SOUTH TEXAS PROJECT
ELECTRIC GENERATING
STATION

NUCLEAR TRAINING DEPARTMENT

SOUTH TEXAS PROJECT

ELECTRIC GENERATING STATION

SIMULATOR CERTIFICATION SUBMITTAL

INITIAL REPORT

ATTACHMENT

SOUTH TEXAS PROJECT ELECTRIC
GENERATING STATION SIMULATOR
CERTIFICATION SUBMITTAL

SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION
SIMULATOR CERTIFICATION SUBMITTAL

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NRC FORM 474
(10 86)
10 CFR § 55.45(b), 55.4 and 55.5

U.S. NUCLEAR REGULATORY COMMISSION
Approved by OMB
3150-0138
Expires 10-31-89

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
SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION UNIT 1	50- 498
LICENSEE	DATE
HOUSTON LIGHTING & POWER, P.O. BOX 289, WADSWORTH, TEXAS 77483	March 1, 1991

This is to certify that: 1. the above named facility licensee is using a simulation facility consisting solely of a plant-referenced simulator that meets the requirements of 10 CFR § 55.46; 2. the simulation facility meets the guidance contained in ANSI/ANS 3.5, 1985, as endorsed by NRC Regulatory Guide 1.149; and 3. documentation is available for NRC review in accordance with 10 CFR § 55.45(b). If there are any exceptions to the certification of item 2 above, check here ☒ and describe fully on additional pages as necessary.

NAME (or other identification) AND LOCATION OF SIMULATION FACILITY

SOUTH TEXAS PROJECT SIMULATOR/NUCLEAR TRAINING FACILITY, FM521, 8mi. West of Wadsworth, TX 77483

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

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

SEE SECTION 10 OF ATTACHMENT

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

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

SEE SECTION 11 OF ATTACHMENT

☐ 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

☐ 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
W. H. KINSEY W H Kinsey	VICE PRESIDENT-NUCLEAR GENERATION	3/1/91

In accordance with 10 CFR § 55.5, Communications, this form shall be submitted to the NRC as follows:

BY MAIL ADDRESSED TO: Director, Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555

BY DELIVERY IN PERSON TO THE NRC OFFICE AT: 7920 Norfolk Avenue
Bethesda, MD

NRC FORM 474 (10-88) 10 CFR § 55.45(b), 55.4 and 55.5

U.S. NUCLEAR REGULATORY COMMISSION
Approved by OMB 3150-0138 Expires 10-31-89

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
SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION UNIT 2	50-499
LICENSEE	DATE
HOUSTON LIGHTING & POWER, P.O. BOX 289, WADSWORTH, TEXAS 77483	March 1, 1991

This is to certify that: 1. the above named facility [illegible] a simulation facility consisting solely of a plant-referenced simulator that meets the requirements of 10 CFR § 55.45; 2. this simulation facility meets the guidance contained in ANSI/ANS 3.5, [illegible] by NRC Regulatory Guide 1.149; and 3. documentation is available for NRC review in accordance with 10 CFR § 55.45(b). If there are any exceptions to the certification of item 2 above, che[illegible] describe fully on additional pages as necessary.

NAME (or other identification) AND LOCATION OF SIMULATION FACILITY

SOUTH TEXAS PROJECT SIMULATOR/NUCLEAR TRAINING FACILITY, FM521, 8 mi. West of Wadsworth, TX 77483

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

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

THE DESCRIPTION OF PERFORMANCE TESTING IS IN SECTION 10 OF THE ATTACHMENT AND THE BASIS FOR APPLICATION TO UNIT 2 ARE IN SECTION 13 OF THE ATTACHMENT.

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

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

THE DESCRIPTION OF PERFORMANCE TESTING TO BE CONDUCTED IS IN SECTION 10 OF THE ATTACHMENT AND THE BASIS FOR APPLICATION TO UNIT 2 ARE IN SECTION 13 OF THE ATTACHMENT.

☐ 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

☐ 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
W. H. KINSEY W.H. Kinsey	VICE PRESIDENT-NUCLEAR GENERATION	3/1/91

In accordance with 10 CFR § 55.5, Communications, this form shall be submitted to the NRC as follows:

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Bethesda, MD

SOUTH TEXAS PROJECT

ELECTRIC GENERATING STATION

SIMULATOR CERTIFICATION REPORT

FEBRUARY 8, 1991

1.0 INTRODUCTION/DEFINITIONS

1.1 PURPOSE AND ARRANGEMENT OF THIS REPORT

The purpose of this report is to provide the basis for Houston Lighting & Power Company's (HL&P's) certification that the simulator can be used in the conduct of operating tests for Unit 1 and Unit 2 of the South Texas Project Electric Generating Station (STPEGS). This is done by showing compliance with the provisions of ANSI/ANS 3.5,1985 or by identifying exceptions to compliance and justifying why operating tests can still be administered. Each section of the standard is reproduced and, immediately following, the current status of the related requirement is provided.

This report is being submitted as the Initial Certification Report in accordance with 10 CFR 55.45.b.5.

1.2 GENERAL SIMULATOR INFORMATION

STPEGS is a two unit Westinghouse PWR - Four Loop 1250 MWE Plant operating from independent control rooms.

The power plant simulator is used for training and examining the STPEGS Unit 1 and Unit 2 operators. The STPEGS simulator is considered plant specific to Unit 1. Due to the minor differences between the Units, this report represents the Certification submittal for both Units 1 and 2. The differences between the simulator and Unit 2 are evaluated in Section 9 and Addendum 2 of this submittal.

The simulator was constructed by Gould Inc. in the early 1980's and delivered to Houston Lighting & Power in late 1984.

1.3 DEFINITIONS

1.3.1 DISCREPANCY REPORT (DR)

A form used to document problems in simulator configuration or operation. The documented problems are delivered to the simulator support section for resolution. Anyone responsible for operation or maintenance of the simulator can generate DRs. Students and operators are also encouraged to submit DRs through the simulator training instructors.

1.3.2 MODIFICATION REPORT (MR)

A form used to document and track plant modifications or changes to the scope of simulation which may or may not be incorporated on the simulator. MRs are reviewed by the Simulator Configuration Management Committee (SCMC) to determine the training/examination impact and whether the plant modification should be incorporated on the simulator.

1.3.3 SIMULATOR ENHANCEMENT

A change made to the simulator, either an addition or deletion from the original scope of simulation which is not related to a plant modification. Examples of a simulator enhancement would be the addition or deletion of a malfunction or a modification made to the instructor station.

1.3.4 MALFUNCTION RESPONSE/REMOTE RESPONSE BOOKS

Manuals, available to the simulator instructors, which contain the cause and effects of each malfunction/remote which has been tested and approved for operator training and examinations.

1.3.5 COMPLIANCE

Discrepancies which may exist do not have significant adverse effect on the conduct of a licensing examination or operator training. Correction is not necessary to comply with ANSI/ANS 3.5,1985.

1.3.6 **EXCEPTION**

Discrepancies which have been identified during performance testing or operator training that prevent full compliance with ANSI/ANS 3.5,1985. These discrepancies, depending on the severity, are categorized as follows:

1.3.6.1 **PARTIAL COMPLIANCE**

Discrepancies exist which have a minor but definite impact on the ability to conduct a licensing examination or operator training. These discrepancies include those which can be easily accounted for and overcome during a licensing examination or operator training. Correction of these discrepancies will be scheduled, utilizing available resources, in accordance with the simulator configuration control procedures as part of the ongoing simulator update program.

1.3.6.2 **NON-COMPLIANCE**

Discrepancies exist which adversely affect the ability to conduct a reliable licensing examination on the event. Operator training may still be possible with instructor intervention. However the simulator will not be used in the administration of an operating test using the non-complying procedure, system or event until the discrepancies are corrected. The identified discrepancies will be scheduled for correction, utilizing available resources, in accordance with the simulator configuration control procedures as part of the ongoing simulator update program.

1.3.6.3 **NOT APPLICABLE**

Not applicable refers to requirements of ANSI/ANS 3.5,1985 which do not apply to the STPEGS reference plant simulator.

1.4 ACRONYMS, ABBREVIATIONS, TRADENAMES

AC	Alternating Current
ACC, ACCU, ACCUM	Accumulator(s)
ACT	Activation or Actuation
ACW	Auxiliary Cooling Water
AFW	Auxiliary Feed Water
ANSI/ANS	American National Standards Institute/American Nuclear Society
ANN, ANNUN	Annunciator
ATWS	Anticipated Transient without Scram
AUTO	Automatic
AUX	Auxiliary
BA	Boric Acid
BATT	Battery
BKR	Breaker
BNK	Bank
BOL	Beginning Of (Core) Life
BOP	Balance-Of-Plant
BRNG	Bearing
B/S	Bistable
B/U	Back-Up
BWR	Boiling Water Reactor
CCW	Component Cooling Water System
CET	Core Exit Thermocouple

1.4 **ACRONYMS, ABBREVIATIONS, TRADENAMES** (cont'd)

CFR	Code of Federal Regulations
CH	Channel
CLDWN, CLDN	Cooldown
CLSD	Closed
CNTMT	Containment Building
CONT	Containment
COND	Condenser, Condensate
CRYWOLF	Gould Trade Name for Annunciator Functions
CR	Control Room
CSF	Critical Safety Functions
CTRL, CNTRL	Control
CVCS	Chemical and Volume Control System
DA	Deaerator
DC	Direct Current
DISCH	Discharge
DISPL	Display
DG	Diesel Generator
D/P, DP	Differential Pressure
DR	Discrepancy Report
DRPI	Digital Rod Position Indicating System
DRFD	Daily Readiness Test

1.4 <u>ACRONYMS, ABBREVIATIONS, TRADENAMES</u> (cont'd)

ECW	Essential Cooling Water
EH, EHC	Electrohydraulic Control System
ELEC	Electrical
EMER, EMERG	Emergency
EOL	End Of (Core) Life
EOP	Emergency Operating Procedures
ERFDADS	Emergency Response Facility Data Acquisition and Display System
ESF	Engineered Safety Features
FC	Fail Closed
FW	Feedwater
FO	Fail Open
GEN	Generator
GOV	Governor (Component)
GPM	Gallons Per Minute
GS	Gland Seal System
HDR	Header
HHSI	High Head Safety Injection
HL&P	Houston Lighting and Power Company
IA	Instrument Air
IC	Initial Condition
INC, INCR	Increase, Increasing
IND	Indication

1.4 ACRONYMS, ABBREVIATIONS, TRADENAMES (cont'd)

INJ	Injection
INOP	Inoperable
INST	Instrument
INTEG	Integrator
I/O	Input/Output
IR	Intermediate Range
ISOL	Isolation
LC, L/C	Load Center
LHSI	Low Head Safety Injection
LOCA	Loss of Coolant Accident
LOOP	Loss of Off-Site Power
LP	Low Power or Low Pressure
LTDN	Letdown System
LVL	Level
MALF	Malfunction
MCC	Motor Control Center
MN	Main
MNTR	Monitor
MOL	Middle of (Core) Life
MR	Modification Report
MS	Main Steam
MSIV	Main Steam Isolation Valve
MSR	Moisture Separator Reheater

1.4 **ACRONYMS, ABBREVIATIONS, TRADENAMES** (cont'd)

M/U	Makeup
MWE	Megawatts (Electrical)
NI	Nuclear Instrumentation
NSSS	Nuclear Steam Supply System
NTD	Nuclear Training Department
OER	Operating Experience Review
OPS	Operations
PART	Particulate
PH	Phase
PMSCS	Plant Monitoring Simulator Computer System
PNL	Panel
POP03	Normal Plant Operating Procedure
PORV	Power Operated Relief Valve
PR	Power Range, Pressure
PROTEUS	Plant Process Computer System (P-2500)
PRT	Pressurizer Relief Tank
PWR	Pressurized Water Reactor
PZR/PRZR	Pressurizer
QDPS	Qualified Display Parameter (or Process) System
RC	Rod Control
RCP	Reactor Coolant Pump

1.4 ACRONYMS, ABBREVIATIONS, TRADENAMES (cont'd)

RCS	Reactor Coolant System
REG	Regulator
RHR	Residual Heat Removal
RM	Room
RM-11	Normal Radiation Monitoring System
RMS	Radiation Monitoring System
RMW	Reactor Make-Up Water
RO	Reactor Operator
RTD	Resistance Temperature Detector
RWST	Refueling Water Storage Tank
RX	Reactor
SCC	Simulator Configuration Coordinator
SCMC	Simulator Configur ion Management Committee
S/D	Shutdown
SDA	Simulation Development Aid Program
SEC	Secondary
SEQNCR	Sequencer
SFTY	Safety
S/G	Steam Generator
SGTL, SGTR	Steam Generator Tube Leak, Tube Rupture

1.4 **ACRONYMS, ABBREVIATIONS, TRADENAMES** (cont'd)

SI	Safety Injection
SOE	Sequence-Of-Events
SPDS	Safety Parameter Display System
SPLY	Supply
SR	Source Range
SRO	Senior Reactor Operator
STM	Steam
STP	South Texas Project
STPEGS	South Texas Project Electric Generating Station
S/U	Start-Up
TAVG	Average Reactor Coolant Temperature
TC	Thermocouple
TK	Tank
TURB	Turbine
UAT	Unit Auxiliary Transformer
VCT	Volume Control Tank
VLV	Valve
WR	Wide Range
XCONN	Cross-Connect
XFER	Transfer
XFMR	Transformer
XMTR	Transmitter
ZG	Designator For Normal Plant Procedure

2.0 ANSI/ANS 3.5, 1985 SIMULATOR CERTIFICATION CHECKLIST

2.1 ANSI REQUIREMENT (SECTION 3.1 SIMULATOR CAPABILITIES)

The response of the simulator resulting from operator action, no operator action, improper operator action, automatic plant controls and inherent operating characteristics shall be realistic to the extent that within the limits of the performance criteria (Section 4, Performance Criteria) the operator shall not observe a difference between the response of the simulator control room instrumentation and the reference plant.

2.1.1 STATUS: PARTIAL COMPLIANCE

Twenty-eight discrepancies have been identified which do not allow full compliance with this requirement. The discrepancies related to this requirement are listed in Addendum 1.1.

Several methods are available to ensure effective training and examinations may continue to be administered with the existence of these discrepancies.

The methods include:

1) Placement of tags on the simulator control boards as done in the reference plant. This provides concise information on components or indications which have outstanding discrepancies associated with them.

2) Briefings held with the trainees prior to training sessions or examinations as done during shift turnovers in the reference plant. This gives the training instructors the opportunity to discuss with the trainees the differences which exist between the reference plant and the simulator.

3) Dry-running the simulator scenarios prior to use during training sessions or examinations. This allows the training instructors to identify problems which may occur and provides time to modify the scenarios to circumvent identified problems.

2.2 ANSI REQUIREMENT (SECTION 3.1.1 NORMAL PLANT EVOLUTIONS)

The simulator shall be capable of simulating continuously, and in real time, plant operations of the reference plant. The simulator shall calculate plant system parameters corresponding to particular operating conditions, displaying these parameters on the appropriate instrumentation, and provide proper alarm or protective system action, or both. The minimum evolutions that the simulator shall be capable of performing, using only operator action normal to the reference plant, are as follows:

1) *Plant startup - cold to hot standby. The starting conditions shall be cold shutdown conditions of temperature and pressure. Removal of the reactor vessel head is not a required condition for simulation;*

2) *Nuclear startup from hot standby to rated power;*

3) *Turbine startup and generator synchronization;*

4) *Reactor trip followed by recovery to rated power;*

5) *Operations at hot standby;*

6) *Load changes;*

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

8) *Plant shutdown from rated power to hot standby and cooldown to cold shutdown condition*

9) *Core performance testing such as plant heat balance, determination of shutdown margin, and measurement of reactivity coefficients and control rod worth using permanently inst[illegible]d instrumentation;*

10) *Operator [illegible]ted surveillance testing on safety related equipment or systems.*

2.2.1 STATUS: PARTIAL COMPLIANCE FOR 1 THROUGH 6 AND 8 THROUGH 10

Fourteen discrepancies have been identified which do not allow full compliance with requirements 1 through 6 and 8 through 10. The discrepancies related to these requirements are listed in Addendum 1.2.

The most significant result of these discrepancies is that examination scenarios do not include the real-time formation of a pressurizer steam bubble.

ITEM 7 ABOVE IS NOT APPLICABLE TO STPEGS.

Requirement 7 is prohibited by STPEGS Technical Specifications, therefore, neither training nor examinations will be conducted on start-up, shutdown and power operations with less than full reactor coolant flow.

Several methods are available to ensure effective training and examinations may continue to be administered with the existence of the other discrepancies.

The methods include:

1) Placement of tags on the simulator control boards as done in the reference plant. This provides concise information on components or indications which have outstanding discrepancies associated with them.

2) Briefings held with the trainees prior to training sessions or examinations as done during shift turnovers in the reference plant. This gives the training instructors the opportunity to discuss with the trainees the differences which exist between the reference plant and the simulator.

3) Dry-running the simulator scenarios prior to use during training sessions or examinations. This allows the training instructors to identify problems which may occur and provides time to modify the scenarios to circumvent identified problems.

2.3 ANSI REQUIREMENT (SECTION 3.1.2 PLANT MALFUNCTIONS)

The simulator shall be capable of simulating, in real time, abnormal and emergency events including malfunctions to demonstrate inherent plant response and automatic plant control functions. Each type of accident analyzed in the reference plant safety analysis report that results in observable indications on control room instrumentation and for which the simulator is determined to be appropriate for training shall be simulated.

Where the operator actions are a function of the degree of severity of the malfunction (e.g., Loss of condenser vacuum, steam line break, loss of coolant, degraded feedwater flow, etc), the simulator shall have adjustable rates for the malfunction of such a range to represent the plant malfunction conditions. The remaining events shall consist of a variety of malfunctions associated with the electrical, auxiliary, engineered safety features systems, steam systems, reactor coolant system, and instrumentation and control systems.

The malfunctions listed below shall be included:

1) *Loss of coolant;*

    a) *Significant PWR steam generator leaks;*

    b) *Inside and outside primary containment;*

    c) *Large and small reactor coolant breaks including demonstration of saturation condition;*

    d) *Failure of safety and relief valves;*

2) *Loss of instrument air to the extent that the whole system or individual headers can lose pressure and affect the plant's static or dynamic performance;*

3) *Loss or degraded electrical power to the station, including loss of offsite power, loss of emergency power, loss of emergency generators, loss of power to the plant's electrical distribution buses and loss of power to the individual instrumentation buses (ac as well as dc) that provide power to control room indication or plant control functions affecting the plant's response;*

4) *Loss of forced core coolant flow due to single or multiple pump failure;*

5) *Loss of condenser vacuum including loss of condenser level control;*

6) *Loss of service water or cooling to individual components;*

7) *Loss of shutdown cooling;*

8) *Loss of component cooling system or cooling to individual components;*

9) *Loss of normal feedwater or normal feedwater system failure;*

10) *Loss of all feedwater (normal and emergency);*

11) *Loss of protective system channel;*

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

13) *Inability to drive control rods;*

14) *Fuel cladding failure resulting in high activity in reactor coolant or off gas and the associated high radiation alarms;*

15) *Turbine trip;*

16) *Generator trip;*

17) *Failure in automatic control system(s) that affect reactivity and core heat removal;*

18) *Failure of reactor coolant pressure and volume control systems (PWR);*

19) *Reactor trip;*

20) *Main steam line as well as main feed line break (both inside and outside containment);*

21) *Nuclear instrumentation failure(s);*

22) *Process instrumentation, alarms, and control system failures;*

23) *Passive malfunctions in systems, such as engineered safety features, emergency feedwater systems;*

24) *Failure of the automatic reactor trip system;*

25) *Reactor pressure control system failure including turbine bypass failure (BWR).*

The response of the simulator shall be compared to actual plant response or best estimate plant response (see Section 4, Performance Criteria). Safety analysis calculated response is based on conservative initial conditions and assumptions and may not accurately reflect realistic plant response. Comparing simulator response to safety analysis results may show significant discrepancies which shall be resolved based on best estimate results. Where applicable to the malfunction the simulator shall provide to the operator the capability of taking action to recover the plant, mitigate the consequences, or both. The simulation shall be capable of continuing until such time that a stable, controllable and safe condition is attained which can be continued to cold shutdown conditions, or until the simulator operating limits (4.[illegible], Simulator Operating Limits) are reached.

2.3.1 **STATUS: COMPLIANCE WITH 5, 6 [illegible] 10, 11, 13, 15, 16, 17, 19, 21, 23, 24**

The malfunctions that are approved for training and examinations are listed in Addendum 3. Addendum 4 corresponds to the sequential listing of Addendum 3 and details the specific tests done as well as any noted discrepancies.

2.3.2 **STATUS: PARTIAL COMPLIANCE WITH 1, 2, 3, 4, 7, 8, 12, 14, 18, 20, 22**

Fifty-one discrepancies have been identified related to several of the required malfunctions. Addendum 1.3 lists these malfunctions and their associated DRs.

In the Addendum, each DR is cross-referenced to the specific malfunction affected.

Each discrepancy is also referenced to the following letter code to describe the impact and remedial steps taken for training and examination purposes:

"R" Radiation Monitoring System Model Problem. Values do not trend but rather jump to the alarm value, or values must be prepared before hand.

Addressed by:

1) Placement of tags on the simulator control boards as done in the reference plant. This provides concise information on components or indications which have outstanding discrepancies associated with them.

2) Briefings held with the trainees prior to training sessions or examinations as done during shift turnovers in the reference plant. This gives the training instructors the opportunity to discuss with the trainees the differences which exist between the reference plant and the simulator.

3) Dry-running the simulator scenarios prior to use during training sessions or examinations. This allows the training instructors to identify problems which may occur and provides time to modify the scenarios to circumvent identified problems.

"L" Dynamic Model Scope Problem. These are Limits upon the extent of simultaneous malfunctions and/or the depth of recovery and contingency actions that can be done or triggered.

Addressed by:

1) Placement of tags on the simulator control boards as done in the reference plant. This provides concise information on components or indications which have outstanding discrepancies associated with them.

2) Briefings held with the trainees prior to training sessions or examinations as done during shift turnovers in the reference plant. This gives the training instructors the opportunity to discuss with the trainees the differences which exist between the reference plant and the simulator.

3) Dry-running the simulator scenarios prior to use during training sessions or examinations. This allows the training instructors to identify problems which may occur and provides time to modify the scenarios to circumvent identified problems.

"P" Potential Logic or Dynamic problems exist. These do not preclude the use of a required malfunction but may impose limits on combinations of malfunctions. If limitations or dynamic problems are identified which cannot be easily accounted for by the examiner, alternate scenarios can be made available to provide a reliable examination.

Addressed by:

1) Briefings held with the trainees prior to training sessions or examinations, as done during shift turnovers in the reference plant. This gives the training instructors the opportunity to discuss with the trainees the differences which exist between the reference plant and the simulator.

2) Dry-running the simulator scenarios prior to use during training sessions or examinations. This allows the training instructors to identify problems which may occur and provides time to modify the scenarios to circumvent identified problems.

"M" Minor Logic and Dynamic Problems. Some redundant computer point indicators are not available or fully modeled. Some minor logic inputs to equipment are not modeled and must be worked around using individual override or annunciator functions. The magnitude of the response of some auxiliary systems differs from the reference plant system.

Addressed by:

1) Placement of tags on the simulator control boards as done in the reference plant. This provides concise information on components or indications which have outstanding discrepancies associated with them.

2) Briefings held with the trainees prior to training sessions or examinations as done during shift turnovers in the reference plant. This gives the training instructors the opportunity to discuss with the trainees the differences which exist between the reference plant and the simulator.

3) Dry-running the simulator scenarios prior to use during training sessions or examinations. This allows the training instructors to identify problems which may occur and provides time to modify the scenarios to circumvent identified problems.

"O" Other malfunctions are available and used instead of the listed malfunction with the discrepancy.

2.3.3 **STATUS: NON-COMPLIANCE WITH 1.d**

The STPEGS reference plant simulator is not capable of demonstrating the repressurization conditions from any sustained pressurizer steam space leak at this time due to modeling limitations of the current software. At the completion of the Simulator Model Upgrade Project, (see Section 12), the STPEGS reference plant simulator will be in compliance with this requirement. Deficiencies regarding this non-compliance are marked with a double asterisk (**) in Addendum 1.3.

2.3.4 **STATUS: NOT APPLICABLE FOR 25**

2.4 ANSI REQUIREMENT (3.2.1 DEGREE OF PANEL SIMULATION)

The simulator shall contain sufficient operational panels to provide the controls, instrumentation, alarms, and other man-machine interfaces to conduct the normal plant evolutions of 3.1.1 (Normal Plant Evolutions) and respond to the malfunctions of 3.1.2 (Plant Malfunctions). The control 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. There may be deviations in dimensions and arrangement of panels provided these deviations do not detract from training or examinations.

2.4.1 **STATUS: COMPLIANCE**

Minor deviations exist between Unit 1 and Unit 2 Control Rooms and between Unit 1 Control Room and the simulator. These identified differences are listed in Addendum 2. Those differences that are appropriate for correction are the subject of MRs in Addendum 5. The MRs will be corrected in accordance with normal simulator configuration control procedures. Each difference has been reviewed by the SCMC and it has been determined that until corrected or resolved they do not detract from training or examinations. See Section 13.

2.5 ANSI REQUIREMENT (3.2.2 CONTROLS ON PANELS)

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. Consideration should be given to face-front visual simulation of hardware components located on simulated panels but not used by the trainee during training. All functionally simulated and visually simulated hardware shall replicate that in the reference plant control room. There may be dimensional deviation in the configuration of components and instrumentation, provided these deviations do not impact on actions to be taken by the operator. Plant information shall be displayed to the operator in the same form and units that are available in the reference plant. Meters, recorders, switches, annunciators, controllers, plant computer interface hardware and other components or displays that would function during normal, abnormal, and emergency evolutions shall be included in the simulator.

2.5.1 STATUS: PARTIAL COMPLIANCE

Thirty-three discrepancies exist which do not allow full compliance with this requirement. The discrepancies related to this requirement are listed in Addendum 1.4. Twenty other discrepancies that potentially relate to this requirement are listed in Addendum 1.9.

The effect of the discrepancies can be summarized by: (1) poor trending by the Radiation Monitoring System Model or (2) the incomplete modeling of isolated computer data points.

Several methods are available to ensure effective training and examinations may continue to be administered with the existence of these discrepancies.

The methods include:

1) Placement of tags on the simulator control boards as done in the reference plant. This provides concise information on components or indications which have outstanding discrepancies associated with them.

2) Briefings held with the trainees prior to training sessions or examinations as done during shift turnovers in the reference plant. This gives the training instructors the opportunity to discuss with the trainees the differences which exist between the reference plant and the simulator.

3) Dry-running the simulator scenarios prior to use during training sessions or examinations. This allows the training instructors to identify problems which may occur and provides time to modify the scenarios to circumvent identified problems.

2.6 ANSI REQUIREMENT (3.2.3 CONTROL ROOM ENVIRONMENT)

Consideration shall be given to simulating as much of the control room environment as is reasonable and practical, for example, turbine noise, control rod step counter noise, flooring, obstructions and lighting. Communications systems that a control room operator would use to communicate with an auxiliary operator or other support activities shall be operational to the extent that the simulator instructor, when performing these remote activities, shall be able to communicate over the appropriate communication system.

