5 3.1.2	IC	MALF	OPTIONS TESTED	PARAMETERS/SYSTEMS MONITORED
M043	(5) (15) (16) (22)	10	CW01	A	"CIRCULATING WATER SYSTEM INDICATION AND ALARMS; MAIN CONDENSER INDICATION AND ALARMS (VACUUM)"
M044	(22)	10	CW02	AA, BB & BD	"COOLING TOWER FAN INDICATION AND ALARMS"
M045	(3) (15) (16) (19)	10	ED01	---	"SWITCHYARD INDICATION AND ALARMS; MAIN GENERATOR BREAKERS INDICATION AND ALARMS; STATION POWER, START-UP POWER AND D/G INDICATION AND ALARMS; SERVICE WATER, CCW, SAFETY INJECTION SYSTEM, AUXILIARY FEEDWATER SYSTEM, CIRCULATING WATER SYSTEM, CONDENSATE/FEEDWATER, AND VENTILATION SYSTEM INDICATION AND ALARMS"
M046	(3) (15) (16) (19)	10 11	ED02	---	"SWITCHYARD INDICATION AND ALARMS; STATION POWER INDICATIONS; COOLING TOWER PUMPS STATUS; CONDENSER VACUUM INDICATION"
M047	(3) (4)	10	ED03	A	"REACTOR PROTECTION SYSTEM INDICATIONS AND ALARMS; STATION POWER INDICATIONS AND ALARMS; PRIMARY COOLANT PUMPS STATUS; CONDENSATE PUMPS STATUS"
M048	(3)	10	ED04	A	"DIESEL GENERATOR STATUS INCLUDING 2400 VOLT BREAKERS AND ALARMS"
M049	(3)	10	ED05	A	"STATION POWER INDICATIONS AND ALARMS"
M050	(3)	10	ED06	A	"MOTOR CONTROL CENTER INDICATIONS AND ALARMS"
M051	(3) (22) & (23)	10	ED07	---	"CHARGING PUMPS STATUS; CVCS STATUS; MAIN FEED PUMP STATUS; FEEDWATER VALVES STATUS; TURBINE GOVERNOR VALVES STATUS; NUCLEAR INSTRUMENTATION STATUS; CONTROL ROD POSITION INDICATION STATUS; PRESSURIZER PORV AND RELIEF VALVE STATUS AND INSTRUMENTATION; CONTAINMENT BLDG INSTRUMENTATION STATUS; QUENCH TANK INSTRUMENTATION STATUS; CCW SYSTEM INSTRUMENTATION STATUS; MAIN GENERATOR

SIMULATOR TESTS M001 - M221 ABSTRACT

TEST	ANSI-3.5 3.1.2	IC	MALF	OPTIONS TESTED	PARAMETERS/SYSTEMS MONITORED
cont.					INSTRUMENTATION STATUS; PRIMARY COOLANT PUMPS INDICATION; SERVICE WATER SYSTEM STATUS; INSTRUMENT AIR SYSTEM STATUS; SAFETY INJECTION SYSTEM STATUS; CHEMICAL ADDITION EQUIPMENT STATUS; RADIATION MONITORING SYSTEM STATUS; AUX FEED-WATER SYSTEM STATUS"
M052	(3) (19) (22) (23) (1)b (1)c	5 10	ED08 RC01	A, D ---	"PREFERRED AC BUS CONTROLS INDICATION AND ALARMS; CONTROLS, INDICATIONS, STATUS AND ALARMS ASSOCIATED WITH A LOSS OF A PREFERRED AC POWER SUPPLY, WHICH CONSISTS OF ALL THE SAFETY SYSTEMS EQUIPMENT"
M053	(3) (22) (23)	10	ED09	A	"SWITCHYARD CRITICAL ALARM; SWITCHYARD NON-CRITICAL ALARM; SWITCHYARD AUX POWER AND STATION POWER TRANSFORMER 78 (BREAKER STATUS) TRIP ALARM"
M054	(3)	4	ED10 AN14 AN03	A, B 1 2	"VARIOUS ALARMS FOR CONTROL POWER TO PLANT EQUIPMENT; INDICATING LAMPS FOR DC POWERED EQUIPMENT; ANNUNCIATOR POWER SUPPLY; CONTROL POWER TO VARIOUS/NUMEROUS SWITCHES"
M055	(3)	10	ED11 ED01	A ---	"DIESEL GENERATOR ENGINE STATUS LIGHTS; BREAKER STATUS LIGHTS; D/G AUTO START CIRCUIT"
M056	(3)	10	ED12	A	"D/G ENGINE STATUS LIGHTS, METERS AND BREAKER STATUS LIGHTS; SAFETY INJECTION SYSTEM VALVE STATUS LIGHTS; SAFETY INJECTION SYSTEM PUMP STATUS LIGHTS, INCLUDING SERVICE WATER, AUX FEED PUMPS AND COMPONENT COOLING WATER PUMPS"
M057	(1) (6) (8) (11) (17) (23)	10	ED13 ED01	A ---	"FAILURE OF MANUAL SAFETY INJECTION SIGNAL"
M057.5	(3)	10 6	ED02 ED04 ED14	--- A A	"C BUS BREAKER INDICATION; D/G STATUS LIGHTS, SWITCHYARD BREAKERS INDICATIONS"

SIMULATOR TESTS M001 - M221 ABSTRACT

TEST	ANSI-3.5 3.1.2	IC	MALF	OPTIONS TESTED	PARAMETERS/SYSTEMS MONITORED
M058	(15) (16) (19)	10	EG01	---	"GENERATOR ALARMS, BREAKERS, BUS BREAKERS FOR A, B, C, D AND E BUS"
M059	(15) (16) (19)	10	EG03	---	"GENERATOR VOLTAGE REGULATOR, FIELD SWITCH AND ASSOCIATED ALARMS"
M060	(22)	10	EG04	---	"GENERATOR VOLTAGE REGULATOR AND ASSOCIATED ALARMS"
M061	(22)	10	EG05	---	"MAIN GENERATOR GAS SYSTEM, TEMPERATURE, PRESSURE AND ALARMS"
M062	(15) (16) (17) (19) (22)	10	FT01	A	"MAIN FEED PUMP CONTROLS AND ALARMS; STEAM GENERATOR LEVELS"
M063	(5) (9) (15) (16)	10	FW01	50% & 100%	"MAIN CONDENSER AND ALARMS (VACUUM); TURBINE TRIP SETPOINT; TURNING GEAR OPERATION WITH LOSS OF VACUUM; TIME TO GO ON T/G UPON LOSS OF VACUUM COMPARED TO PLANT DATA"
M064			FW02		DELETED (Reference SDR-88-129)
M065			FW03		DELETED (Reference SDR-88-129)
M066	(9) (15) (16) (19)	10	FW04	A	"CONDENSATE PUMP TRIP, FEED PUMP TRIP, AND S/G LEVEL"
M067			FW05		DELETED (Reference SDR-88-129)
M068	(9) (19) (22)	10	FW06	A @ 1% & 100%	"MAIN FEED PUMP SPEED, FLOW, VALVE POSITION AND VARIOUS ALARMS FOR FEEDWATER SYSTEM"
M069	(22)	10	FW07	A	"HEATER DRAIN PUMPS STATUS AND ALARMS"
M070	(22)	7	FW08	A @ 10% & 90%	"MAIN FEEDWATER SYSTEM VALVES, ALARMS AND POSITION INDICATION"

SIMULATOR TESTS M001 - M221 ABSTRACT

TEST	ANSI-3.5 3.1.2	IC	MALF	OPTIONS TESTED	PARAMETERS/SYSTEMS MONITORED
M071	(9) (15) (16) (17) (19) (20)	10	FW09	10%, 20%, 40% & 100%	"MAIN FEEDWATER SYSTEM INDICATION ALARMS AND S/G STATUS AND ALARMS"
M072	(9) (15) (16) (17) (19) (20)	10	FW10	5%, 10% & 100%	"MAIN FEEDWATER SYSTEM INDICATION, ALARMS AND S/G STATUS AND ALARMS"
M073	(9) (15) (16) (17) (19) (20)	10 11	FW11	5%, 10% 50% & 100%	"MAIN FEEDWATER SYSTEM INDICATION, ALARMS AND S/G STATUS AND ALARMS"
M074			FW12		DELETED (Reference SDR-89-012)
M075	(9) (19)	10	FW13	A @ 50% & 100%	"MAIN FEEDWATER SYSTEM INDICATION, ALARMS AND S/G STATUS AND ALARMS"
M076	(23)	10	FW14	---	"AUX FEEDPUMP CONTROLS, INDICATION AND ALARMS; FIRE PUMP CONTROLS, INDICATION AND ALARMS"
M077	(23)	5	FW15	30%, 50%, 70% & 75%	"AUX FEEDWATER SYSTEM CONTROLS, INDICATION AND ALARMS; S/G INDICATION, CONTROLS AND ALARMS"
M078	(23)	10	FW16	A	"AUX FEEDWATER SYSTEM CONTROLS, INDICATION AND ALARMS"
M079	(23)	10	FW17	10%, 15%, 25% & 50%	"AUX FEEDWATER SYSTEM CONTROLS, INDICATION AND ALARMS"
M080	(23)	5	FW18	C	"AUX FEEDWATER SYSTEM CONTROLS, INDICATION AND ALARMS"
M081	(23)	5	FW19	A & B @ 33%, 67% & 100%	"AUX FEEDWATER SYSTEM CONTROLS, INDICATION AND ALARMS"
M082	(2) (6) (19)	10	IA01	40%, 70% & 100%	"PLANT AIR SYSTEM CONTROLS, INDICATION AND ALARMS; COMPRESSED AIR OPERATED VALVES STATUS"

SIMULATOR TESTS M001 - M221 ABSTRACT

TEST	ANSI-3.5 3.1.2	IC	MALF	OPTIONS TESTED	PARAMETERS/SYSTEMS MONITORED
M083	(23)	5	IA01 IA02	100%	"PLANT AIR SYSTEM CONTROLS, INDICATION AND ALARMS AND NITROGEN BACKUP TO AIR OPERATED VALVES; AUX FEEDWATER SYSTEM INDICATION, CONTROLS AND ALARMS"
M084	(23)	5	IA01 IA03	100%	"PLANT AIR SYSTEM CONTROLS, INDICATION AND ALARMS AND NITROGEN BACKUP TO AIR OPERATED VALVES; AUX FEEDWATER SYSTEM INDICATION, CONTROLS AND ALARMS"
M085	(17) (20)	6	MS01 MS03	A A @ 100%	"MAIN STEAM SYSTEM INDICATION AND CONTROLS; MAIN FEEDWATER SYSTEM CONTROLS AND INDICATION"
M086	(19) (22)	10	MS02	A	"MAIN STEAM SYSTEM INDICATION AND CONTROLS"
T008*	(15) (16) (19) (20)	20	MS03	A @ 100%	Reference Transient Test T008 Abstract, pages E.40 - E.41
M088	(19) (20)	20	MS04	---	"MAIN STEAM SYSTEM AND S/G INDICATION, CONTROLS AND ALARMS"
M089	(20)	8	MS05	10%, 50% & 100%	"MAIN STEAM SYSTEM AND S/G INDICATION, CONTROLS AND ALARMS"
M090	(20)	8	MS06	A @ 50% & 100%	"MAIN STEAM SYSTEM INDICATION AND CONTROLS; FEEDWATER SYSTEM INDICATION AND CONTROLS"
M091	(22)	5	MS07	---	"MAIN STEAM SYSTEM INDICATION AND CONTROLS; ATMOSPHERIC STEAM DUMPS INDICATION AND CONTROLS; TURBINE BYPASS VALVE INDICATION AND CONTROLS"
M092	(15) (22)	20	MS08	---	"MAIN STEAM SYSTEM INDICATION AND CONTROLS; ATMOSPHERIC STEAM DUMPS INDICATION AND CONTROLS"
M093	(22)	6	MS09	---	"MAIN STEAM SYSTEM INDICATION AND CONTROLS; ATMOSPHERIC STEAM DUMPS INDICATION AND CONTROLS; TURBINE BYPASS VALVE INDICATION AND CONTROLS"

* T008 replaced M087. Test number M087 is not used.