2.6.1 STATUS: COMPLIANCE

Minor discrepancies exist which have been identified and are listed in Addendum 2. These minor differences have been reviewed by the SCMC and it has been determined that until they are corrected or resolved they do not detract from training or examinations.

2.7 ANSI REQUIREMENT: (3.3.1 SYSTEMS CONTROLLED FROM THE CONTROL ROOM)

The inclusion of systems of the reference plant and the degree of simulation shall be to the extent necessary to perform the reference plant evolutions described in 3.1.1 (Normal Plant Evolutions), and the malfunctions described in 3.1.2 (Plant Malfunctions). It shall be possible to perform these control manipulations and observe plant response as in the reference plant. This shall include system interactions with other simulated systems and shall provide total system integrated response.

2.7.1 **STATUS: PARTIAL COMPLIANCE**

Sixty-three discrepancies exist which do not allow full compliance with these requirements. The discrepancies related to these requirements are listed in Addendums 1.2 and 1.3.

1) Placement of tags on the simulator control boards as done in the reference plant. This provides concise information on components or indications which have outstanding discrepancies associated with them.

2) Briefings held with the trainees prior to training sessions or examinations as done during shift turnovers in the reference plant. This gives the training instructors the opportunity to discuss with the trainees the differences which exist between the reference plant and the simulator.

3) Dry-running the simulator scenarios prior to use during training sessions or examinations. This allows the training instructors to identify problems which may occur and provides time to modify the scenarios to circumvent identified problems.

2.8 **ANSI REQUIREMENT (3.3.2 SYSTEMS OPERATION OR FUNCTIONS CONTROLLED OUTSIDE OF THE CONTROL ROOM).**

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) and malfunctions described in 3.1.2 (Plant Malfunctions) shall be simulated. The simulator trainee shall be able to interface with the remote activity in a similar manner as in the reference plant.

2.8.1 **STATUS: PARTIAL COMPLIANCE**

Discrepancies that are related to the "Normal Plant Evolution" requirement, including surveillance tests used for training, are listed in Addendum 1.5. Of these discrepancies, the only examination limitations are the cold shutdown draining of steam generators by recirculation pumps and the portion of the Pressurizer PORV surveillance test that is performed at the Auxiliary Shutdown Panel. With regard to draining steam generators, the alternate means (by blowdown) is available.

With regard to the PORV surveillance, the control room portions can be done and the Auxiliary Shutdown Panel is beyond the scope of ANSI/ANS 3.5,1985 requirements.

With regard to the Plant Malfunction requirement, the Fall 1990 revision of the Emergency Operating procedures was analyzed. As a result of this analysis, one hundred twenty-six additional remote functions were identified as being necessary to ensure the capability to complete all paths through the new procedures. Although these additions are not plant modifications, these items are the subject of MRs, which are listed in Addendum 1.5.

2.9 ANSI REQUIREMENT (3.4.1 INITIAL CONDITIONS)

The simulator shall possess a minimum capability for storage of 20 initialization conditions. At the time of commencement of operations of the simulator in the training program, a minimum of ten initialization conditions shall be operational and shall include a variety of plant operating conditions, fission product poison concentrations, and various times in core life.

2.9.1 **STATUS: COMPLIANCE**

The present initial conditions are listed in Addendum 6.

2.10 ANSI REQUIREMENT (3.4.2 MALFUNCTIONS)

It shall be possible to conveniently insert and terminate the plant malfunctions specified in 3.1.2 (Plant Malfunctions). The simulator shall be capable of simulating simultaneous or sequential malfunctions, or both, if these malfunctions can be expected to occur by design or operational experience. The introduction of a malfunction shall not alert the operator to the impending malfunction in any manner other than would occur in the reference plant. Provision shall be made for incorporating additional malfunctions identified from operational experience and not included in 3.1.2 (Plant Malfunctions).

2.10.1 STATUS: COMPLIANCE

The Instructor Station is more fully described in Section 8. All approved malfunctions are listed in Addenda 3.

2.11 ANSI REQUIREMENT (3.4.3 OTHER CONTROL FEATURES)

The simulator shall have the capability of freezing simulation. In addition, consideration should be given to incorporation of fast time, slow time, backtrack, and snapshot capabilities.

2.11.1 STATUS: COMPLIANCE

The instructor station capabilities are described in Section 8.

2.12 ANSI REQUIREMENT (3.4.4 INSTRUCTOR INTERFACE)

The capability shall be provided for the instructor to act in the capacity of auxiliary or other operators remote from the control room; for example, change the operating conditions of valves, breakers or other devices.

2.12.1 STATUS: COMPLIANCE

Functions that have been presently approved for training and examinations are listed in Addendum 7.

2.13 **ANSI REQUIREMENT (4.1 STEADY STATE OPERATION)**

The simulator accuracies shall be related to full power values and interim power levels for which valid reference plant information is available. The parameters displayed on the control panels may have the instrument error added to the computed values. During testing, the accuracy of computed values sh. .l be determined for a minimum of three points over the power range:

A. The simulator instrument error shall not be greater than that of the comparable meter, transducer and related instrument system of the reference plant;

B. Principal mass and energy balances shall be satisfied. Examples are:

1. Net NSSS thermal powe: to generated electrical power;

2. Reactor coolant system temperature to steam generator pressure;

3. Feedwater flow to reactor thermal power;

4. Mass balance of pressurizer;

5. Mass balance of steam generator.

The simulator computed values for steady state, full power operation with the reference plant control system configuration shall be stable and not vary more than ±2% of the initial values over a 60 minute period.

C. The simulator compu ed values of critical parameters shall agree within ±2% of the reference plant parameters and shall not detract from training. Some examples of critical parameters are:

1. Reactor thermal power;

2. Reactor hot and cold leg temperatures;

3. Feedwater flow;

4. Steam pressure;

5. Generated electrical power;

6. Reactor coolant system pressure.

D. *The calculated values of non-critical parameters pertinent to plant operation, that are included on the simulator control room panels, shall agree within ±10% of the reference plant parameters and shall not detract from training.*

2.13.1 **STATUS: PARTIAL COMPLIANCE**

Two discrepancies exist which do not allow full compliance with this requirement. The first is software related. The second is hardware related. Both are listed in Addendum 1.6. The first discrepancy relates to conditions less than 50% power. Feed and steam flows exceed the specified tolerance by 0.1%. This discrepancy does not apply to higher power levels. This discrepancy is part of the formal pre-session briefing and imposes no examination limitations. The second discrepancy relates to meter calibrations which are part of an ongoing simulator maintenance schedule.

2.14 **ANSI REQUIREMENT (4.2.1 TRANSIENT OPERATION)**

Tests shall be conducted to prove the capability of the simulator to perform correctly during the limiting cases of those evolutions identified in 3.1.1 (Normal Plant Evolutions) and 3.1.2 (Plant malfunctions) of this standard. Acceptance criteria for these tests shall:

(a) *Where applicable, be the same as plant startup test procedure acceptance criteria;*

(b) *Require that the observable change in the parameters correspond in direction to those expected from a best estimate for the simulated transient and do not violate the physical laws of nature;*

(c) *Require that the simulator shall not fail to cause an alarm or automatic action if the reference plant would have caused an alarm or automatic action, and conversely, the simulator shall not cause an alarm or automatic action if the reference plant would not cause an alarm or automatic action.*

2.14.1 **STATUS: PARTIAL COMPLIANCE**

This requirement is met for parts (a) and (b) in that the required testing has been completed and the acceptance criteria has been applied to the test results. A synopsis of all malfunction test results is contained in Addendum 4 and associated discrepancies are listed in Addenda 1.1 and 1.2.

Discrepancies having to do with part (c) (alarms) are denoted by a single asterisk (*) in Addenda 1.2 and 1.3.

Several methods are available to ensure effective training, and examinations may continue to be administered with the existence of these discrepancies.

The methods include:

1) Placement of tags on the simulator control boards as done in the reference plant. This provides concise information on components or indications which have outstanding discrepancies associated with them.

2) Briefings held with the trainees prior to training sessions or examinations as done during shift turnovers in the reference plant. This gives the training instructors the opportunity to discuss with the trainees the differences which exist between the reference plant and the simulator.

3) Dry-running the simulator scenarios prior to use during training sessions or examinations. This allows the training instructors to identify problems which may occur and provides time to modify the scenarios to circumvent identified problems.

2.15 **ANSI REQUIREMENT (4.2.2 MALFUNCTIONS AND TRANSIENTS).**

Malfunctions and transients not tested in accordance with 4.2.1 shall be tested and compared to best estimate or other available information and shall meet the acceptance criteria of 4.2.1(B).

2.15.1 **STATUS: PARTIAL COMPLIANCE**

Required testing has been completed and the acceptance criteria has been applied to the test results. The malfunction tests were performed by the personnel listed in Section 10.1 and results were compared to the Malfunction Response Book. A synopsis of the test results is included in Addendum 4. Transient test results were reviewed by the personnel listed in Section 10.4. An example of data from the manual reactor trip transient may be found in Addendum 8. Certain trend discrepancies were noted for four of the transients which were run with no operator action (Simultaneous trip of all reactor coolant pumps, maximum size LOCA with a loss of off-site power, maximum size unisolable main steam rupture, and simultaneous closure of all main steam isolation valves). The significance of these discrepancies is described, along with their impact upon training and examinations, in Addendum 9.

2.16 **ANSI REQUIREMENT (4.3 SIMULATOR OPERATIONS LIMITS)**

Mathematical equations may be simplified to meet real time simulation requirements. In addition, it is sometimes possible to create events on a simulator which progress beyond plant design limits. Examples of such events include primary containment failure, gross core damage, and reactor coolant system two-phase flow.

In order to avoid negative training which could result from simulator operation during such events, administrative controls or other means shall be provided to alert the instructor when certain parameters approach values indicative of events beyond the implemented model or known plant behavior. Conditions to be considered are:

A. Primary containment pressure greater than design limit;

B. Reactor coolant system pressure greater than design limit;

fuel temperature histories indicative of gross fuel failure;

D. *Reactor coolant system pressure versus temperature relationship indicative of gross voiding;*

2.16.1 **STATUS: COMPLIANCE**

This requirement was verified by a series of tests which checked activation of a monitoring light upon the attainment of any individual trigger value (A, B, C, or D, from above). The simulator operating limits test record is maintained by the simulator support group and is available for review.

2.17 ANSI REQUIREMENT (4.4 MONITORING CAPABILITY)

It shall be possible to obtain hardcopy transient data in the form of either plots or printouts for critical parameters during the evolutions of 3.1.1 (Normal Plant Evolutions) and the malfunctions of 3.1.2 (Plant Malfunctions). This monitoring capability shall provide sufficient parametric and time resolution to determine compliance with the performance criteria of Section 4 (Performance Criteria).

2.17.1 **STATUS: COMPLIANCE**

A hard copy of all transient test results is maintained by the Simulator Support Section. See Addendum 8 for an example of curves generated from the collected transient data.

2.18 ANSI REQUIREMENT (5.1 SIMULATOR DESIGN DATA)

The simulator design data forms the basis for existing simulator configuration. This data base may include predicted plant performance until the reference plant has been in commercial operation for 18 months. After this period, available actual plant configuration and performance data shall be included in the simulator design data.

2.18.1 **STATUS: COMPLIANCE**

See Section 6 for a description of the simulator database.

2.19 ANSI REQUIREMENT (5.2 SIMULATOR UPDATE DESIGN DATA)

The simulator update design data forms the basis for future simulator design changes. This data base shall include available plant data within 18 months after the reference plant is in commercial operation or within 18 months of the simulator operational date, whichever is later. Reference plant modifications shall be reviewed at least once per year and the simulator update design data shall be revised as appropriate based on engineering and training value assessment. Student feedback should be evaluated as part of the review process.

2.19.1 STATUS: COMPLIANCE

See Section 9 for information on reference plant/simulator configuration control methods.

2.20 ANSI REQUIREMENT (5.3 SIMULATOR MODIFICATIONS)

The simulator shall be modified as required within 12 months following the annual establishment of the simulator update design data referenced in 5.2 (Simulator Update Design Data). Simulator modifications may precede reference plant modifications based on training value.

2.20.1 STATUS: PARTIAL COMPLIANCE

This requirement is met in that reference plant modifications are reviewed, and if required, incorporated on the simulator within the time constraints of ANSI/ANS 3.5,1985 Section 5.3. See Section 9 for information on reference plant/simulator configuration control methods.

Sixty-six discrepancies have been identified during performance testing or normal operator training that require a major software upgrade to correct. See Addendum 1.10. Following completion of the Oct./Nov. 1990 Performance Test, three of these discrepancies were identified as not meeting the two year update criteria as stated in ANSI/ANS 3.5,1985, Sections 5.2 and 5.3 for incorporating plant changes into the simulator. It is anticipated that additional discrepancies may be identified that may require an extensive upgrade to correct.

Although sections 5.2 and 5.3 of ANSI/ANS 3.5, 1985 do not apply to the resolution of discrepancies, these requirements are being conservatively applied to include discrepancies. An exception is therefore noted with regard to the two-year update criterion. The sixty-six identified discrepancies, and any identified prior to the completion of the simulator upgrade, which require extensive modeling changes beyond our current capabilities, will be deferred to the completion of the simulator upgrade. See Section 12 for the simulator upgrade plan and schedule.

2.21 ANSI REQUIREMENT (5.4 SIMULATOR PERFORMANCE TESTING)

Simulator performance shall be established by preparing a simulator performance test, conducting the tests, and comparing the simulator's performance with the simulator design data within the requirements of Section 4 (Performance Criteria). Testing shall be conducted and a report prepared for each of the following occasions:

A. *Completion of initial construction;*

B. *If simulator design changes result in significant simulator configuration or performance variations.*

When a limited change is made, a specific performance test on the affected systems and components shall be performed.

2.21.1 STATUS: COMPLIANCE

See Section 10 for information related to simulator performance testing.

2.22 ANSI REQUIREMENT (5.4.2 SIMULATOR OPERABILITY TESTING)

A simulator operability test shall be conducted annually. The intent of this test is to:

A. *Verify overall simulator model completeness and integration;*

B. *Verify simulator performance against the steady state criteria of 4.1 (Steady State Operation);*

C. *Verify simulator performance against the transient criteria of 4.2 (Transient Operation) for a benchmark set of transients.*

2.22.1 **STATUS: COMPLIANCE**

See Section 10 for information related to simulator performance testing. Also Addendum 12 for the 4 year test schedule.

3.0 EVALUATION OF NON-COMPLIANCE ITEMS TO ANSI/ANS 3.5,1985 REQUIREMENTS

STPEGS has identified malfunction 1d, "Failure of safety and relief valves", of ANSI/ANS 3.5,1985 3.1.2 as a non-compliance item.

STPEGS has identified this as a non-compliance item because presently an unisolable malfunction will depressurize the system, but the system will not repressurize when subcooling and water inventory is restored. Pending correction, this discrepancy is justified for the following reasons:

1) The model failure applies only to losses of coolant that are unisolable and from the top of the pressurizer.

2) Small losses of coolant from other locations in the Reactor Coolant System will allow the system to repressurize and other malfunctions are available for examinations and training.

3) The symptoms and onset of pressurizer steam space leakage may be taught and examined by use of the approved malfunctions for isolable pressurizer leakage.

4) The recovery steps for all small losses of coolant are independent of the particular location.

STPEGS also identifies the portion of the normal plant heatup procedure for the real-time formation of a Pressurizer Steam Bubble of ANSI/ANS 3.5, 1985 3.1.1.(1) as a non-compliance item. STPEGS believes that pending correction this discrepancy is justified for the following reasons:

1) The rest of the procedure is performable, including the steps that are immediately preliminary and subsequent to the steam bubble formation, and

2) This isolated part of the procedure is otherwise able to be examined on by a Job Performance Measure (JPM).

4.0 SIMULATOR PROCEDURES

The South Texas Project reference plant simulator is controlled, operated, tested and modified utilizing the following procedures:

1) NTP-302.02 Vault Storage of Recorded Magnetic Media

   This procedure details the method for labeling and identifying materials exclusively related to the simulator and delivering them to the Site Records Management Supervisor for safe storage.

2) NTP-303.01 Analysis of System Data

   This procedure defines the responsiblity of each Division Manager, Supervisor, and the Simulator Configuration Management personnel regarding specific reviews of new revisions to plant design documents, determination of specific impact on their area of responsibility, and the appropriate transmittals.

3) NTP-303.04 Maintenance of Modification Documentation

   This procedure covers the necessary steps to ensure that plant changes and simulator enhancements are entered, logged and tracked as part of the modification project program.

4) NTP-304.01 Simulator Alterations

   This procedure covers the execution of all simulator changes other than DRs.

5) NTP-304.02 Simulator Configuration Control

   This procedure covers the individual responsibilities for the conduct of all configuration management activities.

6) NTP-304.03 Simulator Discrepancy Reporting

This procedure describes the complete process for identifying and implementing the acceptance and documentation of simulator discrepancies. It provides the methodology for determining the precise priority for a particular discrepancy with regard to training and examination purposes.

7) NTP-306.01 Simulator Performance Test Implementation

This procedure gives details concerning the completion of testing required by ANSI/ANS 3.5,1985.

8) IP-03-01Q Plant Modifications

This procedure sets forth the responsibilities for and requirements of the Plant Modification Program.

9) IP-08-24 Simulator Configuration Management

This procedure specifies the responsibilities and requirements for the Simulator Configuration Management.

These procedures are maintained by the simulator support section and are available for review.

1

IMAGE EVALUATION TEST TARGET (MT-3)

150mm

6"

5.0 OPERATING EXPERIENCE REVIEWS (OERs)

OERs are reviewed for possible impact on training programs by the Operations Training Division. This review is performed in accordance with Nuclear Training Procedure NTP-109 (Licensing Commitment Management). If an OER affects simulator training to the extent of requiring changes to the simulator, an MR is generated in accordance with the Simulator Configuration Control and Simulator Alteration procedures.

6.0 SIMULATOR DATA BASE

The simulator data base is comprised of controlled documents such as drawings, plant control board engraving lists, operating procedures, and other available plant data. Operator feedback is also an essential part of keeping the simulator up-to-date with the plant.

A drawing list is maintained by the Simulator Support Section which contains a record of the drawings used as part of the simulator data base. The drawing list contains the following for each document listed:

1) Document number

2) Document title

3) Applicable simulation models

4) Latest document revision date

5) Latest revision modeled

The difference between the revision levels (latest revision and revision modeled) of all drawings are compared to determine which drawings must be reviewed. If it is determined by the Simulator Configuration Coordinator that a simulator change is required, an MR is written and the change is implemented. After the modification is complete and tested satisfactorily, the drawing list is updated to the revision modeled.

The data base documentation is maintained by the Simulator Support Section and is available for review. Current MRs are listed in Addendum 5.

7.0 PLANT MONITORING SIMULATOR COMPUTER SYSTEM (PMSCS)

The PMSCS simulates four plant monitoring subsystems: the Emergency Response Facility Data Acquisition & Display System (ERFDADS), the Plant Process Computer System (PROTEUS), the Qualified Display Process System (QDPS), and the Radiation Monitoring System (RM-11). The purpose of these subsystems is to display simulated plant data in various formats and provide various man-machine interfaces to select those formats.

7.1 OVERVIEW OF PMSCS

In terms of PMSCS applications software, all four subsystems perform essentially the same functions. They acquire information from the simulation computer into a database identified by point identification names. Next they use raw data points to calculate points which aid the operator in the assimilation of data. The point information is then displayed to the operator in an easy to understand graphical format utilizing trending, bar charts, and tabular displays. Selection of desired information is simplified by specific keyboard design and menu selection. Alarm information is also displayed to the operator.

7.2 TRAINING STATUS

The Safety Parameter Display System (SPDS) on ERFDADS and the QDPS are accepted for training with minor discrepancies. The PROTEUS and RM-11 monitoring systems have approximately eleven outstanding discrepancies which are scheduled for resolution in accordance with Simulator Configuration Control procedures. Discrepancies related to the PMSCS are listed in Addendum 1.9. As noted in Section 2.5 of this report, methods are in effect for mitigating the effect of these discrepancies.

A more detailed description of each subsystem can be found in PMSCS/RMS Overview, PMSCS Final Design Document, and PMSCS Final Detailed Design Document. These documents are maintained by the Simulator Support Section and are available for review.

8.0 SIMULATOR INSTRUCTOR STATION OVERVIEW

The instructor station is the primary controlling interface to the simulator. It consists of an Aydin keyboard and monitor which are connected to the simulation computer system. The instructor station supports training and examinations by allowing an instructor to insert either immediate or delayed malfunctions, control remote functions, override items on the simulator panels, and reset the simulator to a previously stored state. Dedicated function keys, menu selections, and data entry are methods used to insert commands for simulator control. A hand-held remote transmitter is used to initiate a limited number of functions to the simulator while away from the main control station. Table 8 - 1 lists the functions available for instructor station control of the simulator.

The instructor station software is activated simultaneously with the simulator executive programs during simulator startup. To use the instructor station the instructor must enter a valid code name. The desired function is then selected from a menu of available function categories.

The simulator may be reset to any of seventy available snapshot conditions. Forty of these are available to the instructor through the instructor station. Thirty are used by the simulator executive program for backtrack capability. These thirty snapshot conditions are saved every minute while the simulator is in the run mode, so that the past thirty minutes of operation may be reviewed. The mathematical models of the simulation system have the capability to simulate core conditions at Beginning Of Life (BOL), Middle Of Life (MOL), and End Of Life (EOL). These conditions may be stored into the operator-settable snapshots. The reset function includes a switchcheck function which insures that all input devices are properly positioned prior to placing the simulator in the run mode.

The malfunctions available for training (see Addendum 3) may be initiated in a variety of modes. Individual non-logical malfunctions may be ramped through their allowed range. For training and examination purposes, ramping is only used for the various leak malfunctions.

Operator remote functions may be initiated at any time during simulator operation. The simulator system currently has the capacity for 500 remote functions. They may be activated to simulate physical operation of local equipment or they may be used to adjust a steady state parameter such as outside air temperature. A remote may be initiated with a selected delay time. The remote functions that are presently approved for training and examinations are listed in Addendum 7.

The override function of the instructor station has the capability to fix the condition of any panel device. Analog devices, meters and potentiometers can be set to the top or bottom of their scale, left as-is, or set to any value within their range. Digital devices, switches and lamps can be set on, off, or left as-is. The simulator system can have up to sixty Input/Output (I/O) signals overridden simultaneously. Each digital device which is overridden is verified prior to use. All analog overrides approved for training and examinations are listed in Addendum 10.

Other features are also available at the instructor station to aid the instructor in controlling the simulation. For example the annunciators may be silenced, acknowledged, and reset. The preoperational test function (DRED) may be used for tests on the simulator panel items to ensure their proper operation prior to a training session. The handheld remote operator is available for the instructor's control of Run, Freeze, Initialize, Reset functions, and malfunction triggering (if previously set up for such at the main control station).

In addition to the instructor station, the simulator is provided with a Simulation Development Aide Program (SDA) on the simulation computer. From a computer terminal, the instructor may use this program to perform many of the same functions as are available at the instructor station. The program provides for additional, finer control and monitoring of simulation events. Individual data points may be monitored or set to different values. It also serves as a backup to the instructor station in case of failures during a training session.

Discrepancies that affect the instructor station are listed in Addendum 1.8. These discrepancies may be summarized as being inconveniences to the simulator operator. There is no impact upon the ability to give a valid examination.

TABLE 8- 1 INSTRUCTOR STATION FUNCTIONS

RUN	Place the simulator in the run mode
FREEZE	Place the simulator in the freeze mode
INIT	Select one of 0 initialization conditions (ICs)
RESET	Reset to the selected ICs
BACKTRACK	Reset to one of the 30 automatically saved ICs
SNAPSHOT	Store the current simulation status to one of the 40 selectable ICs
MALFUNCTION	Enter desired malfunctions into simulation and set their activation attributes
TRIGGER	Directly trigger malfunctions for immediate or delayed activation
OVERRIDE	Override the calculated condition or position of any panel hardware item
REM CONT	Activate the hand held remote control station
FASTTIME	Increase the calculation increment for a fixed set of parameters
EXPERT	Bypass menus for direct entry of control data
REM FUNC	Enter remote functions and set their values
MASTER INDEX	Display the main menu and provide for activation of the desired function
ANNUNCIATOR	Silence, acknowledge, or reset annunciators
DRED TEST	Activate the preoperational panel item tests (Daily Readiness Test)

9.0 UNIT/SIMULATOR DIFFERENCES

9.1 PHYSICAL FIDELITY

The physical fidelity of the simulator versus the reference plant is maintained by several methods.

9.1.1 The Simulator Configuration Coordinator reviews all plant modifications to determine if the plant change affects the physical fidelity of the simulator. If it is determined that a simulator modification is required, an MR is generated to track the change.

9.1.2 All proposed simulator modifications which require a change in scope of simulation, addition or deletion of a simulated system, component, panel, etc., are reviewed, approved, or disapproved by SCMC. The SCMC is composed of personnel designated by the Plant Operations Manager and the Operations Training Manager. The SCMC meets at least annually and as necessary to review plant modifications.

9.1.3 After collecting plant changes for one year, MRs are generated for plant changes that may be implemented on the simulator. The SCMC then meets to determine which of these MRs actually will be implemented on the simulator. Approved MRs are implemented on the simulator within one year. If a plant modification is identified that should be incorporated on the simulator immediately, the SCMC will meet and review the proposed change.

9.1.4 Operator feedback of observable differences between the simulator and the plant is encouraged. Simulator training instructors are required to initiate DRs after verifying operator identified problems.

9.1.5 In addition to the above methods, photographs are taken of the reference plant control room annually and compared to the simulator panels. Differences identified are recorded and the necessary material required to correct the problem is ordered. Simple hardware corrections are made as time permits soon after the material is received. An MR is generated to correct differences found which require both hardware and software changes, such as annunciator window position and engraving changes. These modifications are usually made just prior to the annual performance test.

Addendum 5 lists the currently outstanding hardware and software modifications. Addendum 2 lists the currently existing unit/simulator differences.

9.2 ENVIRONMENTAL COMPARISON

A comparison was made between the simulator and the reference plant control room to determine if deficiencies exist which could detract from training.

Items which were evaluated are:

9.2.1 Control panel layout and dimensions

9.2.2 Annunciator tones and noise level

9.2.3 Furnishings, carpet and wall color

9.2.4 Communications system

9.2.5 Normal and emergency lighting

All identified differences are reviewed by the SCMC to determine the impact on operator training and examinations. These differences have been reviewed by the SCMC and it has been determined that the identified differences do not detract from training or examinations.

10.0 SIMULATOR PERFORMANCE TEST

10.1 PERSONNEL QUALIFICATIONS:

10.1.1	Vance Verbeck -	South Texas Project SRO Licensed Training Instructor
10.1.2	James Calvert -	South Texas Project SRO Licensed Training Instructor
10.1.3	Kenneth Kline -	South Texas Project SRO Licensed Simulator Configuration Coordinator
10.1.4	Ricky Rodgers -	South Texas Project SRO Licensed Training Instructor
10.1.5	Ron Graham -	South Texas Project SRO Licensed Training Instructor
10.1.6	Matt Buenai.or -	Previously Licensed, Certified Simulator Training Instructor
10.1.7	James Shaw -	Previously Licensed, Certified Simulator Training Instructor
10.1.8	Jody Brodsky -	South Texas Project RO Licensed Training Instructor
10.1.9	Herb Cato -	Previously Licensed, Certified Simulator Training Instructor

10.2 CONDUCT

The conduct of the simulator performance test is governed by the Nuclear Training Department Procedure NTP-306.01 (Simulator Performance Test Implementation).

10.3 REAL TIME TEST

The purpose of this test is to ensure that the simulator runs in real time. To ensure real time operation, Z Cycle is monitored while the simulator is running models. Z Cycle is a timer function operating under the real time executive program. The test involves running the simulator for a minimum of one hour, recording the Z Cycle count at the start and end of the test, and comparing the result to a stop watch used to time the test.

The acceptance criteria requires no model time-outs or aborts and must run within ± 0.1% of real time. This test was completed satisfactorily on 10/18/90.

10.4 TRANSIENT TEST

The purpose of the transient test is to verify that the simulator is capable of simulating reference plant response to the following ten transients as listed in Appendix B of ANSI/ANS 3.5,1985:

10.4.1 Manual reactor trip

10.4.2 Simultaneous trip of all feedwater pumps

10.4.3 Simultaneous closure of all main steam line isolation valves

10.4.4 Simultaneous trip of all reactor coolant pumps

10.4.5 Trip of any single reactor coolant pump

10.4.6 Main turbine trip (maximum power level which does not result in immediate reactor trip)

10.4.7 Maximum rate power ramp (100% down to approximately 75% and back up to 100%)

10.4.8 Maximum size reactor coolant system rupture combined with loss of all offsite power

10.4.9 Maximum size unisolable main steam line rupture

10.4.10 Slow primary system depressurization to saturated condition using pressurizer relief or safety valve stuck open (Inhibit activation of high pressure emergency core cooling systems)

The ten required transients were completed during the Oct/Nov 1990 performance test. The required parameters were collected at one-half second intervals and the transients were run for fifteen minutes each. A hard copy of the test data and plots of each transient are maintained by the simulator support section and are available for review.

See Addendum 8 for an example of a completed transient test including RETRAN and reference plant simulator data.

A synopsis of the remaining tests and results is attached as Addendum 9.

Discrepancies identified during the transient testing and an evaluation of the impact on training and examinations are noted in the individual synopsis of Addendum 9.

For analysis and evaluation of the simulator response, the transient test results were submitted to a panel of experts whose qualifications are listed below:

NAME: KENNETH KLINE

TITLE: SIMULATOR CONFIGURATION COORDINATOR

STPEGS EXPERIENCE:

2 1/2 years Simulator Training Instructor
3 years Simulator Configuration Coordinator

OTHER RELATED EXPERIENCE:

24 years power plant experience including fossil and nuclear.

NRC LICENSES/EDUCATION:

SRO Prairie Island Nuclear Plant, RO, Shift Supervisor 8 years
SRO South Texas Nuclear Project, Training Instructor, Simulator Configuration Coordinator 5 1/2 years.

NAME: JAMES CONSTANTIN

TITLE: SUPERVISOR SIMULATOR TRAINING

STPEGS EXPERIENCE:

5 1/2 years STP Supervisor Simulator Training

OTHER RELATED EXPERIENCE:

9 years Navy Nuclear
11 years Operations/Training

NRC LICENSES/EDUCATION:

SRO Certified STP
SRO License Arkansas Nuclear One Unit 2 (CE)
RO License Arkansas One Unit 1 (B/W)

NAME: KEVIN P MULLIGAN

TITLE: SUPERVISING ENGINEER

STPEGS EXPERIENCE:

Senior Reactor Operator License since January 1987 (inactive) on shift. Shift Technical Advisor since June, 1987 Initial Startup Test Director for Unit 1 (July 1987 to August 1988) and for Unit 2 (December 1988 to June 1989) Reactor Engineer since January 1985.

OTHER RELATED EXPERIENCE:

3 years as Reactor Engineer, Initial Startup Test Director at Callaway Plant (4 Loop PWR)
6 1/2 years as Nuclear Engineer with Public Service Co of Oklahoma (Black Fox Station)

NRC LICENSES/EDUCATION:

SRO License STPEGS
BSME, Texas A&M, 10 week PWR system at Callaway
1 week GE BWR Simulator at Morris, Illinois

NAME: DAREN CHANG

TITLE: SENIOR SOFTWARE SPECIALIST

STPEGS EXPERIENCE:

3 1/2 years of STP Simulator experience as a Simulation Specialist and Senior Software Specialist with responsibility of all simulator software.

OTHER RELATED EXPERIENCE:

1 1/2 years simulation experience with Simulation Associates Incorporated.

NRC LICENSES/EDUCATION:

Ph.D in Nuclear Engineering

NAME: DAVID W. McCALLUM

TITLE: MANAGER PLANT OPERATIONS SUPPORT

STPEGS EXPERIENCE:

5 years Shift Supervisor

OTHER RELATED EXPERIENCE:

6 years Maine Yankee Operations AO-RO-SRO
6 years U.S. Navy MM/ECT

NRC LICENSES/EDUCATION:

Maine Yankee Reactor Operator, Maine Yankee Senior Reactor Operator, STP Senior Reactor Operator

NAME: ROBERT CROSS

TITLE: SENIOR ENGINEER

STPEGS EXPERIENCE:

1 year in Thermal Hydraulics Section. Work includes verification of RETRAN model for simulator verification.

OTHER RELATED EXPERIENCE:

3 1/2 years as an engineer working in Thermal Hydraulics at TVA. Work included simulator verification using RETRAN for Browns Ferry Nuclear Plant, and reload licensing work for BFNP using RETRAN.

NRC LICENSES/EDUCATION:

B.S. In Nuclear Engineering
M.S. in Nuclear Engineering

NAME: JOHN M. ALVIS, JR.

TITLE: ENGINEER

STPEGS EXPERIENCE:

Transient Safety Analysis and LOCA analysis using RETRAN 02/MOD2, RELAP5/MOD2 and VIPER-01 (1 year)

OTHER RELATED EXPERIENCE:

Performed transient and steady-state fuel performance analysis to support SP-100 core behavior studies. Analyzed core Thermal Hydraulic behavior with Cobra-WC. Assisted in modeling neutronic behavior of SP-100 core with MONP and DIFF3D. (1 1/2 Year)

NRC LICENSES/EDUCATION:

B.S., M.S. IN NUCLEAR ENGINEERING FROM TEXAS A&M UNIVERSITY

10.5 **NORMAL OPERATIONS TEST**

The purpose of the normal operations test is to demonstrate the ability to operate the simulator in accordance with reference plant procedures.

The simulator was configured to the cold shutdown condition using the reference plant system operating procedures and initial condition 1 was established. The simulator was then taken to 100% power and returned to the cold shutdown condition using the reference plant operating procedures.

During the transition several ICs were established. The current ICs are listed in Addendum 6.

The following is a list of the operating procedures used during the normal operations test. These controlled procedures are maintained in the simulator by the Operations Document Control Center and are available for review.

10.5.1	1POP03-ZG-0001	PLANT HEATUP
10.5.2	1POP03-ZG-0003	SECONDARY PLANT STARTUP
10.5.3	1POP03-ZG-0004	REACTOR STARTUP
10.5.4	1POP03-ZG-0005	PLANT STARTUP TO 100%
10.5.5	1POP03-ZG-0006	PLANT SHUTDOWN FROM 100% TO HOT STANDBY
10.5.6	1POP03-ZG-0007	PLANT COOLDOWN

Discrepancies noted during this evolution are documented on simulator DRs. A list of outstanding DRs associated with normal plant evolutions is listed in Addendum 1.2. These discrepancies are noted in Section 2.2.1 of this report (regarding ANSI/ANS 3.5,1985 3.1.1)

10.6 MALFUNCTION TEST

The purpose of this test is to ensure all malfunctions that were not tested during the transient testing, and that are to be used in operator training programs, are tested and compared to best estimates or other available data such as the malfunction response book. The results are documented on the malfunction performance test record. Only those malfunctions which are accepted are used in the operator training program. The acceptance criteria used is stated in ANSI/ANS 3.5,1985, Section 3.1.2 (Plant Malfunctions) and Appendix A-A3.4.

Addendum 3 contains a complete list of malfunctions accepted for training and examinations. Addendum 4 contains a synopsis of each malfunction test and results. Malfunctions that are in partial compliance have been discussed in Sections 2.3.1 and 2.3.2 of this report.

10.7 STEADY STATE OPERATIONS TEST

The purpose of this test is to ensure the stability of the simulator by establishing steady state conditions and monitoring parameter variation with respect to time. During this test, simulator computed values are compared to reference plant values at different power levels. The power levels selected are those for which heat balance data is available: 1) 28.8%, 2) 50%, and 3) 100%. This test was completed during the Oct/Nov. 1990 Simulator Performance Test.

The acceptance criteria of ANSI/ANS 3.5,1985, Section 4.1 was applied. The simulator met the ± 2% variance requirement. Some minor discrepancies were identified when applying the ± 2% requirement to the simulator displayed values for critical parameters and the reference plant heat balance data.

Identified discrepancies are listed in Addendum 1.6 and have been described in Section 2.13.1 of this report (regarding ANSI/ANS 3.5,1985-4.1)

The steady state test records are maintained by the Simulator Support Section and are available for review.

10.8 SURVEILLANCE TEST

The purpose of this test is to demonstrate the ability to perform selected safety related surveillance procedures using reference plant procedures. Only the safety related procedures which have been approved by the SCMC for training will be tested. A list of the surveillance procedures tested and the test results are listed in Addendum 11. The surveillance test record is maintained by the Simulator Support Section and is available for review.

11.0 SIMULATOR PERFORMANCE TEST SCHEDULE

The following testing will be conducted annually on the STPEGS simulator:

1) Real Time test

2) Transient test

3) Normal Operations test

4) Steady State Operations test

5) Surveillance test

6) Malfunction test *

The results of simulator testing will be documented and maintained by the Simulator Support Section. This documentation will be available for review. See Addendum 12 for the four year schedule.

* A minimum of 25 percent of the malfunctions accepted for training, will be tested annually. As additional malfunctions become available they will be tested prior to use. If accepted the malfunction will be included in the simulator four year performance test schedule.

12.0 SIMULATOR UPGRADE PLAN AND SCHEDULE

The simulator performance currently supports a valid examination in accordance with 10 CFR 55. However, in order to correct all of the STPEGS simulator DRs that prevent the simulator performance from meeting ANSI/ANS-3.5,1985 performance requirements, a major simulator model upgrade will be necessary.

HL&P currently plans to issue a Request For Proposal for a specification writer, prepare a simulator model upgrade specification, and award a contract for a simulator model upgrade project by December 31, 1991.

It is expected that the simulator model upgrade project will be completed by July 31, 1995. At that time all current DRs against simulator performance pursuant to ANSI/ANS-3.5,1985 requirements should be cleared.

The on-going simulator update program will continue to incorporate plant changes on an annual basis and correct prioritized deficiencies that impact training and examinations within the capability of the simulator support staff.

13.0 EVALUATION OF DIFFERENCES IN UNIT 2 VERSUS UNIT 1 AND THE SIMULATOR

STPEGS executes its overall training program in order to sustain dual unit license eligibility between units (reference letter from HL&P to the NRC dated 10-07-88 [ST-HL-AE-2815].

Differences between the control rooms and the simulator are listed in Addendum 2 and fall into three functional categories.

1) Simulator differences from Unit 2

2) Outstanding hardware modifications will be addressed during the normal course of simulator modifications to match Unit 1

3) Permanent design differences that extend beyond the scope of simulation

The SCMC has reviewed the differences between the simulator and the reference plant control rooms and has found that they do not detract from effective simulator training or licensing examinations. (Reference letter: NTD-9000485 dated March 27, 1990 and Reference letter: NTD-901122 dated December 20, 1990)

ADDENDUM 1

1.1

DISCREPANCIES RELATED TO ANSI-3.5,1985 SEC-3.1

DR #	DESCRIPTION
01419	INCORE INST SYSTEM OPS NOT CORRECT
01695	CORE EXIT TC RESPONSE NOT CORRECT
01732	RCS MASS BALANCE NOT CORRECT
01734	SECONDARY HEAT BALANCE NOT CORRECT
01848	CNTMT PRESS RESPONSE DURING PURGE NOT CORRECT
01894	PZR PRESS RESPONSE >80% LEVEL NOT CORRECT
90048	S/G WR LEVEL NOT CORRECT
90081	VCT LEVEL RESPONSE DURING M/U NOT CORRECT
90094	DA PRESS RESPONSE NOT CORRECT
90097	CCW TEMP. RESPONSE NOT CORRECT
90121	PZR LEVEL RESPONSE DURING CLDWN NOT CORRECT
90132	LOW HEAD SI FLOW OSCILLATES
90167	PZR RESPONSE DRAWING BUBBLE NOT CORRECT
90168	PZR DYNAMICS AT LOW PRESS NOT CORRECT
90170	RCP SEAL D/P INDICATION NOT CORRECT
90172	STEAM TABLE SUB-ROUTINES ARE DISCONTINUOUS
90174	FW PUMP CAPACITY NOT CORRECT
90251	RCS MASS/DYNAMIC RESPONSE NOT CORRECT
90257	CVCS DYNAMICS/PRESS RESPONSE NOT CORRECT
90258	CONTAINMENT PRESS DYNAMICS NOT CORRECT
90282	ERFDADS/CR ALARMING NOT CORRECT
90303	RHR TEMP RESPONSE NOT CORRECT
90306	LP FRV ADMITTANCE NOT CORRECT
90329	SEC PLANT DYNAMICS AT LO PWR NOT CORRECT
90336	SUBCOOLING INDICATION ON ERFDADS/QDPS
90340	PROTEUS COMPUTER OPS NOT CORRECT
90345	S/G DYNAMIC RESPONSE NOT CORRECT
90347	PZR/RCS MASS BALANCE NOT CORRECT

NOTE

DISCREPANCIES WITHIN THE CAPABILITY OF THE SIMULATOR SUPPORT STAFF WILL BE CORRECTED ON A PRIORITIZED BASIS PURSUANT TO PROCEDURE NTP-304.3. OTHER DISCREPANCIES WILL BE CORRECTED AS PART OF THE SIMULATOR MODEL UPGRADE PROJECT. SEE SECTION 12 FOR THE SCHEDULE AND PLAN REGARDING THIS PROJECT.

ADDENDUM 1

1.2

DISCREPANCIES RELATED TO ANSI-3.5,1985 SEC-3.1.1

DR #	DESCRIPTION	ANSI/ANS RELATED ITEM
90167	PZR RESPONSE DRAWING BUBBLE NOT CORRECT	1
90168	PZR DYNAMICS AT LOW PRESSURE NOT CORRECT........	1
90174	FW PUMP CAPACITY NOT CORRECT	2
90175	MSR RESPONSE NOT CORRECT	6
90176	FWP D/P CONTROL NOT CORRECT	6
90177	MAIN STM LINE W/U PRESS RESPONSE NOT CORRECT ...	2,5
90179	MAIN TURB GV RESPONSE NOT CORRECT	6
90181	S/G ADDITIONAL REMOTES REQUIRED	1
90185	MSR OPERATIONS NOT CORRECT	6
90199	ADD REMOTE FOR PZR PORV XFER TO ASP............	10
90350	REACTOR TRIP BREAKERS RESHUT ON LOW POWER ...... MANUAL TRIP	4,8
90351	ELECTRONIC NOISE ON CONTROL ROD STEP COUNTERS ..	2
90355	GENERATOR BREAKER WITH LO-LO TAVG CAUSE .... TURBINE TRIP	3,8
90359 *	ERRONEOUS SEAL WATER INJECTION HI .... TEMPERATURE ALARM	6

* ALSO AFFECTS 4.2.1.c

NOTE

DISCREPANCIES WITHIN THE CAPABILITY OF THE SIMULATOR SUPPORT STAFF WILL BE CORRECTED ON A PRIORITIZED BASIS PURSUANT TO PROCEDURE NTP-304.3. OTHER DISCREPANCIES WILL BE CORRECTED AS PART OF THE SIMULATOR MODEL UPGRADE PROJECT. SEE SECTION 12 FOR THE SCHEDULE AND PLAN REGARDING THIS PROJECT.

ADDENDUM 1

1.3

DISCREPANCIES RELATED TO ANSI-3.5,1985 SEC-3.1.2

DR #	LETTER CODE	DESCRIPTION	ANSI RELATED MALFUNCTION
01581	R	S/G TUBE LEAK RMS RESPONSE	1.a
01672	R	CONTAINMENT RMS RESPONSE	1.
01695	L,P	CET RESPONSE	1.
01704	L,P,R	FAILED FUEL	14.
01747	M	S/G SAFETY VLV POS IND	20.
01769	M	ACCUM RESPONSE ON LOCA	1.
01858	M	STEAM BREAK	20.
01899	M	LOSS OF GRID	3.
90039	L	S/G TUBE LEAK	1.a
90040	P	RX VESSEL WTR LEVEL IND	1.
90059	M	S/G TUBE RUPTURE	1.a
90062	M	S/G TUBE LEAK	1.a
90096	L,P	RX VESSEL WTR LEVEL IND	1.
90097	M	CCW TEMP RESPONSE	1.
90207	M	ATWS	24.
90215	M	ESF DIESEL (TROUBLE ALARM) INPUTS INCOMPLETE	3.
90226	M	LOSS OF ESSENTIAL CHILLERS	8.
90229	M	ROD CONTROL	12.
90234	O	PRESS TRANS FAILS	22.
90240	M	ECW PUMP FAILS	8.
90242	M	Th FAILURE	22.
90243	M	Tc FAILURE	22.
90247	M	LOSS OF MCC-E1A1	3.
90250	M	LOSS OF AUX BUS 1J	3.
90251	M	RCS/LHSI DYNAMICS	1.c
90255	O	PCV-135 FAILS OPEN	18.
90256	M	VCT LEVEL CH FAILS	18.
90257	O	CVCS DYNAMICS	18.
90258	L,P	CONTAINMENT RESPONSE	1.
90261	O,M	CHARGING LINE BREAK	18.
90276	L,P	CONT DYNAMIC RESPONSE	1.
90281	R	LOCKED ROTOR	4.
90288	P	ESF D/G OPERATIONS	3.
90296	M	LOSS OF ALL AC	3.
90297	M	LOSS OF INST AIR	2.

ADDENDUM 1

1.3

DISCREPANCIES RELATED TO ANSI-3.5,1985 SEC-3.1.2
(Continued)

DR #	LETTER CODE	DESCRIPTION	ANSI RELATED MALFUNCTION
90298	O	LOSS OF PNL-125F	3.
90299	O	LOSS OF PNL-125E	3.
90300	M	LOSS OF ACW	8.
90303	M	RHR TEMP RESPONSE	7.
90305	O	LOSS OF ECW TRAIN	8.
90308	O	LOSS OF PNL-125B	3.
90312	L	TURB GOV VLV F/O	22.
90313	L	TURB THROTTLE VLV F/O	22.
90319	M	LOSS OF DP-1201	3.
90323	M	LOSS OF DP-1202	3.
90334	M *	RWST LEVEL ALARMS	1.
90335	M	CCW-FV-4493	1.
90336	M	SUBCOOLING INDICATION	1.
90342	M	IMPROPER OVERLAP	12.
90347	P,L **	UNISOLABLE PRESSURIZER LEAK MALFUNCTION	1.d

* - ALSO AFFECTS 4.2.1.c

** - NON-COMPLIANCE

LETTER CODES: (SEE SECTION 2.3.2 FOR MORE DETAILED EXPLANATION)

R - RADIATION MONITORING RESPONSE PROBLEM; DRY-RUN SCENARIOS

L - DYNAMIC SCOPE PROBLEM IMPOSES LIMITS ON EXTENT OF SCENARIOS; DRY RUN SCENARIOS IN REAL-TIME

P - POTENTIAL LOGIC OR DYNAMIC PROBLEMS EXIST. THESE DO NOT PRECLUDE THE USE OF A REQUIRED MALFUNCTION BUT MAY IMPOSE LIMITS ON COMBINATIONS OF MALFUNCTIONS. IF LIMITATIONS OR DYNAMIC PROBLEMS ARE IDENTIFIED, WHICH CANNOT BE EASILY ACCOUNTED FOR BY THE EXAMINER, ALTERNATE SCENARIOS CAN BE MADE AVAILABLE TO PROVIDE A [illegible]TABLE EXAMINATION.

ADDENDUM 1

1.3

DISCREPANCIES RELATED TO ANSI-3.5,1985 SEC-3.1.2
(Continued)

M - MINOR LOGIC OR DYNAMIC PROBLEMS CAN BE WORKED AROUND FOR EXAMINATIONS OR TRAINING;

O - OTHER MALFUNCTIONS EXIST AS ALTERNATIVES TO MEET THE ANSI/ANS-3.5 - 1985 CRITERIA.

NOTE

DISCREPANCIES WITHIN THE CAPABILITY OF THE SIMULATOR SUPPORT STAFF WILL BE CORRECTED ON A PRIORITIZED BASIS PURSUANT TO PROCEDURE NTP-304.3. OTHER DISCREPANCIES WILL BE CORRECTED AS PART OF THE SIMULATOR MODEL UPGRADE PROJECT. SEE SECTION 12 FOR THE SCHEDULE AND PLAN REGARDING THIS PROJECT.

ADDENDUM 1

1.4

DISCREPANCIES RELATED TO ANSI-3.5,1985 SEC-3.2.2

DR #	DESCRIPTION
01313	QDPS IND OF FAILED S/G LEVEL INST NOT CORRECT
01501	RMS RESPONSE ON RX HEAD VENT LEAK NOT CORRECT
01555	RMS RESPONSE IN INCORE RM NOT CORRECT
01570	RMS RESPONSE TO LETDOWN LINE LEAK NOT CORRECT
01572	RMS RESPONSE TO CHARGING LINE LEAK NOT CORRECT
01575	CONT PART/GASEOUS ACTIVITY RESPONSE NOT CORRECT
01581	RMS RESPONSE ON S/G TUBE LEAK NOT CORRECT
01672	RMS RESPONSE ON LEAK IN CONTAINMENT NOT CORRECT
01674	RMS RESPONSE ON PZR PORV LEAK NOT CORRECT
01704	FAILED FUEL MONITOR RESPONSE NOT CORRECT
01747	MS SAFETY VLV IND ON ERFDADS NOT CORRECT
01769	QDPS IND NOT CORRECT
01864	ERFDADS NIS POWER TREND NOT CORRECT
90032	SGTL RMS RESPONSE NOT CORRECT
90035	PROTEUS SYSTEM UPDATE TIME TOO SLOW
90055	ERFDADS PZR LEVEL IND NOT CORRECT
90057	S/G BLDWN RMS RESPONSE NOT CORRECT
90061	ERFDADS CSF HEAT SINK DISPL NOT CORRECT
90072	PROTEUS IND OF VACUUM NOT CORRECT
90077	ERFDADS CONT SUMP LEVEL IND NOT CORRECT
90088	LOCA RMS RESPONSE NOT CORRECT
90138	PROTEUS IND OF PRT PARAMETERS NOT CORRECT
90154	ERFDADS SI INOP IND NOT CORRECT
90160	CONT BACKGROUND RAD NOT CORRECT
90190	ERFDADS RAD DISPLAY NOT CORRECT
90200	ERFDADS IND FOR FHB POINTS NOT CORRECT
90336	SUBCOOLING ON ERFDADS & QDPS NOT CORRECT
90242	QDPS Th INDICATION NOT CORRECT
90243	QDPS Tc INDICATION NOT CORRECT
90282	ERFDADS ALARMING NOT CORRECT
90283	NORMAL HEAT SINK DISPL NOT CORRECT
90291	QDPS W/R TEMP IND NOT CORRECT
90304	RHR QDPS DISPL NOT CORRECT

NOTE

DISCREPANCIES WITHIN THE CAPABILITY OF THE SIMULATOR SUPPORT STAFF WILL BE CORRECTED ON A PRIORITIZED BASIS PURSUANT TO PROCEDURE NTP-304.3. OTHER DISCREPANCIES WILL BE CORRECTED AS PART OF THE SIMULATOR MODEL UPGRADE PROJECT. SEE SECTION 12 FOR THE SCHEDULE AND PLAN REGARDING THIS PROJECT.

ADDENDUM 1

1.5

DISCREPANCIES RELATED TO ANSI-3.5,1985 SEC-3.3.2

DR #	DESCRIPTION
90181	S/G ADDITIONAL REMOTES REQUIRED
90199	ADD REMOTE FOR PZR PORV XFER TO ASP
90237	ADD REMOTE FOR HIGH FLUX AT SHUTDOWN ALARM
90289	REMOTE FOR IA COMP RESPONSE NOT CORRECT
90346	ADD AND VERIFY SEVERAL ELEC. REMOTE FUNCTIONS

MR #	
600	MODIFY FUNCTION OF AFW REMOTES
609	ADD REMOTE TO CHANGE BREAKER POSITION
611	ADD REMOTES TO SUPPORT LOSS OF ALL AC
614	ADD SEVERAL NON-ELECT. REMOTES
616	ADD REMOTES TO SUPPORT EOP PERFORMANCE
619	ADD REMOTES TO SUPPORT POP03 PERFORMANCE

NOTE

DISCREPANCIES WITHIN THE CAPABILITY OF THE SIMULATOR SUPPORT STAFF WILL BE CORRECTED ON A PRIORITIZED BASIS PURSUANT TO PROCEDURE NTP-304.3. OTHER DISCREPANCIES WILL BE CORRECTED AS PART OF THE SIMULATOR MODEL UPGRADE PROJECT. SEE SECTION 12 FOR THE SCHEDULE AND PLAN REGARDING THIS PROJECT.

THE MRs FOR ADDITIONAL REMOTES (LOCAL OPERATOR ACTIONS), LISTED ABOVE, ARE SCHEDULED FOR COMPLETION BY DEC-1991.

ADDENDUM 1

1.6

DISCREPANCIES RELATED TO ANSI-3.5,1985 SEC-4.1

DR #	DESCRIPTION
90329	SECONDARY PLANT DYNAMICS AT LOW POWER
90330	METER CALIBRATIONS REQUIRED ON PNLS 4 & 6

NOTE

DISCREPANCIES WITHIN THE CAPABILITY OF THE SIMULATOR SUPPORT STAFF WILL BE CORRECTED ON A PRIORITIZED BASIS PURSUANT TO PROCEDURE NTP-304.3. OTHER DISCREPANCIES WILL BE CORRECTED AS PART OF THE SIMULATOR MODEL UPGRADE PROJECT. SEE SECTION 12 FOR THE SCHEDULE AND PLAN REGARDING THIS PROJECT.