SIMULATOR TESTS M001 - M221 ABSTRACT

TEST	ANSI-3.5 3.1.2	IC	MALF	OPTIONS TESTED	PARAMETERS/SYSTEMS MONITORED
M094	(19) (22)	10	MS10	---	"MAIN STEAM SYSTEM INDICATION AND CONTROLS; ATMOSPHERIC STEAM DUMPS INDICATION AND CONTROLS; TURBINE BYPASS VALVE INDICATION AND CONTROLS; S/G INDICATION AND CONTROLS; PRESSURIZER INDICATION AND CONTROLS"
M095	(22)	6	MS11	---	"MAIN STEAM SYSTEM INCLUDING TURBINE BYPASS VALVE"
M096	(22)	6	MS13	---	"MAIN TURBINE GLAND SEAL STEAM EQUIPMENT CONTROLS, INDICATION AND ALARMS; MAIN CONDENSER CONTROLS, INDICATION AND ALARMS"
M097	(22)	10	MS14	---	"MAIN TURBINE GLAND SEAL EQUIPMENT INDICATION AND CONTROLS"
M098	(22)	10	PC01	A & C	"PRIMARY AND SECONDARY DATA LOGGERS INDICATION AND ALARMS; CRITICAL FUNCTION MONITOR EQUIPMENT; CVCS INDICATION AND CONTROLS"
T009*	(1)b,c (3) (15) (16) (19)	10	RC01	---	Reference Transient Test T009 Abstract, pages E.42 - E.43
M100	(1)b	10	RC02	---	"MAIN FEEDPUMP CONTROLS AND INDICATION; PRIMARY COOLANT PUMP CONTROLS AND INDICATION; CONTAINMENT BUILDING INDICATION; SAFETY INJECTION SYSTEM INDICATION AND CONTROLS; CVCS INDICATION AND CONTROLS"
M101	(1)c	10	RC03	8%, 60% & 100%	"CHEMICAL AND VOLUME CONTROL SYSTEM INDICATIONS; PRESSURIZER LEVEL INSTRUMENTATION; CONTAINMENT PRESSURE/TEMPERATURE, HUMIDITY AND RADIATION INSTRUMENTATION"
M102	(1)c (19)	10	RC04	8gpm & 100gpm	"PRESSURIZER LEVEL; CONDENSER OFF GAS; CONTAINMENT BUILDING RADIATION AND HUMIDITY"
M103	(23)	10	RC05	---	"PCS FLOW; PCP AMPERES; NUCLEAR POWER LEVEL; REACTOR VESSEL DELTA P"

* T009 replaced M099. Test number M099 is not used.

SIMULATOR TESTS M001 - M221 ABSTRACT

TEST	ANSI-3.5 3.1.2	IC	MALF	OPTIONS TESTED	PARAMETERS/SYSTEMS MONITORED
M104	(4) (19)	10	RC06	A	"PRIMARY COOLANT PUMP TRIP; REACTOR TRIP"
M105	(4)	10	RC07	---	"PRIMARY COOLANT PUMP STATUS, AMPS, TRIP AND VIBRATION; REACTOR VESSEL DELTA P"
M106	(4) (19)	10	RC08	---	"PRIMARY COOLANT PUMP ALARMS; PCS LOOP FLOW AND CORE FLOW; PRIMARY COOLANT PUMP STATUS, AMPS AND TRIP"
M107	(4)	10	RC09	A	"PRIMARY COOLANT PUMP ALARMS; REACTOR TRIP"
M108	(22)	10	RC09	A	"PRIMARY COOLANT PUMP ALARMS; REACTOR TRIP"
M109	(4) (8)	10	RC11	---	"PRIMARY COOLANT PUMPS INSTRUMENTATION AND STATUS; CCW TANK INSTRUMENTATION; REACTOR TRIP"
M110	(23)	10	RC12	A	"PRIMARY COOLANT PUMP SEAL INDICATION"
M111	(23)	10	RC13	A	"PRIMARY COOLANT PUMP SEAL INDICATION"
M112	(23)	10	RC14	A	"PRIMARY COOLANT PUMP SEAL INDICATION"
M113	(23)	10	RC15	A	"PRIMARY COOLANT PUMP SEAL INDICATION; CVCS INDICATIONS"
M114	(4) (23)	10	RC16	A	"PRIMARY COOLANT PUMP INDICATIONS (VIBRATION)"
M115	(22)	10	RC17	100%	"PCS/PRESSURIZER INDICATION AND ALARMS"
M116	(22)	10	RC18	100%	"PCS/PRESSURIZER INDICATION AND ALARMS"
M117	(1)d	10	RC19	0% & 100%	"POWER OPERATED RELIEF VALVE (PORV) INDICATIONS AND ALARMS; QUENCH TANK INDICATION;
M118	(1)d	10	RC20	0% & 100%	"POWER OPERATED RELIEF VALVE (PORV) INDICATIONS AND ALARMS; QUENCH TANK INDICATION"

SIMULATOR TESTS M001 - M221 ABSTRACT

TEST	ANSI-3.5 3.1.2	IC	MALF	OPTIONS TESTED	PARAMETERS/SYSTEMS MONITORED
T010*	(10)	10	RC21	100%	Reference Transient Test T010 Abstract, pages E.44 - E.45
M120	(1)b (14)	20	RC22	10% & 100%	"FAILED FUEL MONITOR INSTRUMENTATION; CONTAINMENT BLDG RADIATION INSTRUMENTATION; CVCS INDICATION AND ALARMS (RADIATION)"
M121			RD01		DELETED (Failure of Auto Withdrawal Prohibit to initiate - Using auto rod control is not permitted)
M122	(17)	10	RD02	---	"CONTROL ROD POSITION INDICATION ALARMS AND DATA LOGGER"
M123	(17)	4	RD03	---	"CONTROL ROD POSITION INDICATION"
M124	(12) (17)	6	RD04	F	"CONTROL ROD POSITION INDICATION; REACTOR POWER INDICATION"
M125	(12) (17)	6	RD05	F	"CONTROL ROD POSITION INDICATION; REACTOR POWER LEVEL INDICATION"
M126	(12) (17) (19)	6	RD06	38	"CONTROL ROD POSITION INDICATION AND ALARMS; REACTOR POWER LEVEL INDICATION"
M127	(12)	6	RD07	38	"CONTROL ROD POSITION INDICATION AND ALARMS; REACTOR POWER LEVEL INDICATION"
M128	(12) (13)	6	RD08	---	"CONTROL ROD POSITION INDICATION"
M129	(12)	4	RD09	23	"CONTROL ROD POSITION INDICATION AND ALARMS"
M130	(12) (13)	6	RD10	40	"CONTROL ROD POSITION INDICATION AND ALARMS; REACTOR TRIP"
M131	(12) (13)	6	RD11	41	"CONTROL ROD POSITION INDICATION AND ALARMS; REACTOR TRIP"
M132	(12)	10	RD12	34	"CONTROL ROD POSITION INDICATION AND ALARMS; REACTOR POWER AND TURBINE LOAD"
M133	(12)	10	RD13	1, 21, 42	"CONTROL ROD POSITION INDICATION AND ALARMS; REACTOR POWER"

* T010 replaced M119. Test number M119 is not used.

SIMULATOR TESTS M001 - M221 ABSTRACT

TEST	ANSI-3.5 3.1.2	IC	MALF	OPTIONS TESTED	PARAMETERS/SYSTEMS MONITORED
M134	(1)c (12)	4	RD14	21	"CONTROL ROD POSITION INDICATION; CONTAINMENT RADIATION AND HUMIDITY INDICATION"
M135	(23)	10	RM04	100%	"AUX BLDG RADIATION AND ALARMS; AUX BLDG VENTILATION INDICATION"
M136	(22)	10	RM05	A, C	"CONTAINMENT BLDG RADIATION INDICATION AND ALARMS"
M137	(22)	10	RM06	V, W	"AUX BLDG AREA RADIATION MONITOR INDICATION AND ALARMS; AUX BLDG VENTILATION INDICATION AND ALARMS"
M138	(22)	10	RM07	F @ 100% H @ 50% A @ 5% I @ 10%	"PROCESS RADIATION MONITOR INDICATION AND ALARMS; PROCESS CONTROL EQUIPMENT INDICATION AND ALARMS"
M139	(22)	10	RM08	E, J	"PROCESS RADIATION MONITOR INDICATION AND ALARMS"
M140	(21)	4	RP01	A	"NUCLEAR INSTRUMENT INDICATION AND ALARMS"
M141	(21)	4	RP02	A	"NUCLEAR INSTRUMENT INDICATION AND ALARMS"
M142	(21)	4	RP03	A	"NUCLEAR INSTRUMENT INDICATION"
M143	(21)	4	RP04	A	"NUCLEAR INSTRUMENT INDICATION AND ALARMS"
M144	(21)	4	RP05	A	"NUCLEAR INSTRUMENT INDICATION AND ALARMS"
M145	(21)	5	RP06	A	"NUCLEAR INSTRUMENT ALARMS AND CONTROLS"
M146	(21)	8	RP07	A	"NUCLEAR INSTRUMENT INDICATION"
M147	(21)	5	RP08	A	"NUCLEAR INSTRUMENT INDICATION AND ALARMS"
M148	(21)	14	RP09	A	"NUCLEAR INSTRUMENT INDICATION AND ALARMS"
M149	(21)	6	RP10	A	"NUCLEAR INSTRUMENT INDICATION AND ALARMS"

SIMULATOR TESTS M001 - M221 ABSTRACT

TEST	ANSI-3.5 3.1.2	IC	MALF	OPTIONS TESTED	PARAMETERS/SYSTEMS MONITORED
M150	(21)	8	RP11	A	"NUCLEAR INSTRUMENT INDICATION AND ALARMS"
M151	(21)	8	RP12	A	"NUCLEAR INSTRUMENT INDICATION AND ALARMS"
M152	(21)	8	RP13	A	"NUCLEAR INSTRUMENT INDICATION AND ALARMS"
M153	(21)	8	RP14	A	"NUCLEAR INSTRUMENT INDICATION AND ALARMS"
M154	(21)	10	RP15	---	"NUCLEAR INSTRUMENT INDICATION AND ALARMS"
M155	(21)	10	RP16	---	"NUCLEAR INSTRUMENT INDICATION AND ALARMS"
M156	(21)	8	RP17	A	"NUCLEAR INSTRUMENTATION"
M157	(21)	8	RP18	A	"NUCLEAR INSTRUMENTATION"
M158	(15) (24)	6 7 10 14	RP19	---	"FAILURE OF AUTOMATIC REACTOR TRIP; PLANT INSTRUMENTATION AND ALARMS; RPS INDICATIONS"
M159	(22)	10	RP20	---	"FAILURE OF MANUAL REACTOR TRIP; PLANT INSTRUMENTATION AND ALARMS; RPS INDICATIONS"
M160	(19) (22)	5	RP21	A	"RPS INDICATIONS"
M161	(22)	10	RP22	A @ 0% & 100%	"PCS TEMPERATURE INDICATION AND POWER LEVEL"
M162	(22)	10	RP23	A @ 0% & 100%	"PCS TEMPERATURE INDICATION AND POWER LEVEL"
M163	(22)	10	RP24	A @ 0% & 100%	"PCS TEMPERATURE AND ALARMS INDICATION AND POWER LEVEL"
M164	(22)	10	RP25	A @ 0% & 100%	"PCS TEMPERATURE INDICATION, ALARMS AND POWER LEVEL"
M165	(22)	10	RP26	A	"PCS PRESSURE INDICATION AND ALARMS"
M166	(22)	10	RP27	A @ 1% & 100%	"STEAM GENERATOR LEVEL INDICATION AND ALARMS"

SIMULATOR TESTS M001 - M221 ABSTRACT

TEST	ANSI-3.5 3.1.2	IC	MALF	OPTIONS TESTED	PARAMETERS/SYSTEMS MONITORED
M167	(22)	10	RP28	A @ 1% & 100%	"STEAM GENERATOR INDICATION AND ALARMS"
M168	(22)	10	RP29	AA	"STEAM GENERATOR PRESSURE INDICATION"
M169	(22)	10	RP30	AA	"STEAM GENERATOR PRESSURE INDICATION AND ALARMS; RPS ALARMS"
M170	(22)	8	RX01	0% & 100%	"PCS TEMPERATURE INDICATION"
M171	(22)	8	RX02	0% & 100%	"PCS TEMPERATURE INDICATION"
M172	(22)	8	RX03	A @ 0% & 100%	"PCS TEMPERATURE INDICATION"
M173	(22)	8	RX04	A @ 0% & 100%	"PCS TEMPERATURE INDICATION AND CONTROLS"
M174	(22) (18)	8	RX05	A	"PCS PRESSURE INDICATION AND CONTROLS"
M175	(22) (18)	10	RX06	A	"PCS PRESSURE INDICATION AND CONTROLS"
M176	(22) (18)	8	RX07	A	"PCS LEVEL INDICATION AND CONTROLS"
M177	(22) (18)	8	RX08	A	"PCS LEVEL INDICATION AND CONTROLS"
M178	(22) (18)	8	RX09	---	"PCS LEVEL INDICATION AND CONTROLS"
M179	(22)	10	RX10	B @ 10% & 90%	"STEAM GENERATOR LEVEL INDICATION AND CONTROLS"
M180	(22)	10	RX11	A	"STEAM GENERATOR LEVEL INDICATION AND CONTROLS"
M181	(22) (18)	10	RX12	B, C, D, E & F	"PCS PRESSURE INDICATION AND CONTROLS"
M182	(22) (18)	10	RX13	---	"PRESSURIZER HEATER CAPACITY INDICATION"
M183	(22)	10	RX14	A @ 1% & 25%	"STEAM GENERATOR LEVEL INDICATION AND CONTROLS"
M184	(22)	10	RX15	A @ 100%	"STEAM GENERATOR LEVEL INDICATION AND CONTROLS"