ADDENDUM 1

1.7

DISCREPANCIES RELATED TO ANSI-3.5,1985 APPENDIX B.2.2

DR #	DESCRIPTION
01555	RMS RESPONSE IN INCORE RM NOT CORRECT
01575	CONT PART/GASEOUS ACTIVITY RESPONSE NOT CORRECT
01672	RMS RESPONSE ON LEAK IN CONTAINMENT NOT CORRECT
01695	CORE EXIT TC RESPONSE NOT CORRECT
01732	RCS MASS BALANCE NOT CORRECT
01734	SECONDARY HEAT BALANCE NOT CORRECT
01769	ACCUM RESPONSE ON LOCA
01848	CNTMT PRESS RESPONSE DURING PURGE NOT CORRECT
01858	STEAM BREAK
01894	PZR PRESS RESPONSE >80% LEVEL NOT CORRECT
90040	RX VESSEL WTR LEVEL IND
90048	S/G WR LEVEL NOT CORRECT
90061	ERFDADS CSF HEAT SINK DISPL NOT CORRECT
90077	ERFDADS CONT SUMP LEVEL IND NOT CORRECT
90088	LOCA RMS RESPONSE NOT CORRECT
90096	RX VESSEL WTR LEVEL IND
90121	PZR LEVEL RESPONSE DURING CLDWN NOT CORRECT
90132	LOW HEAD SI FLOW OSCILLATES
90160	CONT BACKGROUND RAD NOT CORRECT
90168	PZR DYNAMICS AT LOW PRESS NOT CORRECT
90172	STEAM TABLE SUB-ROUTINES ARE DISCONTINUOUS
90190	ERFDADS RAD DISPLAY NOT CORRECT
90251	RCS MASS/DYNAMIC RESPONSE
90257	CVCS DYNAMICS/PRESS RESPONSE NOT CORRECT
90258	CONTAINMENT RESPONSE
90276	CONT DYNAMIC RESONSE
90277	SMALL BREAK LOCA
90336	SUBCOOLING INDICATION ON ERFDADS/QDPS
90345	S/G DYNAMIC RESPONSE NOT CORRECT
903[illegible]7	PZR/RCS MASS BALANCE

NOTE

DISCREPANCIES WITHIN THE CAPABILITY OF THE SIMULATOR SUPPORT STAFF WILL BE CORRECTED ON A PRIORITIZED BASIS PURSUANT TO PROCEDURE NTP-304.3. OTHER DISCREPANCIES WILL BE CORRECTED AS PART OF THE SIMULATOR MODEL UPGRADE PROJECT. SEE SECTION 12 FOR THE SCHEDULE AND PLAN REGARDING THIS PROJECT.

ADDENDUM 1

1.8

DISCREPANCIES ON THE INSTRUCTOR STATION AND THEIR IMPACT

DR #		DESCRIPTION
1688, 90053		**BOOLEAN LOGIC NECESSARY FOR CONDITIONAL MALFUNCTION TRIGGERING DOES NOT WORK**
	IMPACT:	Conditional triggers are not used.
1772		**MENU FIELD LENGTH FOR OVERRIDE LISTINGS TRUNCATES SOME DESCRIPTIONS**
	IMPACT:	Hard copy listings must be kept available and used
1890		**INTERMITTENT LOCKUP OF THE INSTRUCTOR STATION SUBROUTINE**
	IMPACT:	The computer replacement in 1989 has apparently corrected this problem, but the DR is kept active to check against a substantial simulator operating history. The Simulator Development Aid (SDA) Program still allows the execution of frozen console functions
90027		**INSTRUCTOR CONSOLE LOCKUP AFTER PERIODS OF STATIC SIMULATOR EXAMS. (INTERMITTENT)**
	IMPACT:	Static Simulator Exams are scheduled to cycle all examinees through sessions where one set of conditions is maintained.

ADDENDUM 1

1.8

DISCREPANCIES ON THE INSTRUCTOR STATION AND THEIR IMPACT
(CONTINUED)

DR #		DESCRIPTION
90049		**RESETTING SOME IC SETS TO OTHERS WILL CHANGE THE WORD DESCRIPTION OF ACTIVE MALFUNCTIONS ON STATUS MENUS.**
	IMPACT:	This occurs only when going directly from one IC with malfunctions active, into another IC with malfunctions active. Only word descriptions are changed. All actual malfunctions are unaffected.
90052		**DRILL FUNCTIONS AND PERFORMANCE MONITORING FUNCTIONS DO NOT WORK**
	IMPACT:	These are not used for training or exams.

ADDENDUM 1

1.9

DISCREPANCIES RELATED TO THE PLANT COMPUTER SYSTEMS AND POTENTIALLY TO ANSI/ANS-3.5.1985 SEC-3.2.2

DR #	DESCRIPTION
01313	QDPS IND OF FAILED S/G LEVEL INST NOT CORRECT
01769	QDPS IND NOT CORRECT
01864	ERFDADS NIS POWER TREND NOT CORRECT
90035	PROTEUS SYSTEM UPDATE TIME TOO SLOW
90055	ERFDADS PZR LEVEL IND NOT CORRECT
90061	ERFDADS CSF HEAT SINK DISPL NOT CORRECT
90072	PROTEUS IND OF VACUUM NOT CORRECT
90077	ERFDADS CONT SUMP LEVEL IND NOT CORRECT
90138	PROTEUS IND OF PRT PARAMETERS NOT CORRECT
90154	ERFDADS SI INOP IND NOT CORRECT
90190	ERFDADS RAD DISPLAY NOT CORRECT
90200	ERFDADS IND FOR FHB POINTS NOT CORRECT
90242	Th FAILURE
90243	Tc FAILURE
90282	ERFDADS/CR ALARMING NOT CORRECT
90283	NORMAL HEAT SINK DISPL NOT CORRECT
90291	QDPS W/R TEMP IND NOT CORRECT
90304	RHR QDPS DISPL NOT CORRECT
90336	SUBCOOLING INDICATION ON ERFDADS/QDPS
90340	PROTEUS COMPUTER OPS NOT CORRECT

NOTE

DISCREPANCIES WITHIN THE CAPABILITY OF THE SIMULATOR SUPPORT STAFF WILL BE CORRECTED ON A PRIORITIZED BASIS PURSUANT TO PROCEDURE NTP-304.3. OTHER DISCREPANCIES WILL BE CORRECTED AS PART OF THE SIMULATOR MODEL UPGRADE PROJECT. SEE SECTION 12 FOR THE SCHEDULE AND PLAN REGARDING THIS PROJECT.

ADDENDUM 1

1.10

DISCREPANCIES RELATED TO ANSI-3.1, 1985 SEC-5.3

DR #	DESCRIPTION
01313	QDPS INDICATION WITH FAILED CHANNEL
01387	QDPS DISPLAY ON LOSS OF CHANNEL I
01397	BTRS
01501	RMS RESPONSE
01555	ERRONEOUS RMS ALARM (INCORE ROOM)
01570	RMS RESPONSE DURING LETDOWN LINE LEAK OC
01572	CONTMT RADIATION RESPONSE ON CHARG LINE
01575	RCB GASEOUS ACT & PARTICULATE ACTIVITY
01581	S/G TUBE LEAK (XNSG0301-0304)
01619	LOSS OF PLANT COMPUTER X:CM0701
01672	RMS
01674	RMS/RC1403
01682	D.A. LEVEL CONTROL
01695	CORE EXIT TC RESPONSE
01696	S/G VOLUME
01704	FAILED FUEL
01732	RCS MASS
01734	F.W. TEMP
01768	STEAM GENERATOR MODEL
01769	LOCA
01848	CNTMT RESPONSE TO SUPPLEMENTAL PURGE
01858	STEAM INSIDE CONTAINMENT
01894	RX TRIP/SI AS PZR EXCEEDS 80%
01898	DECA. HEAT MODEL
90012	PANEL 6 RIGHT HAND QDPS LOCKS UP
90032	SGTR RAMP FUNCTION
90035	PROTEUS SYSTEM TO SLOW
90040	RCSD MODEL RVWL RESPONSE
90048	STEAM GENERATOR LEVEL INDICATION
90057	S/G BLOWDOWN ROD MON. RESPONSE
90062	SG TUBE RUPTURE
90077	CONTAINMENT WTR LVL (EMERGENCY SUMP)
90088	RCB RMS RESPONSE
90096	RVWLIS
90097	CCW TEMPERATURE RESPONSE ON LOCA
90106	QDPS S/G NARROW RANGE RTD VALVES
90120	"D" S/G PRESSURE
90148	H2 INDICATION ON ERFDADS CSF-Z
90157	RM-8050, 8051 NO RESPONSE
90160	CNTMT BACKGROUND RAD LEVEL
90167	PZR. RESPONSE

ADDENDUM 1

1.10

DISCREPANCIES RELATED TO ANSI-3.1, 1985 SEC-5.3
(Continued)

DR #	DESCRIPTION
90168	PRESSURIZER DYNAMICS AT LOW PRESSURE
90172	STEAM TABLE SUBOUTINES
90188	RHR MASS/ FLOW PROCESS PARAMETERS
90190	RAD SAFETY FUNCTION "ERFDADS"
90194	PROTEUS GROUP LOGS
90202	PROTEUS POINT U1118
90212	PROTEUS
90251	DYNAMICS OF RCS AND LHSI
90257	CVCD DYNAMICS
90258	CONTAINMENT PRESSURE DYNAMICS
90276	CONTAINMENT DYNAMICS MODEL THE TEMP & PRESS
90277	SMALL BREAK LOCA RESPONSE
90281	LOCKED RCP ROTOR X:RC0801,2,3,4
90282	ERFDADS SYSTEM ANNUNCIATORS
90291	INCORRECT RCS WR INDICATION
90293	SEAL/INJ TEMP RESPONSE
90301	LETDOWN FLOW ON RHR
90303	RHR TEMP RESPONSE
90304	RHR QDPS DISPLAY INDICATES RCS SUBCOOL
90329	SECONDARY PLANT DYNAMICS AT LOW POWER
90336	SUBCOOLING INDICATION ON CRDS ERFDADS
90340	PROTEUS PARAMETER CRT
90344	RHR FLOW
90345	S/G DYNAMIC RESPONSE
90347	MODELING OF CON. PZR STEAM LEAKAGE

ADDENDUM 2

DIFFERENCES BETWEEN UNIT 1, UNIT 2, AND SIMULATOR

2.1 CONTROL PANEL REFERENCE LIST

CONTROL ROOM EQUIP. NO.	DESCRIPTION
ZCP001	ENGINEERED SAFETY FEATURES, TRAIN A
ZCP002	ENGINEERED SAFETY FEATURES, TRAIN B
ZCP003	ENGINEERED SAFETY FEATURES, TRAIN C
ZCP004	CHEMICAL AND VOLUME CONTROL SYSTEM
ZCP005	REACTOR CONTROL
ZCP006	STEAM GENERATOR
ZCP007	TURBINE GENERATOR
ZCP008	FEEDWATER AND CONDENSATE
ZCP009	CIRCULATING WATER
ZCP010	ELECTRICAL AUXILIARY POWER
ZCP011	NUCLEAR INSTRUMENTATION SYSTEM
ZCP012	FLUX MAPPING
ZCP013	MOTION SEISMIC MONITORING
ZCP015	LOOSE PARTS MONITORING
ZCP017	SPARE PANEL NO.
ZCP018	MISC. RECORDER PANE.
ZCP019	FIRE PROTECTION PANEL
ZCC020	OPERATORS CONSOLE
ZCC021	AUXILIARY CONSOLE
ZCC022	HVAC PANEL
ZCC023	RADIATION MONITORING PANEL
ZCC062	CONTROL ROOM ALARM TYPER
ZCC063	CONTROL ROOM S[illegible] TYPER
ZCC067	CONTROL ROOM UTILITY LOG TYPER
ZCC068	CONTROL ROOM PLANT LOG TYPER
ZCC075	CONTROL ROOM VIDEO COPIER
ZCC198	RMS ALARM TYPER
ZCC199	RMS COLOR PRINTER
ZCC397	ERF-DADS COLOR PRINTER
ZCC398	ERF-DADS ALARM TYPER
ZCC399	ERF-DADS ALARM TYPER

ADDENDUM 2

DIFFERENCES BETWEEN UNIT 1, UNIT 2, AND SIMULATOR
(Continued)

2.2 PERMANENT DESIGN DIFFERENCES

SIMULATOR	UNIT 1	UNIT 2
MOTION SEISMIC MONITORING PANEL 13 IS NOT MODELED	MOTION SEISMIC MONITORING PANEL 13	DOES NOT EXIST
MATCHES UNIT 1	MAIN RESERVOIR LEVEL INDICATION (LI-6670) ON PANEL 9 -- RESERVOIR TELEMETRY MONITORED BY PLANT COMPUTER	RESERVOIR LEVEL READ ON PROTEUS AS WELL AS REMAINING RESERVOIR TELEMETRY.
MATCHES UNIT 1	RESERVOIR MAKE-UP PUMPS SWITCHES ON PANEL 18	DOES NOT EXIST
MATCHES UNIT 1	SWITCH FROM 4160V AUX BUS 1D2 FEEDS TRANSFORMER 12H2 ON PANEL 10	SWITCH FROM 4160V AUX BUS 2D2 FEED TRANSFORMER 12H1 ON PANEL 10
MATCHES UNIT 1	SWITCH FROM 13.8KV AUX BUS 1J THAT FEED TRANSFORMER 12M1 ALSO FEEDS 12F1	SWITCH FROM 13.8KV AUX BUS 2J THAT FEEDS TRANSFORMER 12M2 ALSO FEEDS 12F3
MATCHES UNIT 1	SWITCH FROM 13.8KV AUX BUS 1J FEEDS TRANSFORMERS 12J1 12K2, AND 12L	SWITCH FROM 13.8KV AUX BUS 2J FEEDS TRANSFORMERS 12J2 AND 12K1
MATCHES UNIT 1	SPARE BREAKER ON 4.16KV BUS 1D1	DOES NOT EXIST
MATCHES UNIT 1	SPARE BREAKER ON 13.8 KV AUX BUS 1F	DOES NOT EXIST

ADDENDUM 2

DIFFERENCES BETWEEN UNIT 1, UNIT 2, AND SIMULATOR
(Continued)

SIMULATOR	UNIT 1	UNIT 2
RM21 COMPUTER NOT MODELED	THE ONLY RM21 COMPUTER FOR THE PLANT IS IN UNIT 1	TERMINAL FOR RM21 COMPUTER FED FROM UNIT 1 COMPUTER
MATCHES UNIT 1	WIND DIRECTION AND SPEED ARE DISPLAYED ON PANEL 22	DOES NOT EXIST
THERE ARE NO WATT-HOUR METERS ON THE BACK OF PANEL 10	WATT HOUR METERING ON THE BACK OF PANEL 10:	WATT HOUR METERING ON THE BACK OF PANEL 10:
	UNIT 1 AUX XMFR UNIT 1 MAIN GEN UNIT 1 STBY XMFR UNIT 1 STBY SMFR	UNIT 2 AUX XMFR UNIT 2 MAIN GEN
MATCHES UNIT 1	CENTRAL ALARM STATION BATT RM EXH FLOW LOW ALARM	DOES NOT EXIST
ZCP-019 FIRE PROT. PANEL NOT MODELED	ZCP-019 OPERABLE	MATCHES UNIT 1
CARPET COLOR IS DIFFERENT THAN UNIT 1	MATCHES UNIT 2	MATCHES UNIT 1
PANELS ZCP-20 AND 21 ARE APPROX. ONE (1) FT. CLOSER TO PANELS 1, 2 AND 3.	MATCHES UNIT 2	MATCHES UNIT 1
EMERGENCY LIGHTING DOES NOT EXIST	EMERGENCY LIGHTING FIXTURES OPERABLE	MATCHES UNIT 1

ADDENDUM 2

DIFFERENCES BETWEEN UNIT 1, UNIT 2, AND SIMULATOR
(Continued)

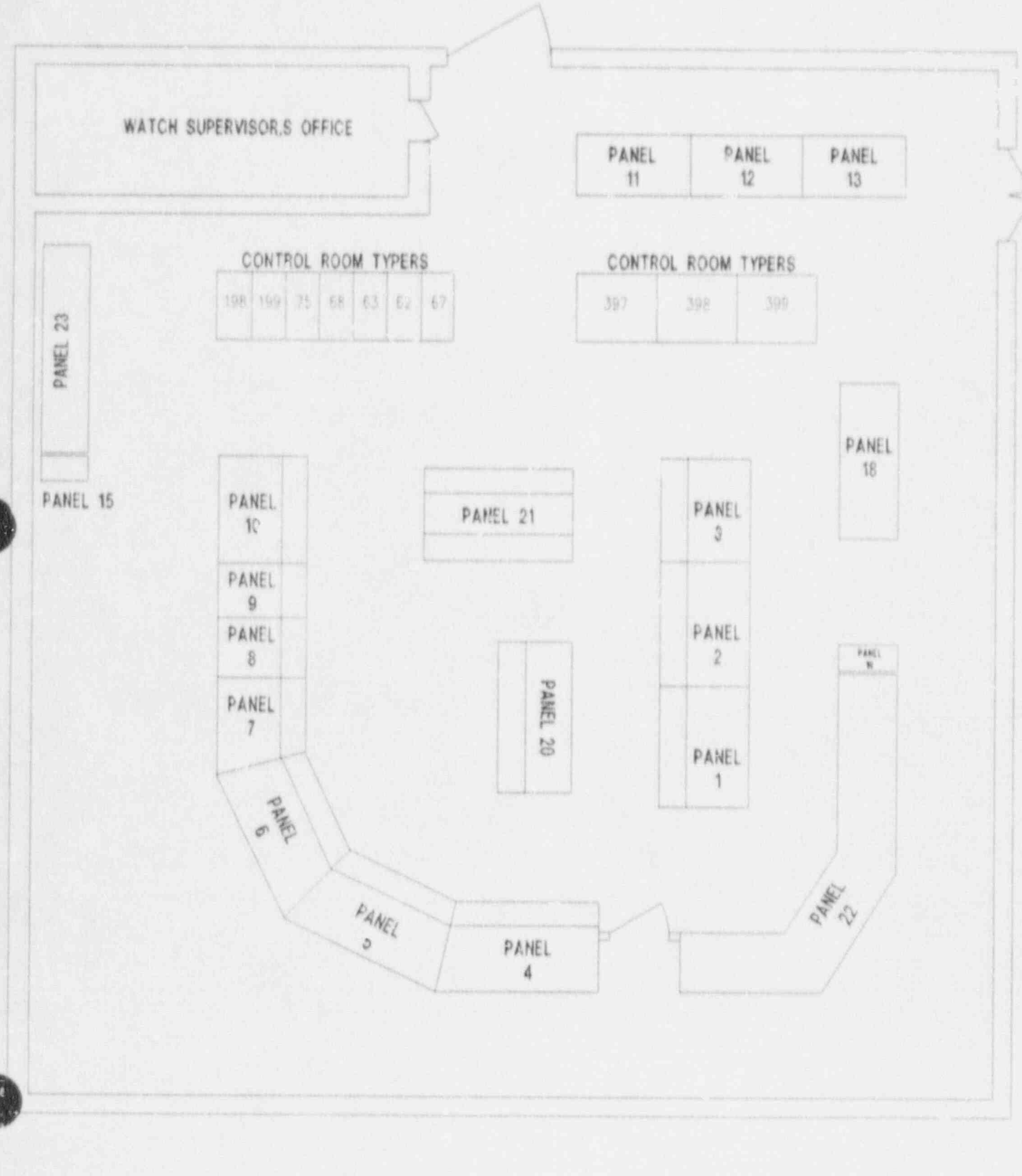
2.3 DIFFERENCES DUE TO PLANT MODIFICATIONS

SIMULATOR	UNIT 1	UNIT 2
SIMULATOR TO BE COMPLETED AFTER HARDWARE PROCUREMENT AND SOFTWARE UPGRADE IS COMPLETE	ROD DEVIATION ALARM ACTUATED BY PROTEUS COMPUTER WHEN PRESET LIMIT IS EXCEEDED	UNIT 2 MODIFICATION WILL BE INCORPORATED AFTER TESTING AND EVALUATION IN UNIT 1
SIMULATOR SCHEDULED FOR COMPLETION OCT, 1991	ADDED ALARM FOR HIGHEST CORE EXIT THERMALCOUPLE ON SIGNAL FROM QDPS TO TR0001 & REPLACE WITH DIFFERENT RECORDER	MATCHES UNIT 1

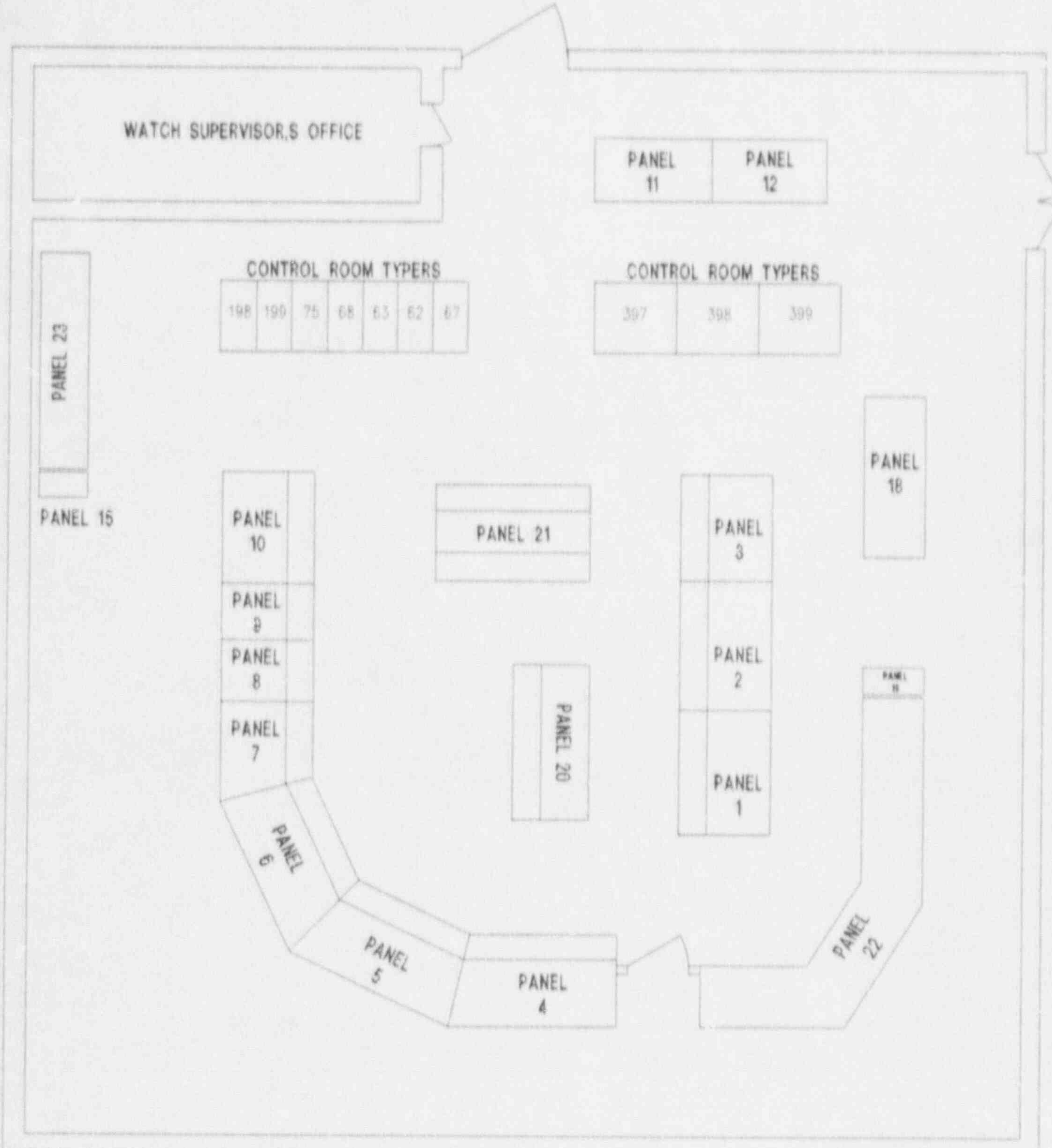
2.4 ALARMS THAT ARE LABELED DIFFERENTLY BETWEEN UNITS

SIMULATOR	UNIT 1	UNIT 2
MATCHES UNIT 1	7M01-A6,7 345KV SWYD Y510/Y520 TRIP	7M01-A6,7 345KV SWYD Y600/Y590 TRIP
MATCHES UNIT 1	10M02-A4 345KV BKR Y500 TRIP	10M02-A4 345KV BKR Y610 TRIP
MATCHES UNIT 1 13KV 1H XFMR 12J2 - 12K1 FDR BKR TRIP	10M02-E2	10M02-E2 13KV 2J XFMR 12J2 - 12K1 FDR BKR TRIP

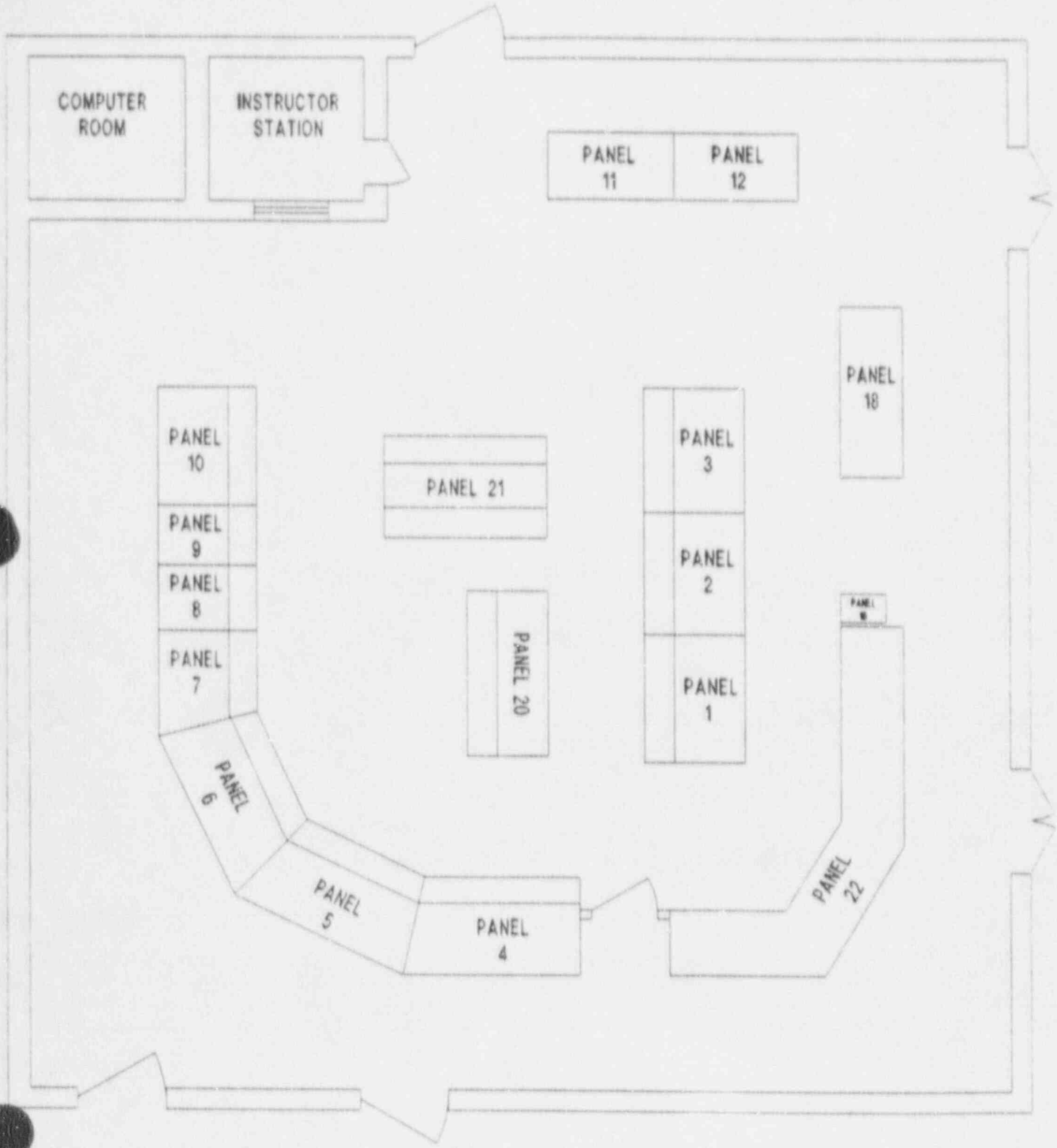
UNIT 1 CONTROL ROOM
FLOOR PLAN



UNIT 2 CONTROL ROOM
FLOOR PLAN



UNIT 1 CONTROL ROOM
SIMULATOR



ADDENDUM 3

MALFUNCTIONS ACCEPTED FOR TRAINING AND EXAMINATIONS

NOTE: The order of listing in this Addendum corresponds to the order of the associated test synopses in Addendum 4.

<u>MNEMONIC</u>	<u>DESCRIPTION</u>
X:RX0101	AUTO MODE CONT ROD WITHDRWL
X:RX0102	MAN MODE CONT ROD WITHDRWL
X:RX0201	AUTO MODE CONT ROD INSERTION
X:RX0202	MAN MODE CONT ROD INSERTION
X:RX0301	GRP-1, CB-C FAILS TO MOVE
X:RX0302	GRP-1, CB-D FAILS TO MOVE
X:RX0401	GRP-2, CB-C FAILS TO MOVE
X:RX0402	GRP-2, CB-D FAILS TO MOVE
X:RX0501	ROD H2 FAIL TO MOVE W/BNK C
X:RX0502	ROD B2 FAIL TO MOVE W/BNK C
X:RX0503	ROD H14 FAIL TO MOVE W/BNK C
X:RX0504	ROD P8 FAIL TO MOVE W/BNK C
X:RX0505	ROD F6 FAIL TO MOVE W/BNK C
X:RX0506	ROD F10 FAIL TO MOVE W/BNK C
X:RX0507	ROD K10 FAIL TO MOVE W/BNK C
X:RX0508	ROD K6 FAIL TO MOVE W/BNK C
X:RX0509	ROD D4 FAIL TO MOVE W/BNK D
X:RX0510	ROD M12 FAIL TO MOVE W/BNK D
X:RX0511	ROD D12 FAIL TO MOVE W/BNK D
X:RX0512	ROD M4 FAIL TO MOVE W/BNK D
X:RX0513	ROD H8 FAIL TO MOVE W/BNK D
XRRX0601	IMPROPER OVLP CB A TO CB B
XRRX0602	IMPROPER OVLP CB B TO CB C
XRRX0603	IMPROPER OVLP CB C TO CB D
X:RX0701	DROP ROD C9 OF SD B
X:RX0702	DROP ROD E3 OF SD C
X:RX0703	DROP ROD K2 OF CB B
X:RX0704	DROP ROD P8 OF CB C
X:RX0705	DROP ROD H14 OF CB C
X:RX0706	DROP ROD K6 OF CB C
X:RX0707	DROP ROD M12 OF CB D
X:RX0708	DROP ROD H8 OF CB D
X:RX0709	DROP ROD D12 OF CB D
X:RX0801	DROP GRP 1 RODS CB C
X:RX0802	DROP GRP 2 RODS CB C
X:RX0803	DROP GRP 1 RODS CB D
X:RX0804	DROP GRP 2 RODS CB D
X:RX0901	RODS FAIL TO MOVE IN AUTO
X:RX0902	RODS FAIL TO MOVE IN MANUAL
XRRX1001	AUTO RC CNTLS TAVG HI OR LO
X:RX1101	ROD EJECTION D12 CB D GRP 2

ADDENDUM 3

MALFUNCTIONS ACCEPTED FOR TRAINING AND EXAMINATIONS
(Continued)

MNEMONIC	DESCRIPTION
X:RX1102	ROD EJECTION M4 CB D GRP 2
X:RX1103	POD EJECTION H8 CB D GRP 2
X:RX1104	ROD EJECTION D4 CB D GRP 1
X:RX1105	ROD EJECTION M12 CB D GRP 1
X:RX1201	FAILURE OF AUTO RX TRIP SIGNAL
X:RX1202	ATWS - NO TRIP ON TRIP SIGNAL
X:RX1203	FAILURE OF AUTO SI SIGNAL
X:RX1204	FAILURE OF AUTO PH A ISOL
X:RX1205	FAILURE OF AUTO PH B ISOL
X:RX1206	FAILURE OF MS ISOL SIGNAL
X:RX1207	RX TRIP BKR F/OPEN TRAIN R
X:RX1208	RX TRIP BKR F/OPEN TRAIN S
X:RX1301	DRPI FAILURE DATA A
X:RX1302	DRPI FAILURE DATA B
X:RX1401	FAIL DRPI CHANNEL M2
X:RX1402	FAIL DRPI CHANNEL B12
X:RX1403	FAIL DRPI CHANNEL C7
X:RX1404	FAIL DRPI CHANNEL J13
X:RX1405	FAIL DRPI CHANNEL L13
X:RX1406	FAIL DRPI CHANNEL N11
X:RX1407	FAIL DRPI CHANNEL M8
X:RX1408	FAIL DRPI CHANNEL H6
X:RX1409	FAIL DRPI CHANNEL E11
X:RX1410	FAIL DRPI CHANNEL B10
X:RX1411	FAIL DRPI CHANNEL F14
X:RX1412	FAIL DRPI CHANNEL H2
X:RX1413	FAIL DRPI CHANNEL P8
X:RX1414	FAIL DRPI CHANNEL H8
X:RX1415	FAIL DRPI CHANNEL M12
X:RX1501	COMPLETE LOSS OF DRP1
X:RX1601	FAIL ROD BLOCK C1
X:RX1602	FAIL ROD BLOCK C2
X:RX1603	FAIL ROD BLOCK C3
X:RX1604	FAIL ROD BLOCK C4
X:RX1701	RODS MOVE AT MIN SPEED - AUTO
X:RX1702	RODS MOVE AT MAX SPEED - AUTO
X:RX1801	C/BNKS OUT WHEN IN REQUIRED
X:RX1802	C/BNKS IN WHEN OUT REQUIRED
X:RX1901	RX TRIP BKR P4 BYP OPEN TR R
X:RX1902	RX TRIP BKR P4 BKR OPEN TR R
X:RX1903	RX TRIP BKR P4 BYP OPEN TR S
X:RX1904	RX TRIP BKR P4 BKR OPEN TR S
X:RX2001	ROD D2 STUCK ON RX TRIP
X:RX2002	ROD G13 STUCK ON RX TRIP

ADDENDUM 3

MALFUNCTIONS ACCEPTED FOR TRAINING AND EXAMINATIONS
(Continued)

MNEMONIC	DESCRIPTION
X:RX2003	ROD E3 STUCK ON RX TRIP
X:RX2004	ROD N11 STUCK ON TX TRIP
X:RX2005	ROD D8 STUCK ON RX TRIP
X:RX2006	ROD H6 STUCK ON RX TRIP
X:RX2007	ROD F2 STUCK ON RX TRIP
X:RX2008	ROD P8 STUCK ON RX TRIP
X:RX2009	ROD H8 STUCK ON RX TRIP
X:RP2101	LOW FLOW RX TRIP LP 1 CH 1
X:RP2102	LOW FLOW RX TRIP LP 2 CH 1
X:RP2103	LOW FLOW RX TRIP LP 3 CH 1
X:RP2104	LOW FLOW RX TRIP LP 4 CH 1
X:RP2105	LOW FLOW RX TRIP LP 1 CH 2
X:RP2106	LOW FLOW RX TRIP LP 2 CH 2
X:RP2107	LOW FLOW RX TRIP LP 3 CH 2
X:RP2108	LOW FLOW RX TRIP LP 4 CH 2
X:RP2109	LOW FLOW RX TRIP LP 1 CH 3
X:RP2110	LOW FLOW RX TRIP LP 2 CH 3
X:RP2111	LOW FLOW RX TRIP LP 3 CH 3
X:RP2112	LOW FLOW RX TRIP LP 4 CH 3
X:RP2201	OP/DT RX TRIP LOOP 1
X:RP2202	OP/DT RX TRIP LOOP 2
X:RP2203	OP/DP RX TRIP LOOP 3
X:RP2204	OP/DT RX TRIP LOOP 4
X:RP2205	OP/DT RUNBACK LOOP 1
X:RP2206	OP/DT RUNBACK LOOP 2
X:RP2207	OP/DT RUNBACK LOOP 3
X:RP2208	OP/DT RUNBACK LOOP 4
X:RP2209	OP/DT RX TRIP LOOP 1
X:RP2210	OP/DT RX TRIP LOOP 2
X:RP2211	OP/DT RX TRIP LOOP 3
X:RP2212	OP/DT RX TRIP LOOP 4
X:RP2213	OP/DT RUNBACK LOOP 1
X:RP2214	OP/DT RUNBACK LOOP 2
X:RP2215	OP/DT RUNBACK LOOP 3
X:RP2216	OP/DT RUNBACK LOOP 4
X:RP2301	LO T AVG LOOP 1 B/S
X:RP2302	LO T AVG LOOP 2 B/S
X:RP2303	LO T AVG LOOP 3 B/S
X:RP2304	LO T AVG LOOP 4 B/S
X:RP2305	LO-LO T AVG LOOP 1 B/S
X:RP2306	LO-LO T AVG LOOP 2 B/S
X:RP2307	LO-LO T AVG LOOP 3 B/S
X:RP2308	LO-LO T AVG LOOP 4 B/S
X:RP2401	SPRAY ACT TEST BYP CH 1 B/S

ADDENDUM 3

MALFUNCTIONS ACCEPTED FOR TRAINING AND EXAMINATIONS
(Continued)

MNEMONIC	DESCRIPTION
X:RP2402	SPRAY ACT TEST BYP CH 2 B/S
X:RP2403	SPRAY ACT TEST BYP CH 3 B/S
X:RP2404	SPRAY ACT TEST BYP CH 4 B/S
X:RP2405	CTMT PRESS HI-1 CH 1 B/S
X:RP2406	CTMT PRESS HI-1 CH 2 B/S
X:RP2407	CTMT PRESS HI-1 CH 3 B/S
X:RP2408	CTMT PRESS HI-3 CH 1 B/S
X:RP2409	CTMT PRESS HI-3 CH 2 B/S
X:RP2410	CTMT PRESS HI-3 CH 3 B/S
X:RP2411	CTMT PRESS HI-3 CH 4 B/S
X:RP2501	PZR PRESS LO RX TRIP CH 1
X:RP2502	PZR PRESS LO RX TRIP CH 2
X:RP2503	PZR PRESS LO RX TRIP CH 3
X:RP2504	PZR PRESS LO RX TRIP CH 4
X:RP2505	PZR PRESS LO SI CH 1
X:RP2506	PZR PRESS LO SI CH 2
X:RP2507	PZR PRESS LO SI CH 3
X:RP2508	PZR PRESS LO SI CH 4
X:RP2509	PZR PRESS HI RX TRIP CH 1
X:RP2510	PZR PRESS HI RX TRIP CH 2
X:RP2511	PZR PRESS HI RX TRIP CH 3
X:RP2512	PZR PRESS HI RX TRIP CH 4
X:RP2513	PZR PRESS BLOCK CH 1
X:RP2514	PZR PRESS BLOCK CH 2
X:RP2515	PZR PRESS BLOCK CH 3
X:RP2516	PZR LEVEL HI RX TRIP CH 1
X:RP2517	PZR LEVEL HI RX TRIP CH 2
X:RP2518	PZR LEVEL HI RX TRIP CH 3
X:RP2519	PZR LEVEL HI RX TRIP CH 4
X:RP2601	RCP 1A U/V RX TRIP CH-1 B/S
X:RP2602	RCP 1B U/V RX TRIP CH-2 B/S
X:RP2603	RCP 1C U/V RX TRIP CH-3 B/S
X:RP2604	RCP 1D U/V RX TRIP CH-4 B/S
X:RP2605	RCP 1A U/F RX TRIP CH-1 B/S
X:RP2606	RCP 1B U/F RX TRIP CH-2 B/S
X:RP2607	RCP 1C U/F RX TRIP CH-3 B/S
X:RP2608	RCP 1D U/F RX TRIP CH-4 B/S
X:NI2701	SOURCE RANGE HI CH 1 B/S
X:NI2702	SOURCE RANGE HI CH 2 B/S
X:NI2703	SR TRIP/BYP CH 1 B/S
X:NI2704	SR TRIP/BYP CH 2 B/S
X:NI2705	INTERM RANGE HI CH 1 B/S
X:NI2706	INTERM RANGE HI CH 2 B/S
X:NI2707	IR TRIP/BYP CH 1 B/S

MALFUNCTIONS ACCEPTED FOR TRAINING AND EXAMINATIONS (Continued)

MNEMONIC	DESCRIPTION
X:NI2708	IR TRIP/BYP CH 2 B/S
X:NI2709	INTERM RANGE P6 CH 1 B/S
X:NI2710	INTERM RANGE HI CH 2 B/S
X:NI2801	POWER RANGE P-8 CH 1 B/S
X:NI2802	POWER RANGE P-8 CH 2 B/S
X:NI2803	POWER RANGE P-8 CH 3 B/S
X:NI2804	POWER RANGE P-8 CH 4 B/S
X:NI2805	POWER RANGE P-9 CH 1 B/S
X:NI2806	POWER RANGE P-9 CH 2 B/S
X:NI2807	POWER RANGE P-9 CH 3 B/S
X:NI2808	POWER RANGE P-9 CH 4 B/S
X:NI2809	POWER RANGE P7/P10 CH 1 B/S
X:NI2810	POWER RANGE P7/P10 CH 2 B/S
X:NI2811	POWER RANGE P7/P10 CH 3 B/S
X:NI2812	POWER RANGE P7/P10 CH 4 B/S
X:NI2901	PR OVRPWR ROD STOP BYP CH 1
X:NI2902	PR OVRPWR ROD STOP BYP CH 2
X:NI2903	PR OVRPWR ROD STOP BYP CH 3
X:NI2904	PR OVRPWR ROD STOP BYP CH 4
X:NI2905	POWER RANGE LO CH 1 B/S
X:NI2906	POWER RANGE LO CH 2 B/S
X:NI2907	POWER RANGE LO CH 3 B/S
X:NI2908	POWER RANGE LO CH 4 B/S
X:NI2909	POWER RANGE HI CH 1 B/S
X:NI2910	POWER RANGE HI CH 2 B/S
X:NI2911	POWER RANGE HI CH 3 B/S
X:NI2912	POWER RANGE HI CH 4 B/S
X:NI2913	POWER RANGE RATE CH 1 B/S
X:NI2914	POWER RANGE RATE CH 2 B/S
X:NI2915	POWER RANGE RATE CH 3 B/S
X:NI2916	POWER RANGE RATE CH 4 B/S
XNNI3001	SR CHNL 31 FAILS HI
XNNI3002	SR CHNL 32 FAILS HI
X:NI3101	SR CHNL 31 FAILS LOW
X:NI3102	SR CHNL 32 FAILS LOW
XRNI3201	SOURCE RANGE CH 31 SLUGGISH
XRNI3202	SOURCE RANGE CH 32 SLUGGISH
X:RP3301	IR INPUT TO SR BLOCK FAILS
X:NI3401	IR CH 35 OVER COMPENSATED
X:NI3402	IR CH 36 OVER COMPENSATED
X:NI3501	IR CH 35 UNDER COMPENSATED
X:NI3502	IR CH 36 UNDER COMPENSATED
X:NI3601	IR CH 35 FAILS HIGH
X:NI3602	IR CH 36 FAILS HIGH

ADDENDUM 3

MALFUNCTIONS ACCEPTED FOR TRAINING AND EXAMINATIONS (Continued)

MNEMONIC	DESCRIPTION
X:NI3701	IR CH 35 FAILS LOW
X:NI3702	IR CH 36 FAILS LOW
X:NI3801	LOSS OF PWR TO PR CH 41
X:NI3802	LOSS OF PWR TO PR CH 42
X:NI3803	LOSS OF PWR TO PR CH 43
X:NI3804	LOSS OF PWR TO PR CH 44
X:RC0101	RCS COLD LEG RUPTURE LOOP 1A
X:RC0102	RCS COLD LEG RUPTURE LOOP 1B
X:RC0103	RCS COLD LEG RUPTURE LOOP 1C
X:RC0104	RCS COLD LEG RUPTURE LOOP 1D
XRRC0301	RCS LEAK, FLOW XMTR LOOP A
XRRC0302	RCS LEAK, FLOW XMTR LOOP B
XRRC0303	RCS LEAK, FLOW XMTR LOOP C
XRRC0304	RCS LEAK, FLOW XMTR LOOP D
XNRC0401	RCS LEAK, RV HEAD VENT
XNRC0501	RCS LEAK, RV HEAD FLANGE
X:RC0701	SHEARED RCP SHAFT - RCP 1A
X:RC0702	SHEARED RCP SHAFT - RCP 1B
X:RC0703	SHEARED RCP SHAFT - RCP 1C
X:RC0704	SHEARED RCP SHAFT - RCP 1D
X:RC0801	LOCKED RCP ROTOR - RCP 1A
X:RC0802	LOCKED RCP ROTOR - RCP 1B
X:RC0803	LOCKED RCP ROTOR - RCP 1C
X:RC0804	LOCKED RCP ROTOR - RCP 1D
X:RC0901	RCP 1A TRIPS ON UNDER FREQ
X:RC0902	RCP 1B TRIPS ON UNDER FREQ
X:RC0903	RCP 1C TRIPS ON UNDER FREQ
X:RC0904	RCP 1D TRIPS ON UNDER FREQ
X:RC1001	RCP 1A TRIPS ON UNDER VOLTAGE
X:RC1002	RCP 1B TRIPS ON UNDER VOLTAGE
X:RC1003	RCP 1C TRIPS ON UNDER VOLTAGE
X:RC1004	RCP 1D TRIPS ON UNDER VOLTAGE
XNRC1301	PZR PORV LEAK PCV-655
XNRC1302	PZR PORV LEAK PCV-656
X:RC1501	PZR SPRAY VLV FC PCV-655B
X:RC1502	PZR SPRAY VLV FC PCV-655C
XRPZ1601	PZR SPRAY VLV FO PCV-655B
XRPZ1602	PZR SPRAY VLV FO PCV-655C
X:PZ1701	PZR PRES CONTROL FAIL -30PSI
X:PZ1702	PZR PRES CONTROL FAIL +30PSI
XRPL1801	PZR LVL CONTROL MALFUNCTION
XNRC1901	PT 456 FAILS HI, PORV OPENS
XNRC1902	PT 457 FAILS HI, PORV OPENS
XNRC1903	PT 458 FAILS HI, PORV OPENS

ADDENDUM 3

MALFUNCTIONS ACCEPTED FOR TRAINING AND EXAMINATIONS
(Continued)

MNEMONIC	DESCRIPTION
XNRC1904	PT 458 FAILS TO ANY POSITION
XNRC2001	LT 465 PZR LVL XMTR FAILS
XNRC2002	LT 466 PZR LVL XMTR FAILS
XNRC2003	LT 468 PZR LVL XMTR FAILS
X:RC2101	PZR HTR B/U GP E FAILS ON
X:PL2201	PZR HTRS FAIL TO COME ON
X:RC2301	PZR HTR GP A FAIL TO COME ON
X:RC2302	PZR HTR GP B FAIL TO COME ON
X:RC2303	PZR HTR GP C FAIL TO COME ON
X:RC2304	PZR HTR GP D FAIL TO COME ON
X:RC2305	PZR HTR GP E FAIL TO COME ON
XNRC2401	RCS PRES XMTR PT 407 FAILS
XNRC2402	RCS PRES XMTR PT 405 FAILS
XNRC2403	RCS PRES XMTR PT 406 FAILS
XNRC2501	RTD FAILS HOT LEG A TT 410A
XNRC2502	RTD FAILS HOT LEG A TT 410B
XNRC2505	RTD FAILS HOT LEG A TT 413
XNRC2601	RTD FAILS HOT LEG B TT 420A
XNRC2602	RTD FAILS COLD LEG B TT 420B
XNRC2606	RTD FAILS COLD LEG B TT 424
XNRC2701	RTD FAILS HOT LEG C TT 430A
XNRC2702	RTD FAILS COLD LEG B TT 430B
XNRC2705	RTD FAILS HOT LEG C TT 433
XNRC2801	RTD FAILS HOT LEG D TT 440
XNRC2802	RTD FAILS COLD LEG D TT 440B
XNRC2806	RTD FAILS COLD LEG D TT 444
XNCV0301	TUBE LEAK LTDN HEAT EXCHANGE
X:CV0401	TCV-143 DIVERTS TO VCT
X:CV0601	LTDN VLV PCV-135 FAILS CLOSE
X:CV0901	LOSS OF CHARGING PUMP CCP-1A
X:CV0902	LOSS OF CHARGING PUMP CCP-1B
X:CV0903	LOSS OF CHARGING PUMP PD-1A
XNCV1101	LETDOWN LINE LEAK IN RCB
XNCV1201	LTDN LINE LEAK OUTSIDE RCB
XNCV1301	LP LTDN LINE LEAK AT FE-132
X:CV1701	TRIP BORIC ACID XFER PUMP 1A
X:CV1702	TRIP BORIC ACID XFER PUMP 1B
X:CV2001	RCS DILUTION-UNBORATED DEMIN
X:CV2101	RCS DILUTION BATCH INTEG FAILS
XRCV2201	HI DP SEALWATER INJ FILTER A
XRCV2202	HI DP SEALWATER INJ FILTER B
XNCV2301	RCP 1 SEAL FAILS - PUMP 1A
XNCV2302	RCP 2 SEAL FAILS - PUMP 2A
XNCV2303	RCP 1 SEAL FAILS - PUMP 1B

ADDENDUM 3

MALFUNCTIONS ACCEPTED FOR TRAINING AND EXAMINATIONS
(Continued)

MNEMONIC	DESCRIPTION
XNCV2304	RCP 2 SEAL FAILS - PUMP 2B
XNCV2305	RCP 1 SEAL FAILS - PUMP 1C
XNCV2306	RCP 2 SEAL FAILS - PUMP 2C
XNCV2307	RCP 1 SEAL FAILS - PUMP 1D
XNCV2308	RCP 2 SEAL FAILS - PUMP 2D
X:CC0101	LOSS CCW PUMP 1A THERMAL O/L
X:CC0102	LOSS CCW PUMP 1B THERMAL O/L
X:CC0103	LOSS CCW PUMP 1C THERMAL O/L
X:CC0201	LOSS OF CCW PUMP 1A-FT-4512
X:CC0202	LOSS OF CCW PUMP 1B-FT-4517
X:CC0203	LOSS OF CCW PUMP 1C-FT-4522
XNCC0301	LOSS CCW TO RCP 1A THERM BAR
XNCC0302	LOSS CCW TO RCP 1B THERM BAR
XNCC0303	LOSS CCW TO RCP 1C THERM BAR
XNCC0304	LOSS CCW TO RCP 1D THERM BAR
X:CC0401	LOSS CCW TO RHR HEAT EXCH 1A
X:CC0402	LOSS CCW TO RHR HEAT EXCH 1B
X:CC0403	LOSS CCW TO RHR HEAT EXCH 1C
X:CC0501	LOSS CCW TO CHARGING PUMPS
X:CC0601	CCW AUTO MU LV 4501 FAILS
XNCC0701	CCW/ECW HX TUBE LEAK
X:EC0901	ECW PUMP 1A FAILS ON O/L
X:EC0902	ECW PUMP 1B FAILS ON O/L
X:EC0903	ECW PUMP 1C FAILS ON O/L
X:EC0904	TRIP ESSENTIAL CHILLER 11A
X:EC0905	TRIP ESSENTIAL CHILLER 11B
X:EC0906	TRIP ESSENTIAL CHILLER 11C
X:EC0907	TRIP ESSENTIAL CHILLER 12A
X:EC0908	TRIP ESSENTIAL CHILLER 12B
X:EC0909	TRIP ESSENTIAL CHILLER 12C
X:RH1001	LOSS OF RHR PUMP 1A ON O/L
X:RH1002	LOSS OF RHR PUMP 1B ON O/L
X:RH1003	LOSS OF RHR PUMP 1C ON O/L
X:RH1101	RHR PMP RELIEF PSV-3851 FO
X:RH1102	RHR PMP RELIEF PSV-3852 FO
X:RH1103	RHR PMP RELIEF PSV-3853 FO
XNRH1201	TUBE LEAK IN RHR HX 1A
XNRH1202	TUBE LEAK IN RHR HX 1B
X:SI1301	LOSS OF HHSI PUMP 1A ON O/L
X:SI1302	LOSS OF HHSI PUMP 1B ON O/L
X:SI1303	LOSS OF HHSI PUMP 1C ON O/L
X:SI1401	LOSS OF LHSI PUMP 1A ON O/L
X:SI1402	LOSS OF LHSI PUMP 1B ON O/L
X:SI1403	LOSS OF LHSI PUMP 1C ON O/L

ADDENDUM 3

MALFUNCTIONS ACCEPTED FOR TRAINING AND EXAMINATIONS
(Continued)

MNEMONIC	DESCRIPTION
X:SI1501	ACCUM DISCH VLV FAILS TO OPERATE 039A
X:SI1502	ACCUM DISCH VLV FAILS TO OPERATE 039B
X:SI1503	ACCUM DISCH VLV FAILS TO OPERATE 039C
X:CS1601	LOSS OF CS PUMP
X:CS1602	LOSS OF CMT SPR PUMP 1B
X:CS1603	LOSS OF CMT SPR PUMP 1C
XNSI1701	N2 LOSS ACCU 1A VIA PSV-3981
XNSI1702	N2 LOSS ACCU 1B VIA PSV-3980
XNSI1703	N2 LOSS ACCU 1C VIA PSV-3977
XNSI1801	LEAK PAST SI ACCU 1A CHK VLV
XNSI1802	LEAK PAST SI ACCU 1B CHK VLV
XNSI1803	LEAK PAST SI ACCU 1C CHK VLV
XNMS0101	STEAM BREAK OUTSIDE CONTAINM
XNMS0201	STM BKR IN CONTAINMENT LOOP A
XNMS0202	STM BKR IN CONTAINMENT LOOP B
XNMS0203	STM BKR IN CONTAINMENT LOOP C
XNMS0204	STM BKR IN CONTAINMENT LOOP D
XNSG0301	STEAM GEN TUBE LEAK - SG 1A
XNSG0302	STEAM GEN TUBE LEAK - SG 1B
XNSG0303	STEAM GEN TUBE LEAK - SG 1C
XNSG0304	STEAM GEN TUBE LEAK - SG 1D
X:MS0401	MN STM SFTY VLV PSV 7410 FO
X:MS0402	MN STM SFTY VLV PSV 7420 FO
X:MS0403	MN STM SFTY VLV PSV 7430 FO
X:MS0404	MN STM SFTY VLV PSV 7440 FO
XNMS0501	MS SAFETY PSV 7410 SEAT LEAK
XNMS0502	MS SAFETY PSV 7420 SEAT LEAK
XNMS0503	MS SAFETY PSV 7430 SEAT LEAK
XNMS0504	MS SAFETY PSV 7440 SEAT LEAK
X:MS0601	MSIV FAILS CLOSED SG A
X:MS0602	MSIV FAILS CLOSED SG B
X:MS0603	MSIV FAILS CLOSED SG C
X:MS0604	MSIV FAILS CLOSED SG D
X:MS0701	MSIV FAIL TO OPERATE MS 7414
X:MS0702	MSIV FAIL TO OPERATE MS 7424
X:MS0703	MSIV FAIL TO OPERATE MS 7434
X:MS0704	MSIV FAIL TO OPERATE MS 7444
X:MS0801	MSIV SHUTS DURING TEST SG A
X:MS0802	MSIV SHUTS DURING TEST SG B
X:MS0803	MSIV SHUTS DURING TEST SG C
X:MS0804	MSIV SHUTS DURING TEST SG D
X:MS0901	GS REGULATOR PV-6150 F/O
X:MS1001	NO GS SPLY FROM MS PV 6150 FC
X:MS1101	NO STM FLO SIG TO FWCS SG A