SIMULATOR TESTS M001 - M221 ABSTRACT

TEST	ANSI-3.5 3.1.2	IC	MALF	OPTIONS TESTED	PARAMETERS/SYSTEMS MONITORED
M185	(1)a (19)	10	SG01	A @ 14%, 27%, 52% & 100%	"PCS LEVEL INDICATION AND ALARMS; CONTAINMENT BLDG RADIATION INDICATION AND ALARMS; CVCS INDICATION, CONTROL AND ALARMS; RPS INDICATIONS (RX TRIP)"
M186	(23)	10	SI01	A	"SAFETY INJECTION SYSTEM STATUS, PUMP INDICATION, CONTROLS"
M187	(23)	10	SI02	A	"SAFETY INJECTION SYSTEM STATUS, PUMP INDICATION, CONTROLS"
M188	(23)	10	SI03	A	"CONTAINMENT SPRAY SYSTEM STATUS, PUMP INDICATION, CONTROLS AND ALARMS"
M189	(23)	10	SI04	A	"SAFETY INJECTION SYSTEM STATUS, CONTROLS AND ALARMS"
M190	(23)	10	SI05	A	"SAFETY INJECTION SYSTEM STATUS, PUMP INDICATION, CONTROLS AND ALARMS"
M191	(17) (22)	10	SI07	A	"SAFETY INJECTION SYSTEM STATUS, CONTROLS AND ALARMS"
M192	(17) (22)	10	SI08	A	"SAFETY INJECTION SYSTEM STATUS, CONTROLS AND ALARMS"
M193	(17) (22)	10	SI10 RC01	A @ 100%	"(RAS) SAFETY INJECTION SYSTEM STATUS, CONTROLS AND ALARMS"
M194	(23)	2	SI11	A @ 20% & 50%	"SHUTDOWN COOLING SYSTEM STATUS, CONTROLS AND ALARMS; INCLUDING RADIATION MONITORS"
M195	(23)	10	SI12	A	"SAFETY INJECTION SYSTEM STATUS AND ALARMS"
M196	(23) (7)	2	SI13	---	"PCS AND SHUTDOWN COOLING SYSTEMS STATUS, CONTROLS AND ALARMS"
M197	(6)	10	SW01	---	"MAIN TURBINE GENERATOR STATUS AND ALARMS"
M198	(6)	10	SW02	---	"MAIN TURBINE GENERATOR STATUS AND ALARMS"
M199			SW03		DELETED (Failure of pump P-44; Pump status requires local inspection)

SIMULATOR TESTS M001 - M221 ABSTRACT

TEST	ANSI-3.5 3.1.2	IC	MALF	OPTIONS TESTED	PARAMETERS/SYSTEMS MONITORED
M200	(6)	10	SW04	A	"SERVICE WATER SYSTEM STATUS AND ALARMS"
M201	(2) (6) (8)	10	SW05	A & B	"COMPONENT COOLING WATER STATUS AND ALARMS"
M202	(6)	2	SW06	10%, 50% & 100%	"SECONDARY PLANT STATUS AND ALARMS; SERVICE WATER SYSTEM STATUS AND ALARMS"
M203	(6)	10	SW07	10%, 50% & 100%	"SERVICE WATER SYSTEM STATUS AND ALARMS"
M204	(15) (16) (19)	10	TC01	---	"MAIN TURBINE/GENERATOR STATUS AND ALARMS; SECONDARY PLANT STATUS AND ALARMS; STATION POWER/STANDBY POWER STATUS AND ALARMS"
M205	(15) (22)	7	TC02	---	"MAIN TURBINE/GENERATOR STATUS AND ALARMS"
M206	(22)	6	TC03	A	"MAIN TURBINE/GENERATOR STATUS"
M207	(19) (22)	10	TC04	A	"MAIN TURBINE/GENERATOR STATUS; REACTOR STATUS AND ALARMS"
M208	(22) (23)	10	TC05 TC01	A & D ---	"MAIN TURBINE/GENERATOR STATUS"
M209			TC06		DELETED (Turbine runback circuitry no longer exists at Palisades)
M210			TC07		DELETED (Turbine runback circuitry no longer exists at Palisades)
M211	(22)	6	TC08	3%, 20% & 100%	"MAIN TURBINE/GENERATOR STATUS"
M212	(22)	10	TC09	---	"MAIN TURBINE/GENERATOR STATUS"
M213	(22)	10	TC10	---	"MAIN TURBINE/GENERATOR STATUS"
M214			TC11		DELETED (Load-Power Mismatch - Malfunction Disabled)
M215	(19) (23)	10	TC12	A & B	"MAIN TURBINE/GENERATOR STATUS AND ALARMS; REACTOR STATUS AND ALARMS"

SIMULATOR TESTS M001 - M221 ABSTRACT

TEST	ANSI-3.5 3.1.2	IC	MALF	OPTIONS TESTED	PARAMETERS/SYSTEMS MONITORED
M216	(22)	10	TC13	10%, 50% & 100%	"MAIN TURBINE/GENERATOR STATUS AND ALARMS; PRIMARY COOLANT SYSTEM STATUS"
M217	(23)	9	TU01	20%, 60% & 100%	"MAIN TURBINE/GENERATOR STATUS AND ALARMS"
M218	(23)	7	TU02	---	"MAIN TURBINE/GENERATOR STATUS AND ALARMS"
M219	(15) (23)	9	TU03	50%	"MAIN TURBINE/GENERATOR STATUS AND ALARMS"
M220	(23)	10	TU04	---	"MAIN TURBINE/GENERATOR STATUS AND ALARMS"
M221	(23)	10	TU05	---	"MAIN TURBINE/GENERATOR STATUS AND ALARMS"

6. FINAL CONDITIONS/DURATION OF TEST

The simulator was set up in the initial condition as identified above and then the malfunction(s) was entered. Test steps were then followed that would verify if the component did indeed malfunction. After this was achieved the test would be terminated.

It is estimated that the average time to conduct each malfunction test was 20 to 30 minutes.

7. BASELINE DATA

The baseline data was actual plant data or data utilized by the plant such as prints, charts, schematics, plant procedures, and subject matter experts.

8. DEFICIENCIES

The following simulator deficiencies were noted during performance of these tests.

A. CC MAKEUP FLOWS ARE INCORRECT	SDR-88-127 OP
B. CONTROL VALVES ON WRONG POWER SUPPLY AND RELAY	SDR-86-144 OP
C. FAN TRIP EXTINGUISHES BOTH BREAKER LIGHTS	SDR-89-016 OP
D. NO CONTAINMENT AFFECTS WITH PCS LEAK	SDR-84-027 OP
E. RIAs DON'T RESPOND TO AUX BLDG LEAK	SDR-87-092 OP
F. HOT LETDOWN FLOW DOESN'T FLASH TO STEAM	SDR-89-041 CL
G. CONTROLLERS DON'T OPERATE IN AUTO	SDR-87-010 OP
H. PCS RESPONDS TOO FAST TO CVCS BORON CHANGE	SDR-88-157 CL
I. CALCULATION OF PCS BORON IS INCORRECT	SDR-89-017 CL
J. CONTROL VALVES AUTO CLOSE WHEN P39A IS TRIPPED	SDR-88-158 OP

8. DEFICIENCIES (cont.)

K.	ANNUNCIATORS DON'T OPERATE CORRECTLY	SDR-88-030	OP
L.	BUS 1F & 1G LOAD SHED INCONSISTENT	SDR-88-159	CL
M.	BUS 1A VOLTMETER SHOWS VOLTAGE WITH NO POWER	SDR-88-160	CL
N.	1-1 D/G DIDN'T SHUT DOWN WHEN BREAKER OPENED	SDR-88-161	CL
O.	TI-0101/02 SHOULD FAIL "AS IS"	SDR-86-142	CL
P.	LIGHT STAYS ON WHEN POWER IS LOST TO PI-1419	SDR-89-015	OP
Q.	CONTROL VALVES DON'T CLOSE ON LOSS OF PREF A-C	SDR-89-018	CL
R.	LIA-0365 SHOULD FAIL "AS IS"	SDR-89-019	OP
S.	RIAs POWERED FROM WRONG BUS	SDR-89-020	CL
T.	IMPROPER RESPONSES TO LOSS OF Y-10	SDR-89-021	CL
U.	IMPROPER RESPONSES TO LOSS OF Y-40	SDR-89-022	CL
V.	"D" CHANNEL OF TMD DOESN'T OPERATE PROPERLY	SDR-89-026	OP
W.	BREAKER LTS DON'T WORK PROPERLY ON LOSS OF D10	SDR-89-024	CL
X.	D/G LIGHTS RESPOND INCORRECTLY DURING STARTS	SDR-89-007	CL
Y.	MALF FW08A SHOWS 10% BUT PRODUCES 5% VLV POS	SDR-89-025	OP
Z.	ELECTRIC FIRE PUMP P9A FAILED TO START	SDR-88-162	OP
AA.	PCP AMPS TOO HIGH DURING HEATUP FROM COLD S/D	SDR-84-069	OP
AB.	SOME AIR OPERATED VALVES ON WRONG AIR SUPPLY	SDR-87-151	OP
AC.	MALF MS05 SHOWS 10% BUT PRODUCES 50% STM FLOW	SDR-89-027	OP
AD.	TURBINE BYPASS VALVE TOO SLUGGISH	SDR-87-107	CL
AE.	SPI RESPONSE TO PIP MALFUNCTION INCORRECT	SDR-88-039	OP
AF.	PC FLOW DOESN'T INCREASE ON CORE BARREL FAILURE	SDR-89-028	OP
AG.	NO VIBRATION ALARM ON PCP COUPLING FAILURE	SDR-88-163	OP
AH.	REACTOR DP, PC FLOW & AMPS, CHANGE IN WRONG DIR	SDR-88-164	OP
AI.	PCP CONT B.O. FLOW HAS NO INCREASE ON FAILURE	SDR-88-165	OP
AJ.	PCP HI VIBRATION SHOULD STOP @ 30 SECONDS	SDR-89-029	OP
AK.	IMPROPER RADIATION MONITOR RESPONSES	SDR-89-030	OP
AL.	CORE 8 RELOAD (REACTIVITY LEVELS INCORRECT)	FC-814	OP
AM.	IMPROPER EQUIPMENT RESPONSES TO HI RADIATION	SDR-89-031	OP
AN.	MALFUNCTION RP01A DOES NOT WORK PROPERLY	SDR-88-124	OP
AO.	DRAWER TRIP TEST SWITCH DOESN'T WORK PROPERLY	SDR-89-032	OP
AP.	CONTROL PANEL SHOULD BE AT 125 WITH +10V ACTIVE	SDR-87-116	OP
AQ.	M1 V-METER RETURNS TO NORMAL AFTER TRIP	SDR-89-033	OP
AR.	MALF RX09 DOESN'T DISABLE "BACKUP VOL CONT" SGNL	SDR-89-034	OP
AS.	MALF RX10A DOESN'T AFFECT LI-0702	SDR-89-035	OP
AT.	OFFGAS & S/G BLOWTANK MONITORS RESPOND INCORRECT	SDR-87-141	CL
AU.	SIT LEVEL & PRESSURE ALARMS DON'T WORK PROPERLY	SDR-87-124	OP
AV.	OIL TEMPS DON'T RESPOND TO TEMP INCREASES	SDR-89-036	OP
AW.	LOSS OF SW FLOW DOESN'T CAUSE HI TEMP ALARM	SDR-87-013	OP
AX.	MALF TC02 DESCRIPTION DOESN'T MATCH AFFECT	SDR-88-024	OP
AY.	MALF TC08 DOESN'T CAUSE SHIFT FROM AUTO TO MAN	SDR-89-037	OP
AZ.	TURBINE INDICATORS WORK IMPROPERLY AFTER TRIP	SDR-89-038	OP
BA.	ALARM K01-3 DIDN'T TRIP WHEN SET POINT EXCEEDED	SDR-89-039	OP

These simulator deficiency reports (SDR) and facility change (FC) have been corrected as indicated by a "CL" beside the number, or are open as indicated by an "OP" and are scheduled to be resolved by 12/30/91 (reference the enclosed "Paltrack" report listing).