ADDENDUM 3

MALFUNCTIONS ACCEPTED FOR TRAINING AND EXAMINATIONS
(Continued)

MNEMONIC	DESCRIPTION
X:MS1102	NO STM FLO SIG TO FWCS SG B
X:MS1103	NO STM FLO SIG TO FWCS SG C
X:MS1104	NO STM FLO SIG TO FWCS SG D
X:SG1201	NO SG LVL SIG TO FWCS SG 1A
X:SG1202	NO SG LVL SIG TO FWCS SG 1B
X:SG1203	NO SG LVL SIG TO FWCS SG 1C
X:SG1204	NO SG LVL SIG TO FWCS SG 1D
X:PD1301	BNK 1 STM DMPS FAIL TO CLOSE
X:PD1302	BNK 2 STM DMPS FAIL TO CLOSE
X:PD1303	BNK 3 STM DMPS FAIL TO CLOSE
X:PD1304	BNK 4 STM DMPS FAIL TO CLOSE
XNMS1401	STM HDR PR XMTR PT-557 FAILS
XNMS1501	NO RHT STM FRM MSR CNTRL SYS
X:PD1601	STM DUMP CNTRL FAILS ON TRIP
X:TU0101	TURB TRIP FROM AST 20-1, 20-2
X:TU0201	NO TUR TRP ON AUTO TRP SIG
X:TU0401	MN TURBINE GOVERNOR VLV 1 FO
X:TU0402	MN TURBINE GOVERNOR VLV 2 FO
X:TU0403	MN TURBINE GOVERNOR VLV 3 FO
X:TU0404	MN TURBINE GOVERNOR VLV 4 FO
X:TU0501	MN TURBINE GOVERNOR VLV FC 1
X:TU0502	MN TURBINE GOVERNOR VLV FC 2
X:TU0503	MN TURBINE GOVERNOR VLV FC 3
X:TU0504	MN TURBINE GOVERNOR VLV FC 4
X:TU0701	LOSS OF MN TURB OIL PMP
XNTU0801	MN TURB LUBE OIL PRESS LOW
XNTU0901	MN TURB LUBE OIL TEMP HI
X:TU1001	AC BRNG OIL PUMP WON'T START
X:TU1201	MN TURB THRUST BRNG FAILS
X:TU1301	TURNING GEAR MOTOR FAILURE
X:EH1401	EH AUTO MODE FAILURE
X:EH1501	EH HYDRAULIC LINE FAILURE
XNTU1601	1ST STG PR XMTR PT-505 FAILS
XNTU1602	1ST STG PR XMTR PT-506 FAILS
XRPD1801	TREF SIG TO STM DUMPS FAIL
XRTU1901	MN TURB VIBRATION HI BRNG 1
XRTU1902	MN TURB VIBRATION HI BRNG 2
XRTU1903	MN TURB VIBRATION HI BRNG 3
XRTU1904	MN TURB VIBRATION HI BRNG 4
XRTU1905	MN TURB VIBRATION HI BRNG 5
XRTU1906	MN TURB VIBRATION HI BRNG 6
XRTU1907	MN TURB VIBRATION HI BRNG 7
XRTU1908	MN TURB VIBRATION HI BRNG 8
XRTU1909	MN TURB VIBRATION HI BRNG 9

ADDENDUM 3

MALFUNCTIONS ACCEPTED FOR TRAINING AND EXAMINATIONS (Continued)

MNEMONIC	DESCRIPTION
XRTU1910	MN TURB VIBRATION HI BRNG 10
XRTU1911	MN TURB VIBRATION HI BRNG 11
X:CD0101	LOSS OF COND VACUUM PUMP 11
X:CD0102	LOSS OF COND VACUUM PUMP 12
X:CD0103	LOSS OF COND VACUUM PUMP 13
XRTU2001	MN TURB ECCENTRICITY HI
XNCD0201	CONDENSER AIR IN LEAKAGE
XNCD0301	MAIN CONDENSER TUBE LEAK
X:CD0401	LOSS OF MAIN FW PUMP - 11
X:CD0402	LOSS OF MAIN FW PUMP - 12
X:CD0403	LOSS OF MAIN FW PUMP - 13
X:CD0501	HOTWELL LEVEL XMTR FAILS - HGH
X:CD0502	HOTWELL LEVEL XMTR FAILS - LOW
X:AF0301	LOSS OF AUX FW PUMP NO 11
X:AF0302	LOSS OF AUX FW PUMP NO 12
X:AF0303	LOSS OF AUX FW PUMP NO 13
X:AF0401	LOSS OF STEAM AUX FW PUMP
X:AF0501	AFW X-CONN VLV FY-7515 FAILS
X:AF0502	AFW X-CONN VLV FY-7516 FAILS
X:AF0503	AFW X-CONN VLV FY-7517 FAILS
X:AF0504	AFW X-CONN VLV FY-7518 FAILS
XNFW0601	MN FW LINE RUPTURE IN CONTMT
XNFW0701	MN FW RUPTURE OUTSIDE CONTMT
XNFW0801	HI PRES FW HTR TUBE LEAK
XNFW0901	LOSS OF PUMP CONTROL - MFP11
XNFW0902	LOSS OF PUMP CONTROL - MFP12
XNFW0903	LOSS OF PUMP CONTROL - MFP13
X:PF1001	FAIL AUTO SPEED CNTRL MFP-11
X:PF1002	FAIL AUTO SPEED CNTRL MFP-12
X:PF1003	FAIL AUTO SPEED CNTRL MFP-13
X:FW1201	TURB OVERSPEED TRIP MFP-11
X:FW1202	TURB OVERSPEED TRIP MFP-12
X:FW1203	TURB OVERSPEED TRIP MFP-13
X:FW1204	STARTUP FP OVERLOAD TRIP
X:FW1301	LUBE OIL PRES LOW MFP-11
X:FW1302	LUBE OIL PRES LOW MFP-12
X:FW1303	LUBE OIL PRES LOW MFP-13
X:PG1401	AUTO FW CNTRL SYS FAILS SG-A
X:PG1402	AUTO FW CNTRL SYS FAILS SG-B
X:PG1403	AUTO FW CNTRL SYS FAILS SG-C
X:PG1404	AUTO FW CNTRL SYS FAILS SG-D
X:FW1501	LOSS OF FEED FLOW SIG SG-A
X:FW1502	LOSS OF FEED FLOW SIG SG-B
X:FW1503	LOSS OF FEED FLOW SIG SG-C

ADDENDUM 3

MALFUNCTIONS ACCEPTED FOR TRAINING AND EXAMINATIONS
(Continued)

MNEMONIC	DESCRIPTION
X:FW1504	LOSS OF FEED FLOW SIG SG-D
X:FW1601	MN FW REG VLV F/C FCV-551
X:FW1602	MN FW REG VLV F/C FCV-552
X:FW1603	MN FW REG VLV F/C FCV-553
X:FW1604	MN FW REG VLV F/C FCV-554
X:FW1701	MN FW REG VLV STUCK FCV-551
X:FW1702	MN FW REG VLV STUCK FCV-552
X:FW1703	MN FW REG VLV STUCK FCV-553
X:FW1704	MN FW REG VLV STUCK FCV-554
XNFW1801	MN FW REG VLV LEAK FCV-551
XNFW1802	MN FW REG VLV LEAK FCV-552
XNFW1803	MN FW REG VLV LEAK FCV-553
XNFW1804	MN FW REG VLV LEAK FCV-554
XNFW1901	MN FW REG BYP VLV STUCK FV-7151
XNFW1902	MN FW REG BYP VLV STUCK FV-7152
XNFW1903	MN FW REG BYP VLV STUCK FV-7153
XNFW1904	MN FW REG BYP VLV STUCK FV-7154
X:FW2001	MFP RECIRC VLV F/O FV-7104
X:FW2002	MFP RECIRC VLV F/O FV-7109
X:FW2003	MFP RECIRC VLV F/O FV-7114
X:CD2301	LOSS OF CONDENSATE PUMP 11
X:CD2302	LOSS OF CONDENSATE PUMP 12
X:CD2303	LOSS OF CONDENSATE PUMP 13
XNCD2401	LEAK IN COND HDR TO HTR-14A
XNCD2402	LEAK IN COND HDR TO HTR-14B
XNCD2501	HI CONDUCTIVITY COND/FW SYS
X:CD2701	POLISH DEMIN BYP CD-132 F/C
X:CD2702	POLISH DEMIN BYP CD-132 F/O
X:FW2801	LOSS OF LP HTR DRAIN PMP-11
X:FW2802	LOSS OF LP HTR DRAIN PMP-12
X:FW2803	LOSS OF LP HTR DRAIN PMP-13
X:FW2901	TRIP ALL FW BOOSTER PUMPS
X:HV0101	LOSS OF CRDM COOLING FAN 11A
X:HV0102	LOSS OF CRDM COOLING FAN 11B
X:HV0103	LOSS OF CRDM COOLING FAN 11C
X:HV0201	LOSS OF CNTMT FAN CLR 11A
X:HV0202	LOSS OF CNTMT FAN CLR 11B
X:HV0203	LOSS OF CNTMT FAN CLR 11C
X:HV0204	LOSS OF CNTMT FAN CLR 12A
X:HV0205	LOSS OF CNTMT FAN CLR 12B
X:HV0206	LOSS OF CNTMT FAN CLR 12C
X:RM0601	CNTMT GAS/PART RAD ALARM
X:RM0701	PLANT VENT RAD MNTR PEGS HI
X:RM0901	INCR RAD LEVEL RIT-8012

ADDENDUM 3

MALFUNCTIONS ACCEPTED FOR TRAINING AND EXAMINATIONS (Continued)

MNEMONIC	DESCRIPTION
X:HV0301	LOSS OF NORM CNTMT PURGE SUP
X:HV1101	HIGH TOXIC GAS ESF ACTUATION
X:HV1102	BOTH TOXIC GAS MONITORS FAIL
X:HV1103	SMOKE IN THE CONTROL ROOM ESF SIGNAL
X:EA0101	LOSS OF EMERGENCY DG 11
X:EA0102	LOSS OF EMERGENCY DG 12
X:EA0103	LOSS OF EMERGENCY DG 13
X:EA0201	EMERGENCY DG 11 FAIL TO LOAD
X:EA0202	EMERGENCY DG 12 FAIL TO LOAD
X:EA0203	EMERGENCY DG 13 FAIL TO LOAD
X:EA0301	LOSS OF MAIN GEN EXCITER
X:EA0401	AUTO VOLTAGE REG FAILS
X:EA0601	MN GEN OUTPUT BKR OPENS
X:EA0701	LOSS OF UNIT AUX TRANSFORMER
X:EA0801	LOSS OF GRID (345KV & 138 KV)
X:EA0901	LOSS OF 13.8 KV STBY BUS 1F
X:EA0902	LOSS OF 13.8 KV STBY BUS 1G
X:EA0903	LOSS OF 13.8 KV STBY BUS 1H
X:EA0904	LOSS OF 13.8 KV AUX BUS 1J
X:EA1001	LOSS OF 4.16KV BUS 1D1
X:EA1002	LOSS OF 4.16KV BUS 1D2
X:EA1101	LOSS OF 4.16KV ESF BUS E1A
X:EA1102	LOSS OF 4.16KV ESF BUS E1A
X:EA1103	LOSS OF 4.16 KV ESF BUS E1C
X:EA1201	LOSS OF 480V ESF MCC E1A1
X:EA1202	LOSS OF 480V ESF MCC E1A2
X:EA1203	LOSS OF 480V ESF MCC E1A3
X:EA1204	LOSS OF 480V ESF MCC E1B1
X:EA1205	LOSS OF 480V ESF MCC E1B2
X:EA1206	LOSS OF 480V ESF MCC E1B3
X:EA1207	LOSS OF 480V ESF MCC E1C1
X:EA1208	LOSS OF 480V ESF MCC E1C2
X:EA1209	LOSS OF 480V ESF MCC E1C3
X:EA1301	LOSS OF 138KV EMERGENCY XFMR
X:EA1401	LOSS OF ALL AC POWER
X:EA1501	LOSS OF NON 1E DC PNL PL125A
X:GE1601	LOSS OF GEN SEAL OIL REG 256
X:GE1602	LOSS OF GEN SEAL OIL REG 254
X:AC0101	LOSS OF ACW OPEN LOOP PMP 11
X:AC0102	LOSS OF ACW OPEN LOOP PMP 12
X:AC0103	LOSS OF ACW OPEN LOOP PMP 13
X:AC0201	LOSS OF ACW CLSD LP PMP 11
X:AC0202	LOSS OF ACW CLSD LP PMP 12
X:AC0203	LOSS OF ACW CLSD LP PMP 13

ADDENDUM 3

MALFUNCTIONS ACCEPTED FOR TRAINING AND EXAMINATIONS
(Continued)

MNEMONIC	DESCRIPTION
XNCT0301	INCR IN CONTAINMENT PRESSURE
XNAR0401	LOSS OF INSTRUMENT AIR
XNAR0501	LOSS OF STATION AIR
X:AN0801	PANEL 1 ANNUNCIATOR FAILURE
X:AN0802	PANEL 2 ANNUNCIATOR FAILURE
X:AN0803	PANEL 3 ANNUNCIATOR FAILURE
X:AN0804	PANEL 4 ANNUNCIATOR FAILURE
X:AN0805	PANEL 5 ANNUNCIATOR FAILURE
X:AN0806	PANEL 6 ANNUNCIATOR FAILURE
X:AN0807	PANEL 7,8,9 ANNUNCIATOR FAILURE
X:AN0808	PANEL 10 ANNUNCIATOR FAILURE
X:AN0809	PANEL 21 ANNUNCIATOR FAILURE
X:AN0810	PANEL 22 ANNUNCIATOR FAILURE
XIAN0901 * THRU XIAN2140	CRYWOLF ALARMS 1M002A1

* The malfunctions listed as "Crywolf Alarms" give the instructor the ability to activate, clear, or de-activate any given control room annunciator.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:RX0101 AUTO MODE CONTROL ROD WITHDRAWAL

The malfunction was tested on 10-12-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 50% power steady state. A 4 ppm boration was used to lower Tavg and generate an outward demand signal.

The test concluded when rods continuously withdrew until an "Inward" signal was generated. The fact that the selection of "Manual" mode defeated the malfunction was also verified.

The malfunction was approved for training/licensing examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

X:RX0102 MANUAL MODE CONTROL ROD WITHDRAWAL

The malfunction was tested on 10-12-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 50% power steady state. (Control rods must be in "Manual" with the controlling bank at least partially inserted).

The test concluded with the alarm for reference and auctioneered Tavg deviation activated and control bank D fully withdrawn.

The malfunction was approved for training/licensing examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:RX0201 AUTO MODE CONTROL ROD INSERTION

The malfunction was tested on 10-12-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 50% power steady state with control rods in automatic.

The test concluded with the rods moving continuously inward- after verifying the minimum speed was no less than 6 steps per minute and that the rods continued to move in even with an average coolant temperature lower than reference.

The malfunction was approved for training/licensing examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

X:RX0202 MANUAL MODE CONTROL ROD INSERTION

The malfunction was tested on 10-12-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 50% power steady state and the control rods in manual mode.

The test concluded when continuous inward rod motion was verified and it was verified that the selection of the "Auto" mode terminated the continuous insertion.

The malfunction was approved for training/licensing examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:RX0301 GROUP 1 OF CONTROL BANK C FAILS TO MOVE
X:RX0302 GROUP 1 OF CONTROL BANK D FAILS TO MOVE
X:RX0401 GROUP 2 OF CONTROL BANK C FAILS TO MOVE
X:RX0402 GROUP 1 OF CONTROL BANK D FAILS TO MOVE

The malfunctions were tested on 10-12-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 50% power steady state, with the controlling bank "D" originally at 206 steps.

The test concluded when it was verified that the malfunctions actually locked up the specified groups of rods. The simulator was reset between individual tests and the ability of the Lift Coil Disconnect System to support the abnormal procedure recovery was verified.

The malfunctions were approved for training/licensing examinations.

A precaution applies to the Group 2 malfunctions. The simulator's Bank Overlap Unit Emulation is inadequate to allow full recovery, (i.e., clearing alarms) for these. When the Group 2 variations are used. A session must be completed by a training "walk-through.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:RX0501 ("SELECTED" ROD(s) FAIL TO MOVE)
THRU
X:RX0513

The malfunctions were tested on 10-12-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 10^{-8} amps as part of a Reactor Startup. The individual malfunctions were activated and cleared. The test concluded with power at 10^{-9} amps after the use of the lift coil disconnect switches was checked for either bringing the rod to the group or bringing the group to the rod.

The malfunctions were approved for training/licensing examinations, but a precaution was added to ensure that when multiple stuck rods are selected -- not to pick all rods within the same Group 1 or Group 2. Testing showed that this would result in a lock up of all control rods and an "Urgent Failure" alarm.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

XRRX0601 IMPROPER BANK OVERLAP CONTROL BANK A TO B
XRRX0602 IMPROPER BANK OVERLAP CONTROL BANK B TO C
XRRX0603 IMPROPER BANK OVERLAP CONTROL BANK C TO D

The malfunctions were tested on 10-12-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the reactor was shutdown with all shutdown banks withdrawn and all control banks at the bottom. The simulation was reset before each test.

The test concluded by ensuring that a value of 30 caused the actual overlap to increase to 167 steps (namely that the next group started when the previous group reached 107 steps).

The malfunctions were approved for training/licensing examinations.

Only one (1) of these malfunctions may be active at a time. For XRR0602 and XRR0603 to be used, a further precaution requires the instructor to override the Digital Rod Position Indication System (DRPI) Urgent Failure Alarm --- to prevent it from inappropriately alarming.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:RX0701 (DROP SELECTED ROD(s))
THRU
X:RX0709

The malfunctions were tested on 10-12-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 100% power steady state. Each malfunction was activated individually, with simulator resets in between.

The test concluded after the NI channels affected, the temperature drops and recovery steps were verified for each malfunction. The simulator was re-initialized for each malfunction test.

The malfunctions were approved for training/licensing examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:RX0801 DROP GROUP 1 RODS OF CONTROL BANK C
X:RX0802 DROP GROUP 2 RODS OF CONTROL BANK C
X:RX0803 DROP GROUP 1 RODS OF CONTROL BANK D
X:RX0804 DROP GROUP 2 RODS OF CONTROL BANK D

The malfunctions were tested on 10-12-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. These malfunctions are logical (TRUE or FALSE).

Initially the plant was at steady state. Test runs were made at 29%, 50%, 75% and 100% power.

The test concluded with a reactor trip in each scenario and after verifying cases where a reactor trip is not expected.

The malfunction was approved for training/licensing examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

X:RX0901 RODS FAIL TO MOVE IN AUTOMATIC

The malfunction was tested on 10-12-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 50% power steady state, and control rods in the automatic mode.

The test concluded with steady state conditions after load changes, borations and dilutions were proven to fail to cause control rods to respond.

The malfunction was approved for training/licensing examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:RX0902 RODS FAIL TO MOVE IN "MANUAL"

The malfunction was tested on 10-15-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at a 75% power steady state condition.

The test concluded when it was verified that control rods would not move in "MANUAL" either out or in, and that automatic mode still worked by selecting "AUTO" and dropping generator load.

The malfunction was approved for training/licensing examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

XRRX1001 AUTO ROD CONTROL CONTROLS TAVG HI OR LOW

The malfunction was tested on 10-15-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 50% steady state power with Control Rods selected to "AUTO".

The test concluded once it was verified that a value of 5 caused actual temperature to be controlled higher than reference temperature -- and that a value of -5 caused actual temperature to be controlled 5 degrees below the reference temperature.

The malfunction was approved for training/licensing examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:RX1101 **(EJECTION OF A SELECTED ROD)**
THRU
X:RX1105

The malfunctions were tested on 10-22-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the test started at 100% power steady state.

The test concluded with data collected on pressurizer pressure, level, containment temperature and containment pressure at 2 second intervals for approximately 20 minutes overall -- with no operator action.

The malfunctions were approved for training/licensing examinations.

Note was made about the effects of deficiencies on the containment sump level indicators and the Radiation Monitoring System response that is noted elsewhere in this certification package. The lack of response of the containment sump level indicators was corrected at a later time in the Performance Test. An instructor note in the Simulator Response Book emphasizes that only one rod may be ejected at a time.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:RX1201 FAILURE OF THE AUTOMATIC REACTOR TRIP SIGNAL

The malfunction was tested on 10-12-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 100% power steady state. Separate runs were also made at 75% and 50% power.

The test concluded when it was verified that no automatic reactor trip signal would open the reactor trip breakers, but that the manual trip function still worked. To test the ATWS, Reactor Coolant Pumps were tripped, the feed pumps were run to zero. The malfunction was approved for training/examinations, with the precaution that (1) a simultaneous loss of heat removal, (2) this malfunction, and (3) power level greater than 75% and (4) operator failure to manually trip within 30 seconds will cause model responses to be unreliable. These conditions represent a simulation limit for which data is being sought. Models will perform reliably at 50% power and below -- even with a concurrent gross heat sink loss.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:RX1202 ATWS: NO TRIP ON (AUTO OR MANUAL) REACTOR TRIP SIGNAL

The malfunction was tested on 10-12-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 100% power steady state. The results of X:RX1201 were consulted for comparison. The feed isolation valve to "D" Steam Generator was then shut. The "C" Reactor Coolant Pump was tripped, and then the main turbine was tripped.

The test concluded when it was verified that (1) neither an automatic nor a manual trip signal would function (2) that opening power supplies to "Rod Drive" would cause rods to fall into the core, and (3) the results were reverified against the results of malfunction X:RX1201.

The malfunction was approved for training/examinations, with the same general precautions stipulated under the previous malfunction X:RX1201 "Failure of the Automatic Reactor Trip Signal".

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:RX1203 FAILURE OF AUTO SI SIGNAL

The malfunction was tested on 10-12-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 100% power steady state. Separate runs were made with (1) steam breaks and (2) ruptured Steam Generator as the causes for the SI signal.

The test concluded when it was verified that an automatic SI signal would not occur -- but that the manual signal still functioned in each case.

The malfunction was approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

SYNOPSIS OF MALFUNCTION TESTS

X:RX1204 FAILURE OF THE AUTO PHASE "A" ISOLATION SIGNAL

The malfunction was tested on 10-12-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 50% power steady state. A large break LOCA was activated to generate the SI and Phase "A" Containment Isolation signals.

The test concluded when it was verified that no automatic phase "A" signal or valve reposition would occur -- but that manual Initiation of the signal was effective. The relevant valves were checked individually before and after by the applicable addendum of the actual plant's Emergency Operating Procedures.

The malfunction was approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:RX1205 FAILURE OF THE AUTOMATIC PHASE "B" ISOLATION SIGNAL

The malfunction was tested on 10-12-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 100% power steady state. A large break LOCA was activated to generate the Phase "B" Isolation Signal.

The test concluded when it was verified that an automatic phase "B" signal would not activate at the "HI-2" setpoint -- but that the manual phase "B" signal was still effective.

The malfunction was approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

X:RX1206 FAILURE OF THE AUTOMATIC (MAIN STEAM) ISOLATION SIGNAL

The malfunction was tested on 10-12-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 100% power steady state. Separate runs were made with (1) a steam break outside containment and (2) a cold leg rupture to generate main steam isolation signal.

The test concluded when it was verified that an Automatic Main Steam Isolation did not occur and that the Manual Main Steam signal was still effective.

The malfunction was approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:RX1207 <u>**REACTOR TRIP BREAKER FAILS TO OPEN (TRAIN "A")**</u>
X:RX1208 <u>**REACTOR TRIP BREAKER FAILS TO OPEN (TRAIN "B")**</u>

The malfunctions were tested on <u>10-23-90</u>. <u>No</u> Ramps <u>or</u> delays <u>were</u> used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially <u>the plant was at 100 % power steady state and each malfunction was tested individually. (The simulator was reset in between runs).</u>

The test concluded <u>after a manual reactor trip and verification that the selected breaker failed to open.</u>

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:RX1301 **DIGITAL ROD POSITION FAILURE (DATA A)**
X:RX1302 **DIGITAL ROD POSITION FAILURE (DATA B)**

The malfunctions were tested on 10-13-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 100% power steady state, with each of the malfunctions activated individually.

The test concluded when it was verified that for the activation of each malfunction individually, the half-accuracy indications occurred and that by moving rods that the precise +/- accuracy values existed for the existing failure.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:RX1401 THRU X:RX1415 (INDIVIDUAL FAILURES OF DIGITAL ROD POSITION INDICATING CHANNELS (DRPI) FOR SELECTED RODS).

The malfunctions were tested on 10-13-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 100% power steady state and the malfunctions were activated individually and sequentially.

The test concluded when it was verified that the selected malfunction was actually associated with each specified ROD/DRPI Channel and that the Rod Bottom General Warning and DRPI Rod Deviation and Urgent Failure Alarm(s) also appropriately corresponded.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

X:RX1501 COMPLETE LOSS OF (DIGITAL ROD POSITION INDICATION) DRPI

The malfunction was tested on 10-13-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 100% power steady state.

The test concluded with the loss of all position indicating light-emitting diodes (LED's) and proper annunciation verified.

The malfunction was approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:RX1601 FAIL ROD BLOCK C-1
X:RX1602 FAIL ROD BLOCK C-2
X:RX1603 FAIL ROD BLOCK C-3
X:RX1604 FAIL ROD BLOCK C-4

The malfunctions were tested on 10-23-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially for the test of the C-1 Block, the initial condition was 10% power with the P10/P-7 input unblocked. Power was increased to greater than 20% to ensure that the rod block was activated.

The test concluded when the malfunction was activated and it was verified that rods could then be withdrawn in "MANUAL".

Initially for the test of the C-2 Block, the initial condition was 100% power. Power was increased to slightly over 103% with caution exercised to ensure that a margin to the OPΔT setpoints was still provided. The rod block alarm was verified.

The test concluded when the malfunction was activated and the failure of the C-2 Block to prevent rod withdrawal was verified. The malfunction was cleared and then it was verified that a steady 100% power level could be restored.