9. EXCEPTIONS TO ANSI/ANS-3.5-1985

The simulator does not have specific malfunctions for "uncoupled rods" or "drifting rods" (Ref section 3.1.2(12)). However, our present capabilities in the area of rod malfunctions are adequate to provide the operators with the necessary training related to rod operation.

SECTION F

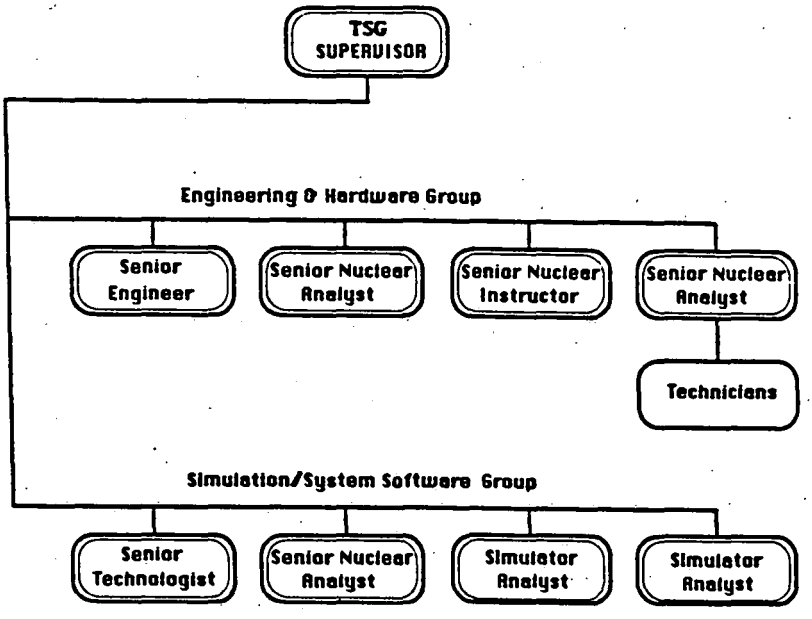
CONFIGURATION CONTROL

TECHNICAL SUPPORT GROUP (TSG)

I. Mission:

To efficiently and opportunely modify and maintain the Palisades Nuclear Plant simulation facility to the level of fidelity and availability determined by our clients, management and regulators to support the training and evaluation of Palisades plant personnel.

II. Organization TECHNICAL SUPPORT GROUP (TSG)



III. TSG Responsibilities

A. TSG Supervisor Responsibilities

1. Direct the technical and administrative activities of the TSG staff.

2. Direct the activities required to achieve and maintain simulator certification (Reg Guide 1-149).

3. Represent the TSG as a member of the Operations Curriculum Committee.

4. Establish the scope and schedule for simulator modifications and assure completion of the objectives.

5. Direct the activities required to assure the availability of the Palisades simulator and Midland Training Center (MTC) laboratories.

6. Provide required TSG resources (budget, personnel, etc).

B. Engineering and Hardware Group Responsibilities

1. Complete the activities required to achieve and maintain simulator certification, (ie. planning, scheduling, testing, documentation, reports, procedures, etc).

2. Maintain the simulator configuration control program "PALTRACK".

3. Completion of simulator modifications.

   a. Evaluate plant modifications for simulator impact.

   b. Evaluate simulator discrepancies.

   c. Prepare simulator modification specifications.

   d. Design simulator hardware.

   e. Purchase/fabricate simulator hardware.

   f. Install simulator hardware.

   g. Maintain simulator hardware documentation.

   h. Prepare and conduct simulator modification acceptance tests.

   i. Provide plant technical support to other TSG groups.

4. Maintain simulator availability (Palisades and Midland)

   a. Complete preventative maintenance.

   b. Complete corrective maintenance.

5. Maintain Midland Training Center (MTC) laboratories

   a. Complete modifications.

   b. Complete preventative maintenance.

   c. Complete corrective maintenance.

6. Provide supervision for MTC facilities personnel.

C. Software Group Responsibilities

1. Completion of simulator modifications

   a. Develop simulation software.

   b. Document simulation software modifications.

2. Coordinate implementation of simulator modifications into training (Training Load Saves).

3. Maintain simulator computer system software

   a. Control/modify system software and configuration.

   b. Provide operating system support.

4. Develop and maintain simulator software quality assurance programs.

5. Provide personal computer support for MTC personnel (software and maintenance).

6. Provide software support for University of Michigan Diagnostic and Controls Project.

IV. Simulator Configuration Control Process
(Summary only-for details refer to Local Instructions MTC 6.0 and MTC 9.0).

A. Simulator Discrepancies (SDR):

1. Can be identified by anyone.

2. Must be documented once identified.

3. Are evaluated by simulator instructors (SI) and TSG engineering for validity.

4. Are tracked on the computerized database called "Paltrack".

5. Are assigned a training priority by the Operations Curriculum Committee (OCC).

NOTE: The OCC is responsible for determining the curricula for the Palisades plant operator training program. Individuals from the Operations Department, Simulator Training and Technical Support Group attend OCC meetings.

6. Are scheduled for implementation into the simulator by the TSG supervisor with OCC input.

B. Plant Modifications (Simulator Update Design Data)

1. Are identified from the Palisades Plant's computerized modification tracking system through direct transfer of data to the simulator's computerized modification tracking system, "Paltrack".

2. Are tracked on the computerized database called "Paltrack"

3. Are initially evaluated by TSG engineering for simulator impact. Decision on impact is made by the OCC.

4 Are assigned a training priority by the OCC.

5. Are scheduled for implementation into the simulator by the TSG supervisor with OCC input.

C. Simulator Modifications

1. TSG Engineering group assembles one or more SDR/Plant modification into a Simulator Modification Package (SMP). (TSG supervisor approves).

2. TSG Engineering group develops specification for SMP (engineer supervisor reviews). (Simulator supervisory instructor approves)

3. TSG Hardware group designs/installs hardware per specification.

4. TSG Software group develop software for the SMP. The software designer is not the same person that developed the specification or test. (Software supervisor reviews software design).

5 The software designer also identifies the root cause of any SDR's in the SMP.

6. TSG Engineering group develops SMP Acceptance Test Procedure (ATP) based on specification (review by engineering supervisor) (approved by simulator supervisory instructor).

7. TSG engineering and a simulator supervisory instructor conduct test and issue Test Analysis report

8 Simulator supervisory instructor accepts or rejects SMP, SDR's issued if needed.

9 Accepted SMPs are grouped together into a Training Load Save (TLS).

10. TLS are periodically (3 or 4 times per year) tested and incorporated into simulator training.

11. Resolved SDR's are closed by the TSG supervisor, copied to the originator and filed.

12. Documentation is updated and the SMPs are closed by the TSG Supervisor and filed.

V. SIMULATOR CERTIFICATION CONTROL PROCESS
(Summary only - for details refer to Local Instruction MTC 17.0.

A. Plant Modifications (Simulator Update Design Data)

1. Are reviewed each year to determine those that impact the simulator and are completed at the plant. (Based on student feedback, engineering and training value assessment).

2. Impacting the simulator and completed at the plant are scheduled and incorporated on the simulator within 12 months of the review date. (TSG Supervisor).

3. Are tracked on the simulator's computerized modification tracking system, "Paltrack".

4. Documentation is updated.

B. Physical Differences

1. Are identified by comparing pictures of the Plant's control room to the simulator.

2. Are initially evaluated by TSG engineering for simulator impact. Decision on impact is made by the OCC.

3. Are corrected by the TSG hardware group.

4. Documentation is updated.

C. Annual Performance Testing

1. Is identified in the "Palisades Simulator Certification Submittal".

2. Is updated with the most recent plant response data.

3. Is scheduled and conducted prior to the certification anniversary date.

4. Is documented and evaluated prior to the certification anniversary date.

5. Has SDR's written, if identified, to document discrepancies.

6. Is filed.

D. Significant Simulator Design Change Performance Testing

1. Is scheduled when simulator design changes result in significant simulator configuration or performance variations, as determined by the TSG supervisor.

NOTE: Design changes, that result in significant simulator configuration or performance variations, are defined as follows:

These design changes that use a new or different design methodology, from existing systems, to accomplish simulation. Following are examples:

a. Configuration - Installation of a new computer system (ex. Encore 32/77 to 32/2000), a new I/O system or a new trainer.

b. Performance Variation - A logic to dynamic model rewrite or a major model replacement (ex. core, pressurizer, steam generator, safety injection, etc).

2. Is updated with the most recent plant response data.

3. Is conducted, documented and evaluated by the TSG engineering group.

4. Has SDR's written, if identified, to document discrepancies.

5. Is filed.

E. Reporting

1. Is prepared for the NRC if simulator design changes result in significant simulator configuration or performance variations.

2. Is prepared for the NRC every fourth anniversary of the initial certification submittal.

3. Is prepared for the NRC for any change to the performance testing plan made after initial submittal of such a plan.

4. Shall include NRC Form 474, a description of the Performance Testing completed, and an schedule for the conduct of approximately 25% of the Performance Test per year for the subsequent 4 years.

5. For the fourth anniversary reports only, shall include a list of any SDR's identified during initial performance testing not yet resolved and a schedule for resolution of the SDR's identified.

6. Is filed.

SIMULATOR

OPEN

ITEMS

REPORT

(PALTRACK LISTING)

PALTRACK REPORT EXPLANATION

The following computerized report (PALTRACK) identifies the current list of open plant modifications (Facility Changes (FC), Specification Changes (SC) and Set Point Changes (SPC)) impacting the simulator and the open Simulator Deficiency Reports (SDR) identified while conducting the simulator Performance Test. The report also identifies when these "Source Documents" are scheduled to be incorporated on the simulator.

Following is a brief explanation of each heading shown on the "PALTRACK" report.

HEADING

SOURCE DOC - (SOURCE DOCUMENT)

The unique identifier of the document that forms the basis for a simulator modification. These documents include Plant Modifications (Facility Changes (FC), Specification Changes (SC) and Set Point Changes (SPC)) and Simulator Deficiency Reports (SDR).

PLT STATUS-DATE - (PLANT STATUS - PLANT STATUS DATE)

The "plant status" is a code ranging from 1 to 6 and X, designating the status of a plant modification currently being worked on at the Palisades plant.
1 = Control Number Assigned
2 = Review Completed / Ready To Install
3 = Installed But Operability Not Authorized
4 = Operability Authorized
5 = Closed Out
6 = Number Not Used / Cancelled
X = Inactive - Expected Completion 2 Years Or Greater

The "plant status date" is the date associated with the "plant status" number, indicating when the status of the plant modification occurred.

PLT SCHDLE DATE - (PLANT SCHEDULE DATE)

The date or time when the plant modification is scheduled to be completed.

WBS NUMBER - (WORK BREAKDOWN STRUCTURE NUMBER)

A number utilized by the Palisades plant for budgeting and scheduling purposes. This number may be cross-referenced to Plant Modification numbers.
Note: One WBS Number may cover several Plant Modification Numbers.

PALTRACK REPORT EXPLANATION

SIM STS-DATE - (SIMULATOR STATUS - SIMULATOR STATUS DATE)

The "simulator status" indicates the status of the "source document" at the simulator.
OP = OPEN = The "source document" has not been resolved.
CL = CLOSED = The "source document" has been resolved.
DF = DEFERRED = The "source document" will not be resolved until a future event or date occurs.
RJ = REJECTED = Based on Operations and Training Evaluation, this "source document" is not scheduled to be resolved.

The "simulator status date" is the date associated with the "simulator status", indicating when the "simulator status" occurred.

SIM SCH DATE - (SIMULATOR SCHEDULE DATE)

The date when the "source document" is scheduled to be completed at the simulator.

PRIORITY

A numerical value assigned to the "source document" based on training impact. The lower the number, the higher the impact on training.

The format for this number is XXX.X, and the current range utilized is from 0.1 to 500. The values on this report are rounded to the nearest whole number.

DESCRIPTION

A brief statement explaining the topic of the "source document".

SYSTEM CODE 1/2 - (SYSTEM CODE 1 / SYSTEM CODE 2)

A two or three letter abbreviation that designates the primary and/or secondary plant system the "source document" affects.

ANN = ANNUNCIATOR
CC = COMPONENT COOLING
CFM = CRITICAL FUNCTION MONITOR
CH = CONTAINMENT AND HVAC
CR = CORE PHYSICS
CV = CHEMICAL AND VOLUME
CW = CIRCULATING WATER
ED = ELECTRICAL DISTRIBUTION
EG = ELECTRICAL GENERATION
FT = FEEDWATER PUMP TURBINE
FW = FEEDWATER
IA = INSTRUMENT AIR
I/O = INPUT/OUTPUT OVERRIDE
MS = MAIN STEAM
NI = NUCLEAR INSTRUMENTATION
PCM = PROGRAM CONTROL MONITOR
PCP = PRIMARY COOLANT PUMP
PPC = PLANT PROCESS COMPUTER
PZR = PRESSURIZER
RC = PRIMARY COOLANT
RD = CONTROL ROD DRIVE
RMD = RADIATION MONITORING
RP = REACTOR PROTECTION
RX = REACTOR REGULATING
SG = STEAM GENERATOR
SI = SAFETY INJECTION
SS = SYSTEM SOFTWARE (SIM)
SW = SERVICE WATER
TC = TURBINE CONTROL
TMM = THERMAL MARGIN MONITOR
TU = TURBINE
WP = WASTE PROCESSING

PALTRACK REPORT EXPLANATION

HARDWARE

Indicates whether or not hardware needs to be installed to resolve the "source document", or indicates the initials of the person responsible for completing the hardware installation.

SOFTWARE

Indicates whether or not software needs to be developed to resolve the "source document", or indicates the initials of the person responsible for completing the software development.

SIMULATOR IMPACT DESCRIPTION

A field used primarily by the simulator's Technical Support Group (TSG) for documenting notes and comments.

SIM ENGINEER - (SIMULATOR ENGINEER)

Initials of the Technical Support Group member responsible for resolving the "source document".

SIM MOD NUMBER - (SIMULATOR MODIFICATION NUMBER)

Designates the "simulator modification package number" in which the "source document" resides. Example: P-87-15 where
P - is for the Palisades plant,
87 - is the year the package was opened,
15 - is the sequential package number for the specified year.
Note: Simulator Modification Packages may contain more than one "source document".

COGNIZANT INDV - (COGNIZANT INDIVIDUAL)

The person originating or knowledgeable with the "source document".

PALTRACK REPORT #21
05/15/90

CERTIFICATION REPORT
OPEN ITEMS

SOURCE DOC	PLT STATUS-DATE PLT SCHDLE DATE WBS NUMBER	SIM STS-DATE SIM SCH DATE PRIORITY	DESCRIPTION	SYS CODE 1/2	HARD/ SOFT WARE	SIMULATOR IMPACT DESCRIPTION	SIM ENGINEER/ SIM MOD NUMBER/ COGNIZANT INDV
FC-494-03	5 - 08/24/83	OP-08/24/83 07/15/90 17	RADIOACTIVE GASEOUS EFFLUENT MONITOR SYSTEM - PROJ 703	RMD	RLT YES	HARDWARE COMPLETE	AJH P-85-04 LEVA TE
FC-685	1 - 06/04/87 90 REFOUT	OP-07/25/89 12/30/91 98	ADD DIVERSE SCRAM TO RPS (REQUIRED FOR 90 REFOUT). PROJ ENGR: AGNELLO D - FINAL ACCEPTANCE	RX	RLT YES		P-86-38 AGNELLO D
FC-706	X - 06/04/87 01/01/92	OP-07/25/89 06/01/93 266	INSTALL PRESSURE ALARM ON T-9C TURBINE BUILDING HIGH PRESSURE AIR.	IA			P- - FERENS MA
FC-737	5 - 02/04/89 88 REFOUT	OP-02/04/89 10/05/90 500	REPLACE DBA/NSD SEQUENCERS.	SI	YES	2 ANNUNCIATOR WINDOWS "SEQUENCER TROUBLE" & "BATTERY LOW"	WAS P-90-08 CORBETT RJ
FC-740-01	5 - 01/26/88	OP-12/12/88 07/15/90 110	INSTALLATION OF GENERATOR RADIO FREQUENCY MONITOR.	EG	RLT YES	HARDWARE NOT TO BE INSTALLED ON SIMULATOR	AJH P-88-28 CORBETT RJ
FC-740-02	5 - 04/11/88	OP-04/11/88 07/15/90 120	INSTALL GENERATOR RTD MONITORING SYSTEM.	TU	RLT YES		AJH P-88-28 MEREDITH BD
FC-740-03	5 - 04/13/88	OP-12/12/88 07/15/90 111	INSTALL GENERATOR END TURN VIBRATION MONITORING SYSTEM.	EG	RLT YES	HARDWARE NOT TO BE INSTALLED ON SIMULATOR	AJH P-88-28 MEREDITH BD
FC-766	5 - 08/16/88 WBS-21510	OP-08/16/88 12/21/90 400	COMPUTER MODIFICATION TO SUPPORT ROD DROP TIMING.	CFM RD	NO YES	DO IN CONJUNCTION WITH SPR-88-076	WED P-90-14 HAMM RM
FC-768	5 - 03/21/88	OP-03/21/88 10/05/90 19	REPLACE RE-0631 AND RIA-0631.	RMD FW	RLT YES	(PER WAS 12/87)	WED P-87-48 RADZWION DJ
FC-769	5 - 04/08/88	OP-04/08/88 10/05/90 400	REPLACE RE-5711, RIA-5711, RE-5712 AND RIA-5712.	RMD	RLT YES		WED P-87-48 RADZWION DJ
FC-797	2 - 08/07/89 ON HOLD WBS-43050	OP-07/25/89 12/30/92 78	PERMANENT REMOVAL OF RCP MOTOR SHAFT PROXIMITY PROBES (PERM. INCORPORATION OF JLB-87-009).	RC	RLT YES	REMOVE PCP ROTATION LIGHTS	P- - AGNELLO D
FC-798	5 - 12/05/88	OP-12/05/88 12/21/90 206	INSTALL LOCAL CALIBRATED TEMPERATURE INDICATORS IN BATTERY ROOMS (ED-01/02).	ANN	RLT NO	ALARM WINDOW 32 ON C106 - PER WAS 8/5/88	WAS P-90-12 MEREDITH BD
FC-800	2 - 01/24/90 90 MAOUT	OP-01/15/90 12/30/91	ADDITION OF 2400V OFFSITE POWER. PROJ ENGR: FOSTER GW - FINAL	ED	YES YES	C07 ADDITIONS FOR NEW 2400 V SUPPLY	P- -

PALTRACK REPORT #21
05/15/90

CERTIFICATION REPORT
OPEN ITEMS

SOURCE DOC	PLT STATUS-DATE PLT SCHDLE DATE WBS NUMBER	SIM STS-DATE SIM SCH DATE PRIORITY	DESCRIPTION	SYS CODE 1/2	HARD/ SOFT WARE	SIMULATOR IMPACT DESCRIPTION	SIM ENGINEER/ SIM MOD NUMBER/ COGNIZANT INDV
	WBS-64380	15	ACCEPTANCEDATE:				HAMM RM
FC-803	5 - 12/22/88 WBS-35015	OP-12/22/88 07/15/90 100	CRITICAL PUMP INSERVICE INSPECTION BYPASS FLOW FE/FT/FI-0404.	SI	 YES	PER WAS 4/19/88	WAS P-90-04 MURPHY HK
FC-808	5 - 12/21/88 WBS-64785	OP-12/21/88 12/30/91 218	TURBINE TURNING GEAR MOD.	TU	RLT YES		P- - MEREDITH BD
FC-812	5 - 12/01/88 WBS-44580	OP-12/01/88 12/30/91 80	MODIFY SIS TEST CIRCUITRY FOR CV-1359.	SW SI	 YES	CV WILL ANNUNCIATE ON SIS PANEL AND WILL NOT STROKE ON SIS TEST. SEE FC 816	P- - SLEEPER GW
FC-814	5 - 07/13/89 88 REFOUT	OP-01/24/89 07/15/90 5	CORE 8 RELOAD.	CR RC	NO ERQ	REOPENED BECUASE P-87-36 CODE WAS REMOVED IN TLS 26 (SEE P89-32). FC-814 WAS ORIGINALLY IN P-87-36	ERQ P-90-16 PIERCE SF
FC-816	1 - 05/09/88 90 REFOUT WBS-44540	OP-07/25/89 12/30/91 81	MODIFY CV-1359 CONTROL SCHEME.	SW SI	NO YES	CLOSE CV ON RIGHT OR LEFT CHANNEL SIS. SEE FC-812	P- - ANDREWS KH
FC-817	5 - 02/26/90 89 MAOUT WBS-62625	OP-07/25/89 12/30/91 84	REPLACE PIC-0202 AND HIC-2122.	CV	YES YES		WAS P-90-08 RADZWION DJ
FC-818	1 - 05/26/88 90 REFOUT WBS-42111	OP-07/25/89 12/30/91 99	AIR SUPPLY MOD TO CV-0522A/B.	FW	 YES	CHANGE OPENING TIME	P- - CORBETT RJ
FC-829	1 - 10/04/88 90 REFOUT WBS-62926	OP-07/25/89 12/30/91 40	ELECTRICAL PENETRATION INSTALLATION (RG 1.97 NUCLEAR INSTRUMENTATION UPGRADE - PHASE II).	NI RP	YES YES		P- - CRIPPS JL
FC-839	5 - 02/01/90 89 MAOUT WBS-41210	OP-07/25/89 12/30/91 39	MODIFY 480V POWER SOURCES TO PROVIDE FEED TO P-55B FROM EITHER 1C OR 1D BUS.	CV	 YES		 AGNELLO D
FC-842	X - 02/28/89 92 REFOUT WBS-40250	OP-04/06/89 12/30/93 39	UPGRADE AUX FEEDWATER INSTRUMENT POWER SUPPLY.	FW	YES YES	ANN CHANGES AND NEW PS	P- - CORBETT RJ
FC-843	1 - 02/28/89 90 REFOUT WBS-44820	OP-04/06/89 12/30/91 39	REPOWER CERTAIN CONTROL ROOM INSTRUMENTS.	? ED	 YES		P- - ROSS VL
FC-844	2 - 11/14/89 90 REFOUT WBS-64740	OP-04/06/89 10/05/90 0	INSTALL WESTINGHOUSE DIGITAL ELECTRO-HYDRAULIC (DEH) CONTROL SYSTEM FOR TURBINE GENERATOR.	TC	YES YES		WAS P-89-38 GRIFFIN BR

PALTRACK REPORT #21
05/15/90

CERTIFICATION REPORT
OPEN ITEMS

SOURCE DOC	PLT STATUS-DATE PLT SCHDLE DATE WBS NUMBER	SIM STS-DATE SIM SCH DATE PRIORITY	DESCRIPTION	SYS CODE 1/2	HARD/ SOFT WARE	SIMULATOR IMPACT DESCRIPTION	SIM ENGINEER/ SIM MOD NUMBER/ COGNIZANT INDV
FC-848	1 - 03/29/89 90 REFOUT WBS-94112	OP-05/02/89 12/30/91 80	FUEL RELOAD M, CORE CYCLE 9, 90 REFOUT.	CR	NO YES		P- - KNEELAND JR
FC-849	1 - 03/29/89 90 REFOUT WBS-62615	OP-05/02/89 06/01/92 75	REMOVE LR-0612, PTR-0115, PTR-0125, PTR-8612, LT-0612, LT-0614, LT-0617, LT-0618, LT-0620, LT-0623, LT-0626 AND LT-0629.	FW	YES YES		P- - KENNEDY DM
FC-852	1 - 04/13/89 90 REFOUT WBS-63070	OP-05/02/89 12/30/91 80	ADDITION OF REDUNDANT RCS LEVEL INDICATING LOOP AND ALARM.	RC	YES YES	90 REF OUT	P- - CORBETT RJ
FC-854	1 - 04/17/89 90 REFOUT WBS-64381	OP-05/02/89 12/30/91 20	1) MODIFY PREFERRED AC INVERTER BYPASS CIRCUITS AND 2) MODIFY DIESEL GENERATOR BREAKER CONTROL SCHEMES.	ED	YES		P- - SONNENBERG DJ
FC-855	2 - 10/09/89 90 REFOUT WBS-64700B	OP-05/02/89 12/30/91 9	INSTALLATION OF TURBINE SUPERVISORIES.	TU	YES YES		P- - DAY DR
FC-857	X - 05/05/89 92 REFOUT WBS-90015	OP-06/06/89 12/30/93 1	REACTOR PROTECTIVE SYSTEM ENHANCEMENTS.	RP NI	YES		P- - ROSS VL
FC-861	1 - 05/16/89 90 REFOUT WBS-43030	OP-06/05/89 12/30/91 2	ELIMINATE REACTOR REG SYSTEM AND UPGRADE PCS AVG/DELTA TEMPERATURE INSTRUMENTS.	CR RD	YES YES		P- - SWIECICKI TJ
FC-862	5 - 02/26/90 89 MAOUT WBS-62645	OP-07/17/89 07/15/90 1	REPLACE PT/PIA-0116.	RC	YES YES	CHANGE QUENCH TANK TO DUAL RANGE WITH SWITCH	WED P-90-06 BISCHOFF RA
FC-863	X - 06/06/89 92 REFOUT WBS-43076	OP-07/11/89 12/30/93 50	INSTALL ADDITIONAL VIBRATION INDICATION FOR PCP MOTORS AND PUMPS.	RC	YES YES		P- - FERENS MA
FC-869	5 - 12/01/89 89 MAOUT	OP-07/14/89 07/15/90 1	REPLACE HS-0944A.	CC	YES YES	CHANGE TO 3 POSITION SWITCH	WED P-90-02 SONDGERATH PJ
FC-878	X - 09/14/89 92 REFOUT WBS-61230	OP-09/26/89 12/30/93 39	REPOWER P-56B BORIC ACID PUMP FROM POWER SUPPLY FED FROM BUS 1D (MCC-26).	CV	YES		WAS P-90-10 AGNELLO D
FC-881	1 - 09/28/89 01/31/90	OP-12/12/89 12/30/91 17	RETIRE STACK GAS MONITORING SYSTEM.	RMD		REMOVE RIA's 2318, 2319 FROM RAD RECORDER	P- - ROBERTS WL