(CONTINUED)

X:RX1601 FAIL ROD BLOCK C-1
X:RX1602 FAIL ROD BLOCK C-2
X:RX1603 FAIL ROD BLOCK C-3
X:RX1604 FAIL ROD BLOCK C-4

Initially for the test of the C-3 Block and the C-4 Block, the initial conditions were again 100% power steady state. The Simulator is configured to match the Units - where the OTΔT and OPΔT rod steps are disabled.

The test concluded when it was verified that with the malfunctions activated and 2 of 4 of the OT and OPΔT roc steps energized that rods could still be moved in either direction in auto or manual.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:RX1701 RODS MOVE AT MINIMUM SPEED IN AUTOMATIC
X:RX1702 RODS MOVE AT MAXIMUM SPEED IN AUTOMATIC

The malfunctions were tested on 10-22-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 50% power steady state. Load was increased and decreased to create temperature errors for each individually activated malfunction.

The test concluded when on in/out transient had been created for each case and it had been verified that the respective minimum and maximum speed indication and actual effects had occurred. When the malfunctions were cleared the reactor was at a final power level of 45%, steady state.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:RX1801 CONTROL BANKS GO OUT WHEN "IN" IS REQUIRED.
X:RX1802 CONTROL BANKS GO IN WHEN "OUT" IS REQUIRED.

The malfunctions were tested on 10-22-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 50% power steady state. The "AUTO" control mode was selected.

The test concluded when it was verified that control rods would move "IN" when a temperature error occurred with a load increase with X:RX1802 and that a load reduction caused rods to move "OUT" when X:RX1801 was active.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:RX1901 Reactor Trip Bypass Breaker (Train "R") Opens
X:RX1903 Reactor Trip Bypass Breaker (Train "S") Opens

X:RX1902 REACTOR TRIP BYPASS BREAKER (TRAIN "R") OPENS
X:RX1904 REACTOR TRIP BYPASS BREAKER (TRAIN "S") OPENS

The malfunctions were tested on 10-11-90 and retested on 11-07-90. No ramps or delays were used. All these malfunctions and other associated operations are logical (TRUE or FALSE).

Correct Annunciation was verified using the Malfunction Response Book, and the related plant logic and elementary diagrams and the Westinghouse D-22 drawings.

Initially the plant was at 100% steady-state power. Each malfunction was tested concurrently with logical variables for the rack-in and closure of bypass breakers. This gave a structure wherein the most applicable plant surveillance procedure (TADOT 1PSP03-SP-0006R(S)) served as a test procedure for the logic of the simulation.

The test concluded when it was noted that these malfunctions and the logical variables for the bypass breaker rack-in and closure could not be used for training. Most noticeably:

A. Both bypass breakers could be racked in and one of them could be shut - without a reactor trip.

B. The second bypass breaker could not be shut, but neither would this cause a reactor trip.

C. The rack-in of a bypass breaker caused the malfunction of its associated "Main Breaker to fail.

D. The rack-in and closure of a bypass breaker while its associated main breaker was shut caused the associated bypass breaker malfunction to fail.

E. Treated as a sole entity, the individual malfunctions X:RX1902 and X:RX1904 for the Reactor Trip Breakers would work -- and actually open the designated breaker. However any combination would fail.

(CONTINUED)

X:RX1901 Reactor Trip Bypass Breaker (Train "R") Opens
X:RX1903 Reactor Trip Bypass Breaker (Train "S") Opens

X:RX1902 REACTOR TRIP BYPASS BREAKER (TRAIN "R") OPENS
X:RX1904 REACTOR TRIP BYPASS BREAKER (TRAIN "S") OPENS

The 10-11-90 test concluded that all items would be inappropriate for training due to the (1) Lack of consequences for wrong actions, and (2) the extensive logic discrepancies discovered. The malfunctions were approved for training/examinations after the 11-07-90 retest, and with the addition of precautions to the Malfunction Response Book and the Instructor Remote Response Book.

The results of the 11-07-90 retest concluded:

- The Logical variables for the Reactor Trip Bypass Breakers Rack-in and closure have a logical state that differs from the 217 other similar type functions (labelled "Instructor Remote Functions"). They can now be operated, but must be specifically deactivated immediately before proceeding to the next step. This discovery obviated the discrepancies a, [illegible] and d mentioned above.
- The software corrections eliminated the rest of deficiency b, and fully corrected c and e above.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:RX2001 (SELECTED ROD(s)) STUCK ON A REACTOR TRIP
THRU
X:RX2009

The malfunctions were tested on 10-13-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 100% power steady state. Successive reactor trip and resets were performed.

The test concluded when it was verified that the selected rod did actually stick in its last position prior to the trip.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:RP2101 LOW FLOW REACTOR TRIP (BISTABLE) VARIOUS LOOPS; VARIOUS
X:RP2112 CHANNELS)

The malfunctions were tested on 10-13-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 100% power steady state. Several resets and re-initializations were done as 2/3 logic was spot checked.

The test concluded when it was verified that the specified bistables malfunction caused the precisely corresponding bistable lamps to turn on, and when all spot checks of 2/3 logic on a loop caused a reactor trip.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:RP2201 **OP/DT REACTOR TRIP (BISTABLES) LOOP 1, 2, 3, 4**
THRU
X:RP2204

The malfunctions were tested on 10-15-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was placed at 75% power steady state. Reset and re-initialization occurred as the 2/4 reactor trip logic was verified.

The test concluded when the selected bistable malfunction was verified as having energized the precisely applicable bistable lamp and when the reactor trip on 2 of 4 channels was proven.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:RP2205 OP/DT RUNBACK (BISTABLES) LOOP 1, 2, 3, 4
THRU
X:RP2208

The malfunctions were tested on 10-16-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was placed at 100% power steady state.

The test concluded when it was verified that the selected bistable malfunction actually lit the corresponding bistable lamp. (Runback itself was not checked since the simulator has disabled these to conform to the temporary modification on Unit #1

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:RP2209 OT/DT REACTOR TRIP (BISTABLES) LOOP 1, 2, 3, 4
THRU
X:RP2212

The malfunctions were tested on 10-13-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was put at 100% power steady state. Reset and re-initializations occurred as the 2/4 reactor trip logic was tested.

The test concluded when it was verified that the selected bistable energized the precisely corresponding bistable lamp and when the reactor trip on 2 of 4 channels was verified.

The malfunctions was approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

X:RP2213 OP/DT RUNBACK (BISTABLES) LOOP 1, 2, 3, 4
THRU
X:RP2216

The malfunctions were tested on 10-16-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 100% power steady state.

The test concluded when it was verified that the selected bistable energized the precisely corresponding bistable lamp. No actual runback was tested since this runback is disabled on the simulator to correspond to the temporary modification on Unit #1.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:RX2301 LOW TAVG (BISTABLES) LOOP 1, 2, 3, 4
THRU
X:RX2304

The malfunctions were tested on 10-13-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially and finally the conditions were 100% power steady state

The test concluded when the selected bistable malfunction was proven to energize the corresponding bistable lamps.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

X:RX2305 LO-LO TAVG (BISTABLES) LOOP 1, 2, 3, 4
THRU
X:RX2308

The malfunctions were tested on 10-13-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially and finally the conditions were 100% steady state power.

The test concluded when it was proven that the selected bistable malfunction energized the corresponding bistable lamp and it had been verified that 2 of 4 bistables would prevent steam dump operation.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:RP2401 <u>SPRAY ACTUATION TEST BYPASS (BISTABLES) CHANNELS 1,2,3,4</u>
THRU
X:RP2404

The malfunctions were tested on 10-13-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially and finally the conditions were 100% power steady state power.

The test concluded when the selected bistable malfunction was verified as having activated the appropriate bistable lamps and alarms.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:RP2405 (CONTAINMENT BUILDING) HI-1 (BISTABLES) CHANNELS 1,2,3
THRU
X:RP2407

The malfunctions were tested on 10-13-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the simulation was set at 100% steady state power.

The test concluded when the lighting of the appropriate bistable lamp was verified for each malfunction and the SI actuation on 2 of 3 logic was verified.

The malfunctions were approved for training/examinations.

Drawing comparisons revealed a typographical error on the menu listing the malfunction label of Channel 1, 2, 3 actually represent actual plant Channels 2, 3 and 4. The Malfunction Response Book was annotated.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:RP2408 THRU X:RP2411 (CONTAINMENT BUILDING) PRESSURE HI-3 (BISTABLES) CHANNELS 1, 2, 3, 4

The malfunctions were tested on 10-13-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the simulation was set at a steady state 100% power level.

The test concluded when the malfunction were verified as having energized the appropriate bistable lamps and when the 2 of 4 logic resulted in a Phase "B" actuation with the containment spray actuation with the exception of the actual spray pump starts.

The malfunctions were approved for training/examinations, with the single deficiency that one annunciator "CNTMT SPRAY ACT" does not come in. The Malfunction Response Book was updated in the interim for this deficiency.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:RP2501 THRU X:RP2504 PRESSURIZER PRESSURE LO REACTOR TRIP (BISTABLES) CHANNELS 1, 2, 3, 4

The malfunctions were tested on 10-15-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the simulation was placed at a steady state 100% power condition.

The test concluded when verification was made that each malfunction energized the appropriate bistable light and the 2/4 coincidence was proven to produce reactor trips.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

X:RP2505 THRU X:RP2508 PRESSURIZER PRESSURE LO SI (BISTABLES) CHANNELS 1,2,3,4

The malfunctions were tested on 10-13-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant simulation was kept at 100% steady state.

The test concluded when it was verified that each selected malfunction energized the appropriate bistable light and the SI actuation on 2 of 4 channels was proven.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:RP2509 THRU X:RP2512 — PRESSURIZER PRESSURE HI REACTOR TRIP (BISTABLES) CHANNELS 1, 2, 3, 4

The malfunctions were tested on 10-13-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant simulation was kept at a 100% steady state power condition.

The test concluded when it was verified that the selected malfunctions energized the appropriate bistable lights and the reactor trip on 2 of 4 channels was proven.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:RP2513 **PRESSURIZER PRESSURE BLOCK (BISTABLES) CHANNELS 1, 2, 3**
THRU
X:RP2515

The malfunctions were tested on 10-19-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was put in a shutdown condition emulating a heatup operation with primary system at approximately 455 psig. Reactor Coolant temperature was 380°F and (the reactor coolant pumps for Loops 1 and 2 were running.

The test concluded when it was verified that the selected malfunctions energized the appropriate bistable lights. After this, the Main Steam Isolation valves were opened and the 2 of 3 Channel coincidence was verified to produce both an SI signal and a Main Steam Isolation signal.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:RP2516 THRU X:RP2519 <u>**PRESSURIZER LEVEL HI REACTOR TRIP (BISTABLES) CHANNELS 1, 2, 3, 4**</u>

The malfunctions were tested on <u>10-13-90</u>. <u>No</u> Ramps <u>or</u> delays <u>were</u> used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially <u>the plant was kept at a continuous 100% steady state power condition. Permissive bistable P-7 was verified as "TRUE".</u>

The test concluded <u>when it was verified that the selected malfunctions energized the appropriate bistable lamps and when a reactor trip on the 2 of 4 channel coincidence was proven.</u>

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:RP2601 THRU X:RP2604 REACTOR COOLANT PUMP (RCP) UNDERVOLTAGE REACTOR TRIP (BISTABLES) FOR CHANNELS 1, 2, 3, 4

The malfunctions were tested on 10-16-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was kept at a 75% steady state power level condition. Permissive bistable P-7 was verified as "TRUE".

The test concluded when it was verified that the selected malfunctions each energized the appropriate bistables, and after a reactor trip on the 2 of 4 channel coincidence was proven.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:RP2605 THRU X:RP2608 **REACTOR COOLANT PUMP (RCP) UNDERFREQUENCY REACTOR TRIP (BISTABLES) CHANNELS 1, 2, 3, 4**

The malfunctions were tested on 10-13-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was maintained at a 100% steady state power condition. Permissive bistable P-7 was verified as "TRUE".

The test concluded when it was verified that the selected malfunctions energized the appropriate bistable lights and when the reactor trip on the 2 of 4 channel coincidence was proven.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:NI2701 AND X:NI2702 SOURCE RANGE (NUCLEAR INSTRUMENT) HI (BISTABLES) CHANNELS 1, 2

The malfunctions were tested on 10-13-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was shutdown with the shutdown banks withdrawn and the control banks fully inserted.

The test concluded when it was verified that the selected malfunctions each energized their appropriate and associated bistable, and when the 1 of 2 channel coincidence was proven to produce a reactor trip.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:NI2703 SOURCE RANGE CHANNEL BYPASS (BISTABLES) CHANNELS 1, 2 AND X:NI2704

The malfunctions were tested on 10-13-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was shutdown, with shutdown banks fully withdrawn and all control banks fully inserted.

The test concluded when it was verified that the selected malfunctions each energized their appropriate and associated bistable, and when it was proven that a reactor trip failed to occur when the previous applicable malfunctions (X:NI2701 or X:NI2702) were simultaneously activated.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:NI2705 AND X:NI2706 INTERMEDIATE RANGE NUCLEAR INSTRUMENT HI (BISTABLES) CHANNELS 1, 2

The malfunctions were tested on 10-13-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was placed at a 10^{-6} amps steady state power level.

The test concluded when it was verified that the selected malfunctions each energized their appropriate and associated bistables, and the reactor trip on 1 of 2 channel coincidence was proven.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:NI2707 AND X:NI2708 INTERMEDIATE RANGE CHANNEL BYPASS (BISTABLES) CHANNELS 1, 2

The malfunctions were tested on 10-13-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was placed at a 10^{-8} amps steady state power level.

The test concluded when it was verified that the selected malfunctions each energized their appropriate and associated bistables, and when proven that a reactor trip failed to occur when the corresponding previous malfunction (X:NI2705 or X:NI2707 was simultaneously activated).

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:NI2709 AND X:NI2710 INTERMEDIATE RANGE NUCLEAR INSTRUMENT P-6 (BISTABLES) CHANNELS 1, 2

The malfunctions were tested on 10-13-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was placed at a 10^{-10} amps steady state power level. Then power was reduced to slightly below 10^{10} amps and the P-6 bistables were verified as de-energized.

The test concluded when it was verified that the selected malfunctions each energized their appropriate and associated bistables, and when it was proven that the source range instruments could be manually and prematurely de-energized when 1 of 2 channel coincidence was met.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:NI2801 POWER RANGE CHANNEL P-8 (BISTABLES) CHANNELS 1, 2, 3, 4
THRU
X:NI2804

The malfunctions were tested on 10-13-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was placed at a 10^{-8} amps steady state power level. All P-8 bistables were verified de-energized.

The test concluded when it was verified that the selected malfunctions each energized their appropriate and associated bistables. It was also verified that no individual stop of a reactor coolant pump would cause a trip but that a reactor trip occurred if one pump was stopped with 2 of 4 channels of this malfunction activated.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

SYNOPSIS OF MALFUNCTION TESTS

X:NI2805 **POWER RANGE CHANNELS P-9 (BISTABLES) CHANNELS 1, 2, 3, 4**
THRU
X:NI2808

The malfunctions were tested on 10-13-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was placed at a 30% steady state power level.

The test concluded when it was verified that the selected malfunctions each energized their appropriate and associated bistables, and when the manual trip of the turbine would cause a reactor trip if the 2 of 4 channel coincidence was met for these P-9 bistables

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:NI2809 POWER RANGE CHANNELS P-9 (BISTABLES) CHANNELS 1, 2, 3, 4
THRU
X:NI2812

The malfunctions were tested on 10-13-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was placed at a 30% steady state power level.

The test concluded when it was verified that the selected malfunctions each energized their appropriate and associated bistables, and when the manual trip of the turbine would cause a reactor trip if the 2 of 4 channel coincidence was met for these P-9 bistables

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:NI2901 THRU X:NI2904 POWER RANGE OVERPOWER ROD STOP BYPASS (BISTABLES) CHANNEL 1, 2, 3, 4

The malfunctions were tested on 10-13-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was placed at a 100% steady state power level: (1) each malfunction was triggered separately (2) channel 41 was failed low and X:NI2901 was tested to verify that the same effect was achieved as if the rod stop bypass switch was used.

The test concluded when it was verified that each selected malfunction energized its appropriate and associated bistable, and that any of the malfunctions correspond to the same effect as using the Rod Stop Bypass Switch.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:NI2905 THRU X:NI2908 POWER RANGE (HI FLUX LOW SETPOINT BISTABLES) CHANNEL 1, 2, 3, 4

The malfunctions were tested on 10-13-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was placed at a 10% steady state power level, then steady state conditions were established below 10% power to verify that the condition that would allow a manual permissive block was not met.

The test concluded when it was verified that the selected malfunction each energized their appropriate and associated bistable, and that a 2 of 4 channel coincidence was proven to cause a reactor trip.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:NI2909 POWER RANGE (HI FLUX HI SETPOINT BISTABLES)
THRU CHANNEL 1, 2, 3, 4
X:NI2912

The malfunctions were tested on 10-13-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was placed at a 10% steady state power level. (The bistable setpoints are 109% power)

The test concluded when it was verified that the selected malfunction each energized their appropriate and associated bistable, and that a 2 of 4 channel coincidence cause a reactor trip.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:NI2913 POWER RANGE RATE (BISTABLES) CHANNELS 1, 2, 3, 4
THRU
X:NI2916

The malfunctions were tested on 10-16-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was placed at a 75% steady state power level.

The test concluded when it was verified that the selected malfunction each energized their appropriate and associated bistable, and that a reactor trip occurs if the 2 of 4 channel coincidence is met.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

XNII3001 AND XNII3002 SOURCE RANGE CHANNEL HIGH (BISTABLES) CHANNEL 1, 2, 3, 4

The malfunctions were tested on 10-16-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was placed at a 10^{-8} amps steady state power level. Power was then reduced to a level slightly less than 10,000 cps in the source range.

The test concluded when it was verified that the selected malfunction each energized their appropriate and associated bistable, and that the energizing of either bistable caused a reactor trip.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:NI3101 (SOURCE RANGE) CHANNEL 31 FAILS LOW
AND
X:NI3102 (SOURCE RANGE) CHANNEL 32 FAILS LOW

The malfunctions were tested on 10-16-90 and 11-12-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially power was at a steady state 10^{-8} amps. Power was then reduced to 10,000 cps in the Source Range.

The test concluded on 10-16-90 as unsatisfactory because although the indications were acceptable. The annunciator for the "SR HI Volts Failure" did not energize.

The deficiency was corrected and a satisfactory retest was done on 11-12-90.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

XRNI3201 SOURCE RANGE CHANNEL 31 SLUGGISH
AND
XRNI3202 SOURCE RANGE CHANNEL 32 SLUGGISH

The malfunctions were tested with a value of -20 on 10-16-90. No Ramps or delays were used.

Correct annunciation was verified using the Ma.function Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the reactor was shutdown with all shutdown banks withdrawn and all control banks fully inserted. A reactor startup was then begun, and the malfunctions were separately activated and cleared.

The test concluded when it was observed that the particular selected malfunction channel read significantly slower than the unaffected channel.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:RP3301 INTERMEDIATE RANGE CHANNELS INPUT TO THE SOURCE RANGE BLOCK (P-6) CIRCUIT FAILS.

The malfunction was tested on 10-16-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially power was established just below the P-6 setpoint of 10^{-10} amps. The malfunction was activated and power was raised.

The test concluded when it was verified that the Source Range Instruments could not be de-energized and that the reactor trip occurred at 10^5 cps.

The malfunction was approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:NI3401 IR CHANNEL 35 OVER COMPENSATED
X:NI3402 IR CHANNEL 36 OVER COMPENSATED
X:NI3501 IR CHANNEL 35 UNDER COMPENSATED
X:NI3502 IR CHANNEL 36 UNDER COMPENSATED

The malfunctions were tested on 10-16-90 and 11-07-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was placed at 10^{-8} amps with power being reduced and raised alternately as the malfunctions were individually triggered.

The test concluded when it was verified that X:NI3401 and X:NI3402 cause the selected channel to read lower than the unaffected channel, and that X:NI3501 and X:NI3502 caused the affected channel to read high.

The malfunctions were approved for training/examinations, with an instructor notation not to use over compensation malfunction for startup scenarios since the character of the malfunctions make the affected channel go straight to 10^{-16} amps in that case, which could be unduly misleading. A retest was required on 11-07-90 because of the discovery that X:NI3501 did not activate. A typographical error in coding was corrected and this malfunction was cleared for training and examinations after the retest.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:NI3601 IR CHANNEL 35 FAILS HIGH
X:NI3602 IR CHANNEL 36 FAILS HIGH

The malfunctions were tested on 10-16-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially power was established at a steady state 10^{-8} amps.

The test concluded when it was verified that either malfunction would cause a reactor trip.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

X:NI3701 IR CHANNEL 35 FAILS LOW
X:NI3702 IR CHANNEL 36 FAILS LOW

The malfunctions were tested on 10-16-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially power was established at a steady state 10^{-8} amps.

The test concluded when it was read downscale and the associated SUR channel will at first show a negative value and return to zero.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:NI3801 LOSS OF POWER TO POWER RANGE CHANNEL;
THRU CHANNELS 41, 42, 43, 44
X:NI3804

The malfunctions were tested on 10-15-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially power was established at a steady state of 100% power.

The malfunctions were triggered separately and sequentially.

The test concluded after verifying that (1) all of the affected channel's bistables tripped (2) that panel CP-005 indication remains (the cause is loss of control power, not instrument power) and (3) that malfunction removal will return the channel to normal and (4) that the logic and effect of using the Rod Stop Bypass Switch by the plant abnormal procedure could be done.

The malfunctions were approved for training/examinations, with instructor cautions on the control power fuses which are not in the simulation switch check program.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:RC0101 RCS COLD LEG RUPTURES, LOOPS A, B, C, D
THRU
X:RC0104

The malfunctions were tested on 10-18-90 and 11-01-90. No Ramps but 5 second delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially power was established at 100% steady state. On screen monitoring of software variables for Pressurizer Pressure and containment pressure was conducted simultaneously with a data recording of points for these pressures, Pressurizer level and containment temperature which were taken at 1/2 second intervals for 15 minutes. X:RC0101 was run once with a Loss of Offsite Power and once as a stand-alone malfunction. Each of the remaining three were run once, as individual stand-alone malfunctions.

The test concluded at 20 minutes on the 10-18-90 test and at 90 minutes on the 11-01-90 retest of an associated deficiency report.

The malfunctions were approved for training/examinations.

See Addendum 9 for a synopsis of the LOCA with LOOP Transient Test results.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

XNRC0301 RCS LEAK ON FLOW TRANSMITTER; LOOPS A, B, C, D
THRU
XNRC0304

The malfunctions were tested at severity values of 1.0 and 0.5 on 10-23-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams.

Initially power was established at 100% steady state. Each malfunction was activated separately after reset, and recording of leak rates.

The test concluded after verifying that due to the locations emulated, that loops A & C flow instruments indication fails high, and loops B & D flow instruments indication fails low and that the leak rates for the severity levels of 0.5 and 1.0 are 74 gpm and 150 gpm, respectively.

The malfunctions were approved for training/examinations, with notations for instructors that the deficiencies against the Radiation Monitor Response - recorded generically, also applies for these malfunctions. The generic deficiency against the too rapid and large containment pressure response is also noted in the Malfunction Response Book.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

XNRC0401 RCS LEAK (REACTOR VESSEL HEAD VENT)

The malfunction was tested with severity values of 1.0 and 0.5 on 10-25-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams.

Initially power was set at 100% steady state.

The test concluded with verification of gross indications of approximately 100 gpm and 50 gpm leaks and the CVCS and makeup systems maintaining inventory.

The malfunction was approved for training/examinations, with instructor notes that the containment pressure rise is too large for the magnitude of the leak. This deficiency is not written against this particular malfunction, but it is recorded as being against the Containment Cooling System Model(s).

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

XNRC0501 RCS LEAK (REACTOR VESSEL) HEAD FLANGE

The malfunction was tested at maximum severity (1.0) on 10-11-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams.

Initially power was established at 75% steady state. On screen monitoring of mnemonics for VCT mass and PZR/RCS total mass was done to calculate on exact leak rate.

The test concluded with power remaining at 75% and the CVCS/ Makeup System maintaining inventory, and with the maximum severity leak rate checked at 30 gpm.

The malfunction was approved for training/examinations, with notation to the Instructors that the annunciation occurs immediately upon initiation of the malfunction.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

SYNOPSIS OF MALFUNCTION TESTS

X:RC0701 **SHEARED REACTOR COOLANT PUMP SHAFT; PUMPS A, B, C, D**
THRU
X:RC0704

The malfunctions were tested on 10-25-90 and 11-14-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially four runs were made -- 2 at 100% power and 2 at 29% power to test the effects above and below the P-8 setpoint.

The test concluded when it was verified that (1) any of the individual malfunctions would cause a reactor trip above the P-8 setpoint and the indications stipulated in the Malfunction Response Book were met (2) that the reactor would not trip for any individual malfunction below P-8 and that the general trends of Low-then-High level and High-then-Low feed flow occurred for the S/G on the affected Loop.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:RC0801 <u>LOCKED RCP ROTOR; PUMPS A, B, C, D</u>
THRU
X:RC0804

The malfunctions were tested on <u>10-29-90 and 11-14-90</u>. <u>No</u> Ramps <u>or</u> delays <u>were</u> used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially <u>separate tests were run at 100% power and at 29% power (that is, above and below the P-8 setpoint). The simulator was reset for each test.</u>

The test concluded <u>when it was verified that (1) any of the individual malfunctions would cause a reactor trip above the P-8 setpoint, (2) the reactor did not trip for any individual malfunction below the P-8 setpoint.</u>

The malfunctions were approved for training/examinations, <u>with precautions to Instructors to note that the models do not support the responses for damaged fuel.</u>

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:RC0901 RCP TRIPS ON UNDERFREQUENCY; PUMPS A, B, C, D
THRU
X:RC0904

The malfunctions were tested on 10-15-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was set to 30% power steady state.

malfunctions were entered separately, with resets in between.

The test concluded when it was verified that no individual malfunction would cause a reactor trip but that a reactor trip occurred when the 2 of 4 coincidence was met, and that all other RCP's would also trip.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:RC1001 THRU X:RC1004 RCP TRIPS ON UNDERVOLTAGE: PUMPS A, B, C, D (FAILURE OF THE UNDERVOLTAGE DEVICE ONLY)

The malfunctions were tested on 10-15-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially power was set to 75% steady state. Individual malfunctions were triggered separately with reset/reinitialization in between.

The test concluded when it was verified that no individual malfunction would cause a reactor trip unless accompanied by an actual Loss of Flow, and that 2 of 4 malfunctions would indeed cause a reactor trip but that the other RCP's would continue to run.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

XNRC1301 PRESSURIZER PORV LEAK PCV-655
AND
XNRC1302 PRESSURIZER PORV LEAK PCV-656

The malfunctions were tested at severity values of 0.5 and 1.0 on 10-18-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams.

Initially the plant was placed at 100% steady state; the malfunctions were triggered and deactivated individually.