PALTRACK REPORT #21
05/15/90

CERTIFICATION REPORT
OPEN ITEMS

SOURCE DOC	PLT STATUS-DATE PLT SCHDLE DATE WBS NUMBER	SIM STS-DATE SIM SCH DATE PRIORITY	DESCRIPTION	SYS CODE 1/2	HARD/ SOFT WARE	SIMULATOR IMPACT DESCRIPTION	SIM ENGINEER/ SIM MOD NUMBER/ COGNIZANT INDV
FC-883	1 - 10/19/89 90 REFOUT	OP-12/12/89 12/30/91 1	INSTALL MINIMUM FLOW ORIFICE ON P-8C.	FW	YES YES	HS IN C-01 AND POSITION LIGHTS	P- - MEIGH KP
FC-885	1 - 11/10/89 90 REFOUT	OP-11/30/89 12/30/91 207	EC-33 HUMAN FACTORS MODIFICATIONS.	SI	YES YES		P- - WADE MR
FC-887	2 - 04/02/90 06/01/90	OP-01/31/90 12/30/91 2	REVISE LTOP CURVE.	RC	NO YES		P- - SONNENBERG DJ
FC-888	X - 01/03/90 92 REFOUT WBS-43310	OP-01/31/90 12/30/93 12	UPGRADE REACTOR PROTECTION SYSTEM BISTABLE TRIP UNITS AND POWER SUPPLIES.	NI RP	YES YES		P- - FERENS MA
FC-892-01	1 - 02/11/90 90 REFOUT WBS-44264	OP-03/16/90 12/30/91 0	IMPROVE STEAM GENERATOR BLOWDOWN SYSTEM - PHASE I.	SG	YES		P- - MULLHOLAND AD
FC-892-02	X - 01/22/90 92 REFOUT WBS-44264	OP-03/16/90 12/30/93 0	IMPROVE STEAM GENERATOR BLOWDOWN SYSTEM - PHASE II.	SG	YES		P- - MULLHOLAND AD
FC-900	X - 02/13/90 92 REFOUT	OP-03/16/90 12/30/93 0	UPGRADE BORIC ACID MAKEUP WATER AND BORATION FLOW SYSTEM CONTROLLERS AND FLOW TRANSMITTERS.	CV	YES YES	92 REF OUT	P- - MEYERS DR
SC-84-091	5 - 01/28/85	OP-11/08/89 07/15/90 400	REPLACEMENT METERS FOR RIA-2323, 2324, 2326, & 2327.	RMD	RLT YES	2326 & 2327 ONLY	AJH P-85-04 LEVA TE
SC-85-166	5 - 11/30/88	OP-11/30/88 10/05/90 242	REPLACE RIA-1049 AND RE-1049.	RMD WP	RLT YES	PER LAS, 9/87	WED P-87-48 RADZWION DJ
SC-87-117	2 - 06/05/87 90 REFOUT	OP-07/25/89 12/30/91 400	CHANGEOUT OF SV-2003, SV-2004 AND SV-2005.	CV		(PER WAS, 8/87)	P- - CEDARQUIST SC
SC-87-228	5 - 04/12/88	OP-04/12/88 10/05/90 242	REPLACE RE-1815, RIA-2318 AND RIA-2319.	RMD	RLT YES	(PER WAS 12/87)	WED P-87-48 RADZWION DJ
SC-87-352	5 - 01/25/88	OP-01/25/88 07/15/90 57	ADD REFLASH CAPABILITY TO EK-0231.	RMD ANN	NO YES	CODE TO BE ADDED WITH MODEL	AJH P-85-04 WESTERHOF RS
SC-88-088	2 - 04/14/89 90 REFOUT	OP-07/25/89 10/05/90 450	REPLACE RIA-2327.	RMD	RLT YES	CHANGE TO DIGITAL	WED P-87-48 RADZWION DJ

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SC-88-180	5 - 04/28/89 88 REFOUT	OP-11/18/88 12/21/90 228	ADD MANUAL OVERRIDE TO VOP-3025 AND VOP-3055.	CV	YES		WAS P-90-10 LITWINSKI CA
SC-88-185	5 - 12/07/88	OP-12/07/88 12/21/90 243	CHANGE STROKE TIMES FOR CV-3029, CV-3030, CV-3031 AND CV-3057.	CV SI	YES		WAS P-90-10 SAARELA TC
SC-88-288	5 - 01/24/89 02/28/89	OP-12/05/88 07/15/90 104	LS-5305/5306 - INSTALL JUMPER ON C/T PUMP START PERMISSIVE FOR DISCHARGE PIPE LEVEL.	CW	NO YES	LEVEL SWITCHES DISABLED UNTIL VACUUM SYSTEM IS FIXED	WED P-90-02 TIFFANY ER
SC-88-298	5 - 01/03/90 89 MAOUT	OP-07/25/89 07/15/90 1	REPLACE PB-34L AND PB-34R WITH KEY LOCK SWITCH.	SI	YES NO		WAS P-90-04 CORBETT RJ
SC-89-026	5 - 02/19/90 89 MAOUT	OP-07/25/89 10/05/90 39	REPLACE HIC/POC-3003, HIC/POC-3004, HIC/POC-3039 AND HIC/POC-3043.	SI	YES YES		WAS P-90-08 RADZWION DJ
SC-89-032	5 - 02/19/90 89 MAOUT	OP-07/25/89 10/05/90 39	REPLACE PIC-0338, PT-0338, PIC-0342, PT-0342, PIC-0346, PT-0346, PIC-0347, AND PT-0347.	SI	YES YES		WAS P-90-08 RADZWION DJ
SC-89-048	5 - 10/30/89 89 MAOUT	OP-07/25/89 12/30/91 51	REPLACE TI-0101 AND TI-0102.	RC	YES	FAIL DOWNSCALE ON LOSS OF AC.	P- - KENNEDY DM
SC-89-050	2 - 08/07/89 90 REFOUT	OP-07/25/89 12/30/91 51	REPLACE PT-0751A-D AND PT-0752A-D FOR RG 1.97.	SG	YES YES	CHANGE RANGE TO 0-1200.	P- - ANDREWS KH
SC-89-051	5 - 10/30/89 89 MAOUT	OP-07/25/89 12/30/91 84	UPGRADE QUENCH TANK TEMPERATURE LOOP TIA-0116 TO COMPLY WITH RG 1.97.	RC	YES YES	CHANGE RANGE TO 0-350.	P- - SEAMANS LD
SC-89-061	5 - 10/25/89 89 MAOUT	OP-07/25/89 10/05/90 39	CHANGE TI-0328 FROM SIGMA TO VERSATILE.	SI	YES	FAIL DOWNSCALE ON LOSS OF AC.	WAS P-90-08 KENNEDY DM
SC-89-075	5 - 10/25/89	OP-04/06/89 12/30/91 39	REPLACE LIA-2021 AND LIA-2022 ON T-2.	FW	NO YES	FAIL DOWNSCALE ON LOSS OF AC	P- - KENNEDY DM
SC-89-082	5 - 07/14/89 07/01/89	OP-04/06/89 07/15/90 39	ADD REFLASH CAPABILITY TO EK-0207 AND EK-0219.	RMD		RGEM ON C11A	AJH P-85-04 WESTERHOF RS
SC-89-083	5 - 11/13/89 89 MAOUT	OP-04/06/89 10/05/90	HIGH PRESSURE SAFETY INJECTION HOT LEG PRESSURE AND FLOW.	SI	NO YES	FAIL DOWNSCALE ON LOSS OF AC	WAS P-90-08

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		39					KENNEDY DM
SC-89-099	5 - 12/29/89 89 MAOUT	OP-04/06/89 12/30/91 39	PLUG TUBES IN E-50B.	SG	NO YES		P- - CEDARQUIST SC
SC-89-107	5 - 12/29/89 89 MAOUT	OP-04/06/89 12/30/91 39	PLUG TUBES IN E-50A.	SG	NO YES		P- - CEDARQUIST SC
SC-89-109	5 - 11/13/89 89 MAOUT	OP-05/02/89 12/30/91 75	REPLACE FI-0727A, FI-0736A, FI-0737 AND FI-0749A.	FW	YES	FAILURE MODE	P- - KENNEDY DM
SC-89-114	5 - 03/20/90 12/30/89	OP-05/02/89 10/05/90 36	REPLACE RE/RIA-0707.	RMD			WED P-87-48 RADZWION DJ
SC-89-116	5 - 11/13/89 89 MAOUT	OP-05/04/89 12/30/91 75	REPLACE TI-1815.	CH	NO YES	FAIL DOWNSCALE ON LOSS OF AC	P- - KENNEDY DM
SC-89-117	5 - 11/09/89	OP-05/04/89 12/30/91 75	REPLACE TI-0303.	CV	NO YES	FAIL DOWNSCALE ON LOSS OF AC	P- - KENNEDY DM
SC-89-123	5 - 10/25/89	OP-05/02/89 12/30/91 75	REPLACE LIA-0920.	CC		FAILURE MODE	P- - KENNEDY DM
SC-89-132	5 - 11/13/89 89 MAOUT	OP-05/02/89 12/30/91 75	REPLACE TIC-0201.	CV	YES	FAILURE MODE	P- - KENNEDY DM
SC-89-133	5 - 11/13/89 89 MAOUT	OP-05/04/89 12/30/91 75	REPLACE TIA-0205.	CV	NO YES	FAIL DOWNSCALE ON LOSS OF AC	P- - KENNEDY DM
SC-89-179	5 - 11/03/89 12/30/89	OP-07/11/89 07/15/90 41	REPLACE P-40A/B AMMETERS (EAI-1102 AND EAI-1309).	CW	YES YES	CHANGE SCALE TO 0-150	WED P-90-02 HAUMERSEN J
SC-89-213	5 - 09/22/89 07/03/89	OP-07/12/89 07/15/90 1	CHANGE SET POINT FOR TIA-0107, TIA-0108 AND TIA-0109.	RC	YES	SHOULD ONLY BE A HARDWARE CHANGE	WED P-90-06 GRIEVES TS
SC-89-242	1 - 08/04/89 90 REFOUT	OP-09/28/89 12/30/91 45	REPLACE FQIS-0210A.	CV	YES YES	CHANGE TO DIGITAL	P- - KENNEDY DM

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SC-89-290	5 - 03/20/90 03/26/90	OP-12/01/89 12/30/91 2	CHANGE EK-0200 ALARM ACTUATION.	TC	NO YES		P- - PALMISANO GG
SC-89-291	2 - 04/10/90 90 REFOUT	OP-12/12/89 12/30/91 1	REPLACE RADIATION RECORDERS.	RMD	YES YES	CHANGE 2300, 01, 02 TO ESTERLINE-ANGUS	P- - KENNEDY DM
SC-89-293	2 - 03/26/90 90 MAOUT	OP-12/12/89 12/30/91 1	REPLACE FEEDWATER AND LEVEL RECORDERS.	FW	YES YES	CHANGE LR AND FR"S 0701/0703 TO CHESSELL	P- - KENNEDY DM
SC-89-328	5 - 01/23/90 03/01/90	OP-01/10/90 12/30/91 212	REDUCE TIME SETTING FOR CONTROL ROOM HVAC TIMING RELAYS 62-3 AND 62-4.	CH	NO YES	CH MODULE EQ 541 CHANGE TIMER FROM TWO MIN TO ONE MIN	P- - PHILLIPS LT
SC-89-334	5 - 01/30/90 89 MAOUT	OP-12/12/89 12/30/91 54	REPLACE PT-0208 AND PIC-0208.	CV	YES YES	CHANGE PIC-0206 AND 0208 TO YOKOGAWA	WAS P-90-08 KENNEDY DM
SC-89-335	5 - 12/28/89 03/16/90	OP-01/10/90 12/30/91 122	UPGRADE TI-0530 AND TI-0533 TO A 32-600 DEGREE RANGE.	TU MS	YES YES	REHEATER CONTROL POWER	P- - O'CONNELL WT
SC-89-339	5 - 12/13/89 03/01/90	OP-12/01/89 12/30/91 403	CHANGE MINIMUM CLOSURE STROKE TIME FOR CV-3029 AND CV-3030.	CV	NO YES		P- - SAARELA TC
SC-89-348	5 - 01/05/90 06/01/90	OP-12/13/89 12/30/91 1	REPLACE PENS ON PTR-0112 AND PTR-0122.	RC	YES NO	CHANGE PEN COLORS	P- - SONNENBERG DJ
SC-89-354	3 - 04/12/90 04/16/90	OP-01/31/90 12/30/91 114	CHANGE LOW LEVEL SET POINT FOR LIA-1400.	ED2	YES YES		P- - SWIECICKI TJ
SC-89-363	2 - 02/12/90 90 MAOUT	OP-01/31/90 12/30/91 2	REVERSE TURBINE NO-LOAD PRETRIP ALARM LOGIC.	TU TC	NO YES	452X TO NC CONTACT ON E-287, SH 1, K-01(7)	P- - HAUMERSEN J
SC-90-003	1 - 01/08/90 90 REFOUT	OP-01/31/90 12/30/91 12	REPLACE TR-0351.	SI	YES YES	S/D COOLING RECORDER REPLACEMENT	P- - MEYERS DR
SC-90-005	2 - 02/12/90 90 MAOUT	OP-01/31/90 12/30/91 52	CHANGE PC-0521 CONTROLLER SET POINT AND ANTI-RESET WIND-UP ORIENTATION.	MS	NO YES		P- - BIXEL DA
SDR-84-027	- / /	OP-08/14/84 12/30/91 223	PSC LEAK INTO CNTMT HUMIDITY, TEMP, RAD LEVELS	CH	NO YES	REMOVED FROM P85-17	P- -

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SDR-84-069	- / /	OP-10/23/84 12/30/91 30	CONTAINMENT SUMP LEVEL WHEN QUENCH TANK DISC RUPTURES	CH	NO YES		P-86-09
SDR-86-017	- / /	OP-01/28/86 12/30/91 227	S/G PRESS DOES NOT RESPOND CORRECTLY ON SGTR	SG			P- -
SDR-86-144	- / /	OP-12/10/86 12/30/91 123	CV 2083 & CV 2099 MODELED ON WRONG POWER SUPPLIES & WRONG ISOCATION RELAYS	CH CV	NO YES		P- -
SDR-87-010	- / /	OP-01/08/87 12/30/91 109	CONTROLLERS FIC-0306 AND TIC-0203 DON'T OPERATE IN AUTO	SI CV	NO YES		P-87-31
SDR-87-013	- / /	OP-01/08/87 12/30/91 259	TURB GEN COLD GAS OUTLET TEMP, TR-0505, SHOULD BE 45 DEG. C., NOT 31 DEG. C, LOSS OF SW FLOW DOESN'T CAUSE HI TEMP ALARM	EG TU	NO YES		P-87-25
SDR-87-092	- / /	OP-09/01/87 12/30/91 125	RIA 1809, 2319, AND 2319 DON'T RESPOND TO AUX BLDG LEAK	RMD	NO YES		P- -
SDR-87-093	- / /	OP-09/01/87 12/30/91 255	PRESSURIZER HEATER AMP METER IS NOT LINEAR, BUT INPUT TO IT IS	PZR	YES		P- -
SDR-87-116	- / /	OP-09/30/87 12/30/91 79	CONTROL PANEL C-27 DOES NOT WORK CORRECTLY. IT SHOULD GO TO 125 WHEN +10V IS DEPRESSED, BUT GOES TO 120 INSTEAD	NI	NO YES		
SDR-87-120	- / /	OP-10/07/87 12/30/91 83	FILLING SI TANKS WITH CTMT SPRAY PUMPS CAUSES PCS PRESSURE TO INCREASE	SI	NO YES		
SDR-87-124	- / /	OP-10/21/87 12/30/91 54	SIT LEVEL AND PRESSURE ALARMS DO NOT WORK PROPERLY.	SI	NO YES		
SDR-87-151	- / /	OP-12/23/87 12/30/91 230	SOME AIR OPERATED VALVES LINED UP TO INCORRECT AIR SUPPLY.	IA	NO YES		
SDR-88-024	- / /	OP-02/10/88 12/30/91 119	MALF TC02 DESCRIPTION DOESN'T AGREE WITH ACT.EFFECT: SAYS BLOCKS 20/AST AS MODELED, BLOCKS 20/AST, 20/ET, 305L, 305R	TC RP	NO YES	INSTRS DO NOT GET SCENARIO EXPECTED OPPORTUNITY FOR DIAGNOSTIC EXERCISE IS LOST	

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SDR-88-030	- / /	OP-09/25/86 12/30/91 96	ANNUNCIATORS FAILED P-86-25 TEST PROCEDURE	ANN	YES	SIM MOD P-86-39 WAS ORIGINALLY OPENED WITHOUT A SPR	P-86-39
SDR-88-039	- / /	OP-03/16/88 12/30/91 69	SPI RESPONSE TO PIP MALFUNCTION INCORRECT	RD PPC	NO YES	NEGATIVE TRAINING	
SDR-88-124	- / /	OP-09/02/88 12/30/91 27	RP01A DOES NOT WORK RIGHT: SHOULD BE SAME AS RP01B.	RP PCM	NO YES	REDUCES INSTR. CHOICES IN SETTING UP SCENARIO.	RLDICKS
SDR-88-127	- / /	OP-09/02/88 12/30/91 265	CCW MALFUNCTION CC03, AND CC MAKEUP FLOWS ARE WRONG.	CC CV	NO YES	PLANT CAN'T SURVIVE A LEAK OF MAGNITUDE CURRENT MODEL SHOWS AS TOLERABLE.	BLSCHANER
SDR-88-129	- / /	OP-09/02/88 12/30/91 461	DELETE MALF. FW02, FW03, AND FW05. NO LONGER NEEDED.	FW PCM	NO YES	REDUNDANT, OBSOLETE MALF. CLUTTERS PCM SCREEN. ADDS UNNECESSARY EFFORT TO CERT.	BLSCHANER
SDR-88-158	- / /	OP-11/29/88 12/30/91 20	CV5301 & 5305 AUTO-CLOSE WHEN P39A TRIPPED BY UV...THEY SHOULD NOT	CW ED	NO YES	MISLEADING TO TRAINEES	P-88-39 BLSCHANER
SDR-88-162	- / /	OP-05/08/89 12/30/91 113	ELECTRIC FIRE P9A FAILED TO START WHEN AUX FW P8A DEMANDED GREATER THAN 300 GPM FROM FIRE WATER SYSTEM	SW	NO YES	MISLEADING TO TRAINEES	BLSCHANER
SDR-88-163	- / /	OP-11/29/88 12/30/91 66	NO VIBRATION ALARM RECEIVED UPON PCP COUPLING FAILURE: MALF RC07	RC	NO YES	MISLEADING TO TRAINEES	BLSCHANER
SDR-88-164	- / /	OP-11/29/88 12/30/91 66	REACTOR DP, PC FLOW, AND PCP AMPS ALL CHANGE IN WRONG DIRECTION FOR MALF RC07	RC	NO YES	NEGATIVE TRAINING	BLSCHANER
SDR-88-165	- / /	OP-11/29/88 12/30/91 66	PCP CONT B.O. FLOW DOES NOT INCREASE UPON FAILURE OR MIDDLE SQAL: MALF RC13	RC CV	NO YES	MISLEADING TO TRAINEES	BLSCHANER
SDR-89-012	- / /	OP-02/01/89 12/30/91 226	DELETE MALFUNCTION FW12: NO TRAINING VALUE	FW PCM	NO YES	USE LESS MALFUNCTION ADDS CLUTTER TO PCM	BLS/DRA
SDR-89-015	- / /	OP-02/21/89 12/30/91 205	"POWER ON" INDICATING LIGHT ON PI-1419 DOES NOT GO OFF WHEN POWER IS LOST TO INSTRUMENT (ED07).	EG	YES	SIMULATOR CERTIFICATION (TEST M051).	P-89-16 GJASHWORTH
SDR-89-016	- / /	OP-02/21/89 12/30/91	TRIPPING OF "B" CAC FANS ON CHP EXTINGUISHES BOTH BREAKER LIGHTS -	CH SI	YES	SIMULATOR CERTIFICATION (TEST M021).	

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		82	SHOULD TURN OFF RED AND TURN ON GREEN. SEE E218.				GJASHWORTH
SDR-89-019	- / /	OP-05/09/89 12/30/91 92	LIA-0365 LOSS OF POWER FAILURE MODE IS INCORRECT. SHOULD FAIL AS IS, CURRENTLY FAILS DOWNSCALE.	SI	YES	SIMULATOR CERTIFICATION (TEST M052).	GJASHWORTH
SDR-89-025	- / /	OP-02/21/89 12/30/91 72	VARIABLE MALF FW08A DOESN'T YIELD EXPECTED RESULT - ie 10% DOESN'T PRODUCE 10% VALVE POSITION, ONLY 5% OPENING.	FW	YES	SIMULATOR CERTIFICATION (TEST M070).	P-89-25 GJASHWORTH
SDR-89-026	- / /	OP-02/21/89 12/30/91 62	"D" CHANNEL OF TMD DOESN'T GO BLANK UPON LOSS OF Y40 (ED08D) IF CH A&B ARE SELECTED FOR DISPLAY.	ED TMD	YES	SIMULATOR CERTIFICATION (TEST M052).	P-89-16 GJASHWORTH
SDR-89-027	- / /	OP-02/22/89 12/30/91 72	MALF MS05 (MS LINE LEAK-OUTSIDE) PRODUCES > 50% STEAM FLOW - ITS DESCRIPTION SAYS IT SHOULD ADD 10% STEAM FLOW.	PCM MS	YES	SIMULATOR CERTIFICATION (TEST M089).	GJASHWORTH
SDR-89-028	- / /	OP-02/22/89 12/30/91 247	PRIMARY COOLANT FLOW AS SHOWN ON FI0102A,B,C,D HAS NO INCREASE WHEN MALF RC05 (CORE BARREL FAIL) IS ACTIVATED.	RC	YES	SIMULATOR CERTIFICATION (TEST M103).	GJASHWORTH
SDR-89-029	- / /	OP-02/22/89 12/30/91 66	HI VIBRATION INDICATION (MALF RC16) ON TRIPPED PCP DOESN'T DIMINISH UNTIL @ 50 SEC - PUMP SHOULD STOP @ 30 SECONDS.	RC	YES	SIMULATOR CERTIFICATION (TEST M114).	GJASHWORTH
SDR-89-030	- / /	OP-02/22/89 12/30/91 63	IMPROPER RADIATION MONITOR RESPONSES - MALF RC22 DOESN'T RAMP, SEVERITY vs METER SCALE DIFF, MALF RM07 DOESN'T RAMP.	RMD PCM	YES	SIMULATOR CERTIFICATION (TESTS M120 & M138).	GJASHWORTH
SDR-89-031	- / /	OP-02/22/89 12/30/91 64	IMPROPER EQUIPMENT RESPONSES TO HI RADIATION - V14A/B, PO1809, CV0770/0771.	RMD CH	YES	SIMULATOR CERTIFICATION.	GJASHWORTH
SDR-89-032	- / /	OP-02/22/89 12/30/91 79	WITH MALF RP02A ACTIVE (SU HV FAIL), DRAWER TRIP TEST SW GAVE NO AUDIBLE CR, BUT TRIPPED FLUX TILT ALARMS ON ALL 4 CHNLS	NI	YES	SIMULATOR CERTIFICATION (TEST M141).	GJASHWORTH
SDR-89-033	- / /	OP-02/22/89 12/30/91 79	MALF RP21A IN & RPS IS RESET AFTER TRIP - M1 STAYS TRIPPED AS IT SHOULD BUT M1 V-METER RETURNS TO NORMAL FROM ZERO.	RP	YES	SIMULATOR CERTIFICATION (TEST M160).	P- - GJASHWORTH

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SDR-89-034	- / /	OP-02/22/89 12/30/91 66	MALF RX09 DOESN'T DISABLE "BACKUP VOLUME CONTROL" SIGNAL AS ADVERTISED.	RX CV	YES	SIMULATOR CERTIFICATION (TEST M178).	P- - GJASHWORTH
SDR-89-035	- / /	OP-02/22/89 12/30/91 51	MALF RX10A DOESN'T AFFECT LI0702 ON C33 PANEL, AS IT SHOULD - ONLY AFFECTS LIA0702 ON C12.	SG RX	YES	SIMULATOR CERTIFICATION (TEST M179).	GJASHWORTH
SDR-89-036	- / /	OP-02/23/89 12/30/91 121	MAIN TURB & GEN BRGS OIL OUTLET TEMPS DON'T RESPOND TO INCREASE IN OIL SUPPLY TEMP.	TU SW	NO YES	SIMULATOR CERTIFICATION (TEST M197).	ERQ P-90-09 GJASHWORTH
SDR-89-037	- / /	OP-02/23/89 12/30/91 89	MALF TC08 (TURB SPEED CNTRL ERR) DOESN'T CAUSE SHIFT FROM OPER AUTO TO MAN WHEN SPEED ERR EXCEEDS 600 r/min AS IT SHOULD	TC	YES	SIMULATOR CERTIFICATION (TEST M211).	GJASHWORTH
SDR-89-038	- / /	OP-02/23/89 12/30/91 121	MALF TU01 (TURB HI VIB) PROBLEMS - VIB DROPS INSTANTLY ON TRIP, OIL TEMPS DROP TOO FAST, NO HI TEMP ALARM.	TU	YES	SIMULATOR CERTIFICATION (TEST M217).	GJASHWORTH
SDR-89-039	- / /	OP-02/23/89 12/30/91 121	ALARM K01-3 FOR TURB ECCENTRICITY DIDN'T TRIP WHEN ECCENTRICITY EXCEEDED SETPOINT.	TU	YES	SIMULATOR CERTIFICATION (TEST M221).	GJASHWORTH
SDR-89-047	- / /	OP-03/27/89 12/30/91 56	PZR PRESS FELL TOO LOW ON AN UNCOMPLICATED RX TRIP W/NORMAL TAV & PZR LEVEL RESPONSE. SEE CERT TEST T002	RC	NO YES	COMPLICATES TRAINEES' DIAGNOSES OF TRANSIENTS	EHKOEPKE
SDR-89-049	- / /	OP-03/27/89 12/30/91 66	PCP/PC FLOW COASTDOWN TOO SLOW ON SINGLE PUMP TRIP FROM 4 PUMP OPERATION - SEE CERT TEST T005	RC	NO YES	COMPLICATES TRAINEES' DIAGNOSES OF TRANSIENTS	EHKOEPKE
SDR-89-050	- / /	OP-03/27/89 12/30/91 112	SG LEVEL RESPONSES TO SINGLE PCP TRIP ARE REVERSE OF WHAT THEY SHOULD BE IE, WRONG ONE HAS GRTR DROP-SEE CERT TEST T005	SG RC	NO YES	COMPLICATES TRAINEES' DIAGNOSES OF TRANSIENTS	EHKOEPKE
SDR-89-051	- / /	OP-03/29/89 12/30/91 500	REAL TIME TEST REVEALED DISCREPANCY ON TURB LOAD CHANGE RATE-SEE CERT TEST RT04	TC	NO YES	FAILS TEST OF REAL TIME SIMULATION	EHKOEPKE
SDR-89-055	- / /	OP-03/29/89 12/30/91 94	VCT DRAWDOWN DOES NOT AGREE WITH NET CHARGING WITHDRAWAL: WITH NET 409PM, LEVEL CHANGE = 60 GPM-SEE CERT TEST RT03	CV	NO YES	COMPLICATES TRAINEES' DIAGNOSES OF SOME MALFUNCTIONS	EHKOEPKE

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SDR-89-056	- / /	OP-03/29/89 12/21/90 17	VCT AUTO MAKEUP DOES NOT STOP WHEN ITS SUPPOSED TO CONTINUES UP TO 94% VS SETPOINT OF 78.5%-SEE CERT TEST N001	CV	NO YES	COMPLICATES TRAINEES' DIAGNOSES OF TRANSIENTS	WAS P-90-10 EHKOEPKE
SDR-89-057	- / /	OP-03/29/89 12/30/91 247	PCP FLOW RATES AT REDUCED TEMPERATURE NOT CALCULATED CORRECTLY-SEE CERT TEST N001	RC	NO YES	COMPLICATES TRAINEES' DIAGNOSES OF TRANSIENTS	EHKOEPKE
SDR-89-058	- / /	OP-03/02/89 12/30/91 226	CONDENSATE PUMP AMPS TOO LOW ON INITIAL PUMP START AND WHEN RUNNING ON RECIRC-SEE CERT TEST N001	FW	NO YES	COMPLICATES TRAINEES' DIAGNOSES OF SOME MALFUNCTIONS	EHKOEPKE
SDR-89-059	- / /	OP-03/29/89 12/30/91 43	PZR PRESS DOES NOT RESPOND TO PRC0101 75% SIGNAL DURING BUBBLE VERIFICATION STEP IAW SOP1, 7.1.4N-SEE CERT TEST N001	RC	NO YES	COMPLICATES TRAINEES' DIAGNOSES OF SOME MALFUNCTIONS	EHKOEPKE
SDR-89-062	- / /	OP-03/30/89 12/30/91 112	SG LEVELS DO NOT ALWAYS FALL TO APPROPRIATE MINIMUM UPON RX TRIP-SEE CERT TEST N003	SG	NO YES	COMPLICATES TRAINEES' DIAGNOSES OF TRANSIENTS	EHKOEPKE
SDR-89-063	- / /	OP-03/30/89 12/21/90 89	10% REDUCTION IN TURB CONTROL REFERENCE DOES NOT CAUSE 10% REDUCTION IN GENERATOR LOAD (IMPULSE IN)-SEE CERT TEST N005	TC	NO YES	COMPLICATES TRAINEES' DIAGNOSES OF TRANSIENTS	WAS P-90-10 EHKOEPKE
SDR-89-064	- / /	OP-03/30/89 12/30/91 9	ASDV CLOSING STROKE TIME TOO LONG 48 SEC VS 9 SEC-SEE CERT TEST N006	MS RX	NO YES	COMPLICATES TRAINEES DIAGNOSES OF TRANSIENTS	EHKOEPKE
SDR-89-065	- / /	OP-04/04/89 12/30/91 27	RPS TESTING SYSTEM DOES NOT OPERATE CORRECTLY. AC AND DC LIGHTS GO OFF WHEN THEY SHOULD NOT. SIMULATOR CERT TEST N008	RP	NO YES	COMPLICATES TRAINEES' UNDERSTANDING OF THE RPS TESTING SYSTEM	EHKOEPKE
SDR-89-085	- / /	OP-05/04/89 12/30/91 39	FEEDWATER FLOW DOES NOT MATCH THE PLANTS WITHIN THE 2% TOLERENCE AT THE 75% & 100% POWER LEVELS-CERT TEST N007	FW SG	NO YES	SIMULATOR CERTIFICATION TEST N007	EHKOEPKE
SDR-90-030	- / /	OP-04/10/90 12/30/91 0	GROSS/NET GEN OUTPUT AS INDICATED ON PRI DATA LOGGER (PIP) ARE NOT ACCURATE TO 2% VALUES PER ANSI N007 CERT TEST.	EG		DOES NOT MEET CERT TEST REQUIREMENTS	P- - WEDRUMMOND
SDR-90-035	- / /	OP-05/11/90 12/30/91 27	PRESSURIZER LEVEL OSCILLATES ABOUT 2% AROUND SET POINT. REF STEADY STATE TEST N007.	PZR RC	NO YES		WEDRUMMOND

PALTRACK REPORT #21
05/18/90

CERTIFICATION REPORT
OPEN ITEMS

SOURCE DOC	PLT STATUS-DATE PLT SCHDLE DATE WBS NUMBER	SIM STS-DATE SIM SCH DATE PRIORITY	DESCRIPTION	SYS CODE 1/2	HARD/ SOFT WARE	SIMULATOR IMPACT DESCRIPTION	SIM ENGINEER/ SIM MOD NUMBER/ COGNIZANT INDV
SDR-90-049	- / /	OP-05/18/90 12/30/91 120	PPDIL/PDIL HORNS IN C12 DO NOT ALARM WHEN REQUIRED	RD		INADEQUATE TRAINING	WED WEDRUMMOND
SPC-85-025	5 - 11/17/87	OP-04/27/89 07/15/90 243	RIA-2326 ALERT/ALARM SET POINT REVISED.	RMD	RLT YES		AJH P-85-04
SPC-85-026	5 - 11/17/87	OP-04/27/89 07/15/90 244	RIA-2327 ALERT/ALARM SET POINT REVISED.	RMD	RLT YES		AJH P-85-04
SPC-85-027	5 - 11/17/87	OP-04/27/89 07/15/90 245	RIA-2318 ALERT/ALARM SET POINT REVISED.	RMD	RLT YES		AJH P-85-04

SECTION G

PERFORMANCE TESTING SCHEDULE

PERFORMANCE TESTING SCHEDULE

A. Tests to be conducted the first year following certification (1991):

The Palisades simulator is scheduled to be moved from its existing location in Midland, Michigan to the Palisades plant site in Covert, Michigan in April, 1991.

Although this move is significant to the hardware portion of the simulator, no software changes will occur to the code utilized for training during the move. After the move, significant hardware diagnostic testing is planned and the software testing scheduled is as follows:

1. Operability Test

   a. One Steady State Test (N007).

   b. Ten Transient Tests (T001 through T010).

2. Performance Test

   a. Approximately 25% of the Malfunction Tests (Note: This testing includes complete coverage of the ANSI Standard requirements listed in section 3.1.2)

M001	M046	M088	M130	M178
M005	M050	M092	M137	M185
M009	M054	M102	M141	M186
M013	M057	M103	M145	M190
M020	M063	M107	M149	M196
M024	M066	M109	M158	M198
M029	M071	M117	M162	M203
M033	M076	M120	M166	M207
M037	M082	M125	M170	M213
M042	M084	M129	M174	M218

   b. Approximately 25% of the Normal Operation Tests (N004, N005 and N006)

   c. Approximately 25% of the Real Time Tests (RT01 and RT05)

B. Tests to be conducted the second year following certification (1992):

The entire Performance Test is scheduled to be conducted due to planned module upgrades of the core, pressurizer, reactor coolant system, containment and radiation monitoring system.

C. Tests to be conducted the third year following certification (1993):

1. Operability Test
   a. One Steady State Test (N007).
   b. Ten Transient Tests (T001 through T010).

2. Performance Test
   a. Approximately 25% of the Malfunction Tests

M001	M046	M088	M133	M178
M005	M050	M092	M137	M182
M009	M054	M096	M141	M186
M013	M057.5	M103	M145	M190
M020	M060	M107	M149	M194
M025	M066	M111	M153	M198
M029	M071	M115	M162	M203
M033	M076	M120	M166	M207
M037	M080	M125	M170	M213
M042	M084	M129	M174	M218

   b. Approximately 25% of the Normal Operation Tests (N001)
   c. Approximately 25% of the Real Time Tests (RT01 and RT05)

D. Tests to be conducted the fourth year following certification (1994):

1. Operability Test
   a. One Steady State Test (N007).
   b. Ten Transient Tests (T001 through T010).

2. Performance Test
   a. Approximately 25% of the Malfunction Tests

M003	M044	M090	M135	M176	M220
M007	M048	M094	M139	M180	
M011	M052	M098	M143	M184	
M015	M056	M105	M147	M188	
M018	M062	M109	M151	M192	
M022	M069	M113	M154	M196	
M027	M073	M117	M160	M201	
M031	M078	M123	M164	M205	
M035	M082	M127	M168	M211	
M039	M086	M131	M172	M216	

   b. Approximately 25% of the Normal Operation Tests (N004, N005, N006)
   c. Approximately 25% of the Real Time Tests (RT03 and RT05)