The test concluded when pressure was seen to steadily decrease and the associated block valve was shut and pressure had been restored to normal.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

X:RC1501 PRESSURIZER SPRAY VALVE FAILS CLOSED PCV-655B
AND
X:RC1502 PRESSURIZER SPRAY VALVE FAILS CLOSED PCV-655C

The malfunctions were tested on 10-24-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially power was set to 100% steady state. The malfunctions were sequentially triggered and deactivated.

The test concluded with the unit still at 100%, both spray valves closed and pressure slightly above the starting pressure.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

XRPZ1601 PRESSURIZER SPRAY VALVE FAILS OPEN PCV-655B
AND
XRPZ1602 PRESSURIZER SPRAY VALVE FAILS OPEN PCV-655C

The malfunctions were tested at a maximum severity on 10-24-90. No Ramps but a second delay was used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams.

Initially power was set to 100% steady state, the malfunctions were triggered sequentially and no operator action was taken.

The test concluded with the reactor tripped and SI activated.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

X:PZ1701 PZR PRESSURE CONTROL FAILS 30 PSI (LOW)
AND
X:PZ1702 PZR PRESSURE CONTROL FAILS 30 PSI (HIGH)

The malfunctions were tested on 10-22-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was set to 50% power steady state with a constant pressure of 2238 psig. The malfunctions were entered and deactivated sequentially.

The test concluded when pressure was seen to reach and stabilize value ±30 psi of 2238 psig, and after the malfunctions were removed and pressure was restored to 2235 psig.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

XRPL1801 PRESSURIZER LEVEL CONTROL MALFUNCTION

The malfunction was tested were values of +40.0 and -40.0 on 10-22-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams.

Initially power was set to 50% steady state in order to use a starting pressurizer water level in the middle of its control band.

The test concluded with pressurizer level proven to reach its limitation points of 60% and 25% respectively.

The malfunction was approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

SYNOPSIS OF MALFUNCTION TESTS

XNRC1901 THRU XNRC1904 — **(PRESSURIZER PRESSURE TRANSMITTERS) FAIL TO ANY POSITION; PT-455, 456, 457, 458**

The malfunctions were tested with maximum and minimum values of 1.0 and 0.1 on 10-15-90 with retests to correct annunciation difficulties on 11-06-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams.

Initially power was always set to 75% power steady state and a reinitialization was done for each individual test.

The test concluded with the bistable activations associated with the particular channel verified and the opening of a PORV for each channel selectable for control, and the closure of the PORV with the affected channel de-selected, and all indications returned to normal.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

XNRC2001 THRU XNRC2003 **(PRESSURIZER WATER LEVEL) TRANSMITTER FAILS: LT-465, 466, 468**

The malfunctions were tested at minimum and maximum values of 0.1 and 1.0 on 10-22-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams.

Initially power was a steady 50%. The malfunctions were triggered individually and sequentially with resets in between.

The test concluded after verifying that the particular letdown system valves associated with a particular channel had their actuations verified, that controlling channel failures caused actual level decreases, that affected controlling channels could be de-selected, that 465 and 468 could be defeated on low failures, and that system restoration could be accomplished. The malfunctions were approved for training after a deficiency on the LETDOWN valve sequence alarm was corrected on 11-07-90.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

X:RC2101 PZR (BACKUP HEATER GROUP) E FAILS "ON"

The malfunction was tested on 10-17-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially power was 100%. Pressure was established at 2280 psig (above the backup heater shutoff point), and with Group E heaters in "AUTO".

The test concluded with the Group "E" heaters energized and with verification that they could not be de-energized from the Control Room by any means other than dropping the power supply.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:PL2201 (ALL) PZR HEATERS FAIL TO COME ON

The malfunction was tested on 10-17-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially power was 100% with all Heaters in "AUTO". Spray valves were shut and in "AUTO" and the master pressure controller was in "AUTO".

The test concluded after taking the master pressure controller (in "MANUAL") to 42% of signal, verifying the alarm and actuation signal for Heaters to energize, noting that no heaters would come on. The test was repeated without the malfunction active to verify that heaters did energize.

The malfunction was approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:RC2301 THRU X:RC2305 **FAILURE OF (INDIVIDUAL PZR HEATER GROUPS) TO COME ON: A, B, C, D, E**

The malfunctions were tested on 10-17-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially power was 100% and re-stabilized from the previous test of the above malfunction X:PL2201. The same initial conditions and procedure was used for each individual malfunction.

The test concluded when it was verified that the selected malfunction did affect the appropriate group and that remaining groups could maintain system pressure.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

XNRC2401 **RCS (WIDE RANGE) PRESSURE TRANSMITTERS FAIL; PT-407**
THRU **PT-405, 406**
XNRC2403

The malfunctions were tested with severity values of 0.25 on 10-22-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and approp.iate plant logic diagrams.

Initially the system was at 350 psig with residual heat removal trains "A" and "B" in service.

The test concluded with verification that failure of PT-407 caused valves 60C and 61B to close; that PT-406 caused valves 60B and 61A to close; and that PT-405 cause valves 60A and 61C to close.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

XNRC2501 RTD FAILS HOT LEG A TT 410A
XNRC2502 RTD FAILS COLD LEG A TT 410B
XNRC2505 RTD FAILS HOT LEG A TT 413
XNRC2601 RTD FAILS HOT LEG B TT 420A
XNRC2602 RTD FAILS COLD LEG B TT 420B
XNRC2606 RTD FAILS COLD LEG B TT 424
XNRC2701 RTD FAILS HOT LEG C TT 430A
XNRC2702 RTD FAILS COLD LEG C TT 430B
XNRC2705 RTD FAILS HOT LEG C TT 433
XNRC2801 RTD FAILS HOT LEG D TT 440A
XNRC2802 RTD FAILS COLD LEG D TT 440B
XNRC2806 RTD FAILS COLD LEG D TT 444

RTD INSTRUMENT FAILURES

For all t   narrow range instruments 412A, B; 420A, B; 430A, B; and 440A   , initial conditions were selected as a mix of 50% and 100% steady state conditions where the minimum and maximum values of 0.1 and 1.0 were individually inserted.

Each channel was originally tested for verification of its effects upon control systems, -- that each failed channel could be defeated, and that the procedural actions of the applicable abnormal operating procedure (i.e., "POP04") could be performed.

For Wide Range Instrument failures (413, 424, 433, 444) each was verified with initial conditions of Mode 5 and completed when it was proven that these failures did not affect any controls and that all of their associated indications showed values commensurate with their selected failure severity values of 0.1, 0.5, and 1.0.

The malfunctions were tested on 10-22-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

XNCV0301 TUBE LEAK IN THE LETDOWN HEAT EXCHANGER

The malfunction was tested on 10-17-90. A 1 minute ramp and a 1 minute delay were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams.

Initially power was put at 100% with on-screen simultaneous monitoring of software variables for VCT mass and actual letdown flow, to augment control board monitoring.

The test concluded with verification of a low letdown flow condition, closure of valve PCV-0135, the procession of letdown outlet flow to zero, visible rises in Component Cooling Water (CCW) Surge Tank Level and visible increases on Radiation Monitor RML 8040.

The malfunction was approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

X:CV0401 VALVE TCV-0143 DIVERTS TO THE VCT (BECAUSE OF A HIGH FAILURE OF THE ASSOCIATED TEMPERATURE ELEMENT)

The malfunction was tested on 10-17-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially power was at 100% steady-state.

The test concluded when the full diversion of TCV-143 and associated alarms were verified.

The malfunction was approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:CV0601 LETDOWN VALVE PCV-0135 FAILS CLOSED.

The malfunction was tested on 10-17-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially power was set at 100% and on-screen software variable monitoring of all letdown flow/mass nodes and relief valve flows to augment the control board monitoring.

The test concluded with verification that all letdown flow stopped, relief valve PSV-3100 opened to the PRT and high temperature conditions existed downstream of the relief valve.

The malfunction was approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

X:CV0901 THRU X:CV0903 LOSS OF (INDIVIDUAL) CHARGING PUMPS; CENTRIFUGAL "A", CENTRIFUGAL "B", AND POSITIVE DISPLACEMENT

The malfunctions were tested on 10-17-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially in a steady state 100%, the pump's whose malfunction to be tested was started.

The test concluded when the trip and low flow alarm conditions were verified.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

XNRC1101 LETDOWN LEAK IN THE REACTOR CONTAINMENT BUILDING, (RCB)

The malfunction was tested at a severity value of 0.5 on 10-17-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams.

Initially two runs were made (1) one with no operator action and (2) one taking all appropriate operator actions.

The test concluded after verifying the expected increased charging flow going beyond the capacity of a single pump, increases in RCB temperature and pressures automatic letdown isolation -- and for the second run, the ability to take the required operator actions to stop the leak and stabilize conditions.

The malfunction was approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

XNCV1201 LETDOWN LEAK OUTSIDE THE REACTOR CONTAINMENT BUILDING (RCB)

The malfunction was tested at a maximum severity value of 1.0 on 10-29-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams.

Initially in a 100% steady state condition, the results of the previous malfunction XNRC1101 were drawn for comparison.

The test concluded when it was verified that the same effects as the previous malfunction occurred with the exception of RCB parameters. The malfunction was taken all the way to the point of the VCT Lo-Lo alarm without operator action.

The malfunction was approved for training/examinations, with notation in the Malfunction Response Book that the generic and known deficiency of Radiation Monitoring applies.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

XNCV1301 LOW PRESSURE LETDOWN LINE LEAK AT (FLOW ELEMENT) FE-132

The malfunction was tested at it's maximum severity value of 1.0 on 10-29-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams.

Initially at 100% the results of previous letdown leak malfunctions were drawn for comparison (XNRC1101 and XNRC1102)

The test concluded when the general trends were verified to be a scaled down parallel to XNCV1201 and when the leak rate was verified to be 90 gpm.

The malfunction was approved for training/examinations, with the notation in the Malfunction Response Book that the generic and known Radiation Monitoring System deficiency applies to this malfunction.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:CV1701 TRIP OF BORIC ACID PUMP "A"
AND
X:CV1702 TRIP OF BORIC ACID PUMP "B"

The malfunctions were tested on 10-15-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially in a 75% power condition the pumps were alternately started and their malfunctions tested.

The test concluded when the trip of the selected pump was verified and the decrease in Boric Acid flow was seen.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:CV2001 RCS DILUTION FROM AN UNBORATED DEMINERALIZER

The malfunction was tested on 10-15-90 and 10-17-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially in a 75% power scenario, the malfunction was rejected. Boron concentration was 300 ppm and monitored only by BCMS.

The test concluded when a retest, using the same scenario ran 10 minutes longer and monitored on screen software variables for both RCS and VCT boron concentrations.

The malfunction was approved for training/examinations, with a reminder added to the Malfunction Response Book to allow at least 30 minutes for a change in RCS boron to be seen.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

X:CV2101 RCS DILUTION BATCH INTEGRATOR FAILS

The malfunction was tested on 10-15-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially at 75% the malfunction was activated, and a dilution was started.

The test concluded when it was verified that the dilution did not stop when the preset value was reached.

The malfunction was approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

XRCV2201 AND XRCV2202 <u>HIGH DIFFERENTIAL PRESSURE ON SEAL WATER INJECTION FILTERS; A AND B</u>

The malfunctions were tested at severity values of 1.0 and 10.0 on <u>10-15-90</u>. <u>No</u> Ramps <u>or</u> delays <u>were</u> used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams.

The malfunctions were tested together during two separate runs at 50% power. With one malfunction set at a severity of 10.0, the other was placed at 1.0.

The test concluded <u>when the proper seal water flow reduction and alarm condition was reached.</u>

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

XNCV2301 THRU XNCV2308 <u>RCP #1 AND #2 SEAL FAILURES; PUMPS A THROUGH D</u>

The malfunctions were tested sequentially at severity values of 0.1, 02., 0.5 and 1.0 on <u>10-23-90</u>. <u>No</u> Ramps <u>or</u> delays <u>were</u> used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams.

Initially <u>each test was started at 100% steady state conditions.</u>

The test concluded <u>when it was verified that seal leakoff consistently increased and charging increased by a commensurate amount.</u>

The malfunctions were approved for training/examinations, <u>with a</u> <u>[illegible]ed deficiency entered and recorded that seal injection temperature is not responsive to the increased leakoff.</u>

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:CC0101 THRU X:CC0103 LOSS OF (INDIVIDUAL COMPONENT COOLING WATER) PUMPS; A, B, C

The malfunctions were tested on 10-22-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially in a 100% steady state scenario, the pump to be tested was placed into run.

The test concluded with verification of flow reduction, alarm actuation and the start of the pump whose train was currently in stand by.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:CC0201 **LOSS OF CCW PUMPS FLOW TRANSMITTER; FT4512, 4517 OR 4522**
THRU
X:CC0203

The malfunctions were tested on 10-22-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially in a 100% steady state condition CCW trains were alternately placed in run, and their malfunctions sequentially tested.

The test concluded when the flow indicator was verified as going downscale and the alarm conditions were verified.

The malfunctions were approved for training/examinations, when an annunciator deficiency -- noted on 10-22-90, was corrected on 11-07-90.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

XNCC0301 LOSS OF CCW TO REACTOR COOLANT PUMP THERMAL BARRIER
THRU HEAT EXCHANGERS: PUMPS A, B, C, D
XNCC0304

The malfunctions were tested in severity value increments 0 to 1.0 on 10-22-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams.

Initially power was set to a 100% steady state conditions.

The test concluded when the valve closure and low flow conditions were verified.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

X:CC0401 LOSS OF CCW FLOW TO RESIDUAL HEAT REMOVAL HEAT
THRU EXCHANGERS: A, B, OR C
X:CC0403

The malfunctions were tested on 10-22-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially one run was made at 100% and one run was made at Cold Shutdown conditions and 355 psig; the Heat Exchanger CCW outlet valves were opened.

The test concluded when it was verified that valves FV-4531, FV-4548, FV-4565 were closed by the respective malfunctions in any plant condition and it was verified that Loss of Shutdown cooling in the Mode 5 run caused coolant temperature to rise.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:CC0501 LOSS OF CCW TO THE CHARGING PUMPS

The malfunction was tested on 10-22-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially at 100% power both centrifugal pumps and the Positive Displacement Pump were started.

The test concluded when it was verified that the effect was limited to "A" pump, and that pump "A" tripped within 5 minutes of the malfunction activation.

The malfunction was approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

X:CC0601 CCW AUTOMATIC MAKEUP LEVEL CONTROL VALVE 4501 FAILS.

The malfunctions were tested on 10-26-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially at 100% steady state the malfunction was activated after valve LV-4501 was opened.

The test concluded when it was verified that LV-4501 shut as a result of the malfunction and could not then be opened until the malfunction was de-activated.

The malfunction was approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

XNCC0701 COMPONENT COOLING WATER/ESSENTIAL COOLING WATER HEAT EXCHANGER LEAK

The malfunction was tested at a severity value of 0.2 on 10-25-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams.

Initially at 100% steady state, CCW pressure was 120 psig with ECW at 60 psig.

The test concluded when verification was made that CCW surge tank level steadily decreases and when the stopping of the "A" CCW pump also stopped the leak.

The malfunction was approved for training/examinations, with a deficiency noted that the alarms associated with the CCW surge tank and compartment low levels need to be updated to the newest numbers.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:EC0901 ESSENTIAL COOLING WATER PUMP TRIPS; A, B, C
THRU
X:EC0903

The malfunctions were tested on 10-22-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially at 100% power the malfunctions were alternately and sequentially triggered and deactivated.

The test concluded when it was verified that flow stopped in the affected loop. The low pressure alarms and standby features functioned, and that malfunction removal would allow a pump restart.

The malfunctions were approved for training/examinations, with a annotated discrepancy that an ECW pump's discharge valve fails to start to shut 2 minutes after it's pump trips.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:EC0904 ESSENTIAL CHILLER TRIPS; 11A, 11B, 11C, 12A, 12B, 12C
THRU
X:EC0909

The malfunctions were tested on 10-15-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially power was set at 75% power steady state. Chillers were started and sequentially tripped off.

The test concluded when the alarms and safeguards monitoring status was verified.

The malfunctions were approved for training/examinations, with an annotated deficiency that there is no current modeling of all the temperature effects on miscellaneous support systems that occur with a loss of chiller(s).

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:RH1001 LOSS OF (INDIVIDUAL) RHR PUMPS; A, B, C
THRU
X:RH1003

The malfunctions were tested on 10-26-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially conditions were established with coolant temperature at 160°F and pressure at 400 psig -- with RHR trains "A" and "B" in service.

The test concluded when it was verified that the loss of an inservice pump actually caused a loss of cooldown capability and increasing coolant temperatures and that malfunction removal would allow the restart of an affected pump.

The malfunctions were approved for training/examinations, with an annotated discrepancy that the rate at which RHR Heat Exchanger cools down is much faster that occurs in the units.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:RH1101 RHR PUMP RELIEF FAILS OPEN (PSV-3851, 3852 OR 3853)
THRU
X:RH1103

The malfunctions were tested on 10-26-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially with coolant temperature at 160°F and pressure at 375 psig the malfunction were separately triggered from re-initialized IC sets.

The test concluded when it was verified that pressure fell in the RCS and RHR Systems, PRT level rose and the pressurizer level fell. Charging was manually increased.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

XNRH1201 AND XNRH1202 — **TUBE LEAK IN RHR HEAT EXCHANGER A** / **TUBE LEAK IN RHR HEAT EXCHANGER B**

The malfunctions were tested with severity values of 0.1, 0.5 and 1.0 on 10-26-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams.

Initially conditions were set at a coolant temperature of 195° and a pressure of 400 psig. Each test started with an initialized "IC".

The test concluded when leakage was verified from the RHR system into the CCW system as evidenced by pressurized level decreasing and CCW Surge Tank level increasing.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:SI1301 LOSS OF (INDIVIDUAL) HIGH HEAD SAFETY INJECTION (HHSI)
THRU
X:SI1303

The malfunctions were tested on 10-16-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially at 100% steady state, a manual Safety Injection signal was actuated and the malfunctions were individually triggered.

The test concluded when it was verified that the selected pump tripped, that affected HHSI flow dropped to zero, and that malfunction removal allowed a restart of an affected pump.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

X:SI1401 THRU X:SI1403 LOSS OF (INDIVIDUAL) LOW HEAD SAFETY INJECTION (LHSI) PUMPS, A, B, C

The malfunctions were tested on 10-16-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially from a 100% steady condition, a manual SI signal was activated. The malfunctions were then sequentially triggered.

The test concluded when it was verified that the selected pump actually tripped and that malfunction removal would allow the restart of a previously affected pump.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:SI1501 THRU X:SI1503 ACCUMULATOR DISCHARGE VALVES FAIL TO OPERATE; VALVES 39A, 39B, 39C

The malfunctions were tested on 10-16-90 and 11-15-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially, the malfunctions were tested in several configurations. All were activated at 100% steady state and it was verified that they would not close when they were "powered up". The malfunctions were then removed and the valves observed to stroke closed with all applicable alarms. The malfunctions were reactivated in mid-stroke to verify that they could be thus failed. Two malfunctions were again removed and two valves were allowed to stroke fully shut.

The DBA LOCA was activated (X:RC0101) and the malfunctions were reactivated and it was verified that all valves remained stuck in their respective positions and that they would still not respond to any switch manipulations. Control was shifted to the Auxiliary Shutdown Panel (ZLP-100) where the failures were re-verified.

The test concluded when, as a separate test, the simulator was re-initialized at 100%. The valves were shut and the malfunctions activated. It was verified that the valves would not re-position when their switches were returned to "AUTO".

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:CS1601 LOSS OF CS PUMP 1A, B, C
THRU
X:CS1603

The malfunctions were tested on 10-16-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 100% steady state when the malfunction was activated.

The test concluded when it was verified that the selected pump will trip if running or fail to start if not running. The remaining CS pumps are adequate for containment cooling with RCFC's).

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

XNSI1701 N_2 LOSS ACCU 1A, B, C VIA PSV-3981, 3980, 3977
THRU
XNSI1703

The malfunctions were tested on 10-16-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams.

Initially the plant was at 100% steady state when the malfunction was activated.

The test concluded when it was verified that the selected malfunction caused the respective accumulator's pressure to decrease resulting in low pressure alarms and possible Tech Spec violations. Low press alarms occurred in 20 secs for value of .3, 15 secs for .6, 10 secs for .9.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

XNSI1801 LEAK POST SI ACCUM 1A (1B)(1C) CHK VLV
THRU
XNSI1803

The malfunctions were tested on 10-16-90. No Ramps or delays were used. Tests were done at values of 0.3, 06 and 0.9.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams.

Initially power level 100% steady state.

The test concluded when it was verified that since Reactor pressure is higher, inleakage the causes the SI accumulators high level alarm. SI Accumulator pressure will also increase.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

XNMS0101 STEAM BREAK OUTSIDE CONTAINMENT

The malfunction was tested on 10-29-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams.

Initially the plant was at 100% power steady state. A value of 1.0 was used.

The test concluded when a reactor trip and SI resulted from the excessive cooldown per the malfunction response description.

The malfunction was approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

XNMS0201 STM BKR IN CONTAINMENT LOOP A
XNMS0202 STM BKR IN CONTAINMENT LOOP B
XNMS0203 STM BKR IN CONTAINMENT LOOP C
XNMS0204 STM BKR IN CONTAINMENT LOOP D

The malfunctions were tested on 10-18-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams.

Initially 100% steady state. A value of 1.0 was used.

The test concluded post trip, with SI reset and S/G(s) empty

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

XNSG0301 S/G TUBE LEAK IN SG 1A (B, C, D)
THRU
XNSG0304

The malfunctions were tested on 10-26-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams.

Initially the plant was at 100% power steady state. Values of 1.0 .4 and .3 were used on S/G 1A. Values of 1.0 and .3 were used on S/C 1B - 1D. The following MNEMONIC variables were monitored during the course of the test to verify the accuracy or the Malfunction Response Description:

SGPDA S/G "A" PRESSURE

RCPPZR RCS PZR PRESSURE

SGLSG0 S/G "A" LEVEL

CVWCCP0 CCP A DISCHARGE FLOW

RML8022 S/G A BLOWDOWN RAA MONITOR

RML8046 S/G A MAIN STEAM RAD MONITOR

The test concluded when OPOP05-EO-E030 was exited to EC31 entry conditions.

The malfunctions were approved for training/examinations, with a Deficiency Report (DR) written to correct the problem concerning RCS Pressure not being able to be decreased less than ruptured S/G.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:MS0401 MN STM SFTY VLV PSV 7410 FO
X:MS0402 MN STM SFTY VLV PSV 7420 FO
X:MS0403 MN STM SFTY VLV PSV 7430 FO
X:MS0404 MN STM SFTY VLV PSV 7440 FO

The malfunctions were tested on 10-16-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially 100% steady state, value taken to "TRUE", monitored initial and final steady state values of feed and steam flows on all S/G.

The test concluded at 100% steady state conditions with all malfunctions cleared, and after the quantitative rise in steam flows had been recorded and compared to the Main Control Board indications.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

XNMS0501 MS SAFETY PSV 7410 SEAT LEAK
XNMS0502 MS SAFETY PSV 7420 SEAT LEAK
XNMS0503 MS SAFETY PSV 7430 SEAT LEAK
XNMS0504 MS SAFETY PSV 7440 SEAT LEAK

The malfunctions were tested on 10-16-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams.

Initially from 100% steady state, the malfunctions were initiated with a value of 1.0. The effects on all S/G were monitored for each malfunction independently tested.

The test concluded with 100% steady state after monitoring MNEMONICS MSWMSLIA 0,1,2 and 3 (S/G steam flow A, B, C, & D) and the data was used to update the Malfunction Response Book.

The malfunctions were approved for training/examinations.

The Acoustic Monitor is not modeled. This is being addressed under a separate Deficiency Report (DR) for ERFDADS.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:MS0601 MSIV FAILS CLOSED SG A(B, C, D)
THRU
X:MS0604

The malfunctions were tested on 10-15-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 75% power steady state. Each malfunction was entered from initial steady state conditions.

The test concluded when the response was verified to be in accordance with the malfunction response description. Affected S/G level shrinks, pressure increases above feed pump pump discharge pressure and the Rx trips on low level due to lack of feed flow.

The malfunctions were approved for training/exami ations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:MS0701 MSIV FAIL TO OPERATE 7414
X:MS0702 MSIV FAIL TO OPERATE 7424
X:MS0703 MSIV FAIL TO OPERATE 7434
X:MS0704 MSIV FAIL TO OPERATE 7444

The malfunctions were tested on 10-15-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially at 75% steady state, a value of "TRUE" was used.

Attempts were made to manually close MSIVs. When the valves failed to close, the value of the malfunction was set to "FALSE". The MSIVs were then manually closed.

Each test concluded in a post reactor trip condition due to MSIV's closing on manual signal.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:MS0801 MSIV SHUTS DURING TEST SG A
X:MS0802 MSIV SHUTS DURING TEST SG B
Y:MS0803 MSIV SHUTS DURING TEST SG C
X:MS0804 MSIV SHUTS DURING TEST SG D

The malfunctions were tested on 10-15-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially at 8% steady state, the malfunction was activated with a value of "TRUE". The MSIV was taken to test and it fully closed. When the malfunction was taken to "FALSE", the aff MSIV reopened on its own, as expected.

The test concluded at 8% steady state.

The malfunctions were approved for training/examinations, and Malfunction Response was updated to include an instructor reminder that clearing the malfunction will reopen the MSIV

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

X:MS0901 GS REGULATOR PV 6150 F/O

The malfunction was tested on 10-15-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 100% steady state.

The test concluded when Gland Seal Pressure increased causing LP Turbine Gland Pressure HI alarms.

The malfunction was approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

SYNOPSIS OF MALFUNCTION TESTS

X:MS1001 NO GS SPLY FROM MS PV6150 FC

The malfunction was tested on 10-15-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially 8% steady state, with T/G on line. The malfunction was set to "TRUE" and the response was checked against the malfunction description.

The problem was allowed to progress without operator action until the Turbine Trip.

The test concluded at 8% steady state with the Turbine Tripped.

The malfunction was approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:MS1101 NO STM FLOW SG TO FWCS S/G A (B, C, D)
THRU
X:MS1104

The malfunctions were tested on 10-15-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 29% power steady state (IC #13). The malfunction was entered for each S/G from initial conditions.

The test concluded when the steam signal failed low, feed flow to the affected S/G decreased in response to steam flow signal failure and then increased in response to decreasing S/G level dominant signal.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:SG1201 NO SGLVL SIG TO FWCS SG 1A
X:SG1202 NO SGLVL SIG TO FWCS SG 1B
X:SG1203 NO SGLVL SIG TO FWCS SG 1C
X:SG1204 NO SGLVL SIG TO FWCS SG 1D

The malfunctions were tested on 10-15-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was placed at 29% steady state power. The malfunction was activated with a value of "TRUE".

The test concluded with a Rx trip on a Low-Low S/G Level.

Malfunction responded as described in Malfunction Description.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:PD1301 BNK1 STM DMPS FAIL TO CLOSE
X:PD1302 BNK2 STM DMPS FAIL TO CLOSE
X:PD1303 BNK3 STM DMPS FAIL TO CLOSE
X:PD1304 BNK4 STM DMPS FAIL TO CLOSE

The malfunctions were tested on 10-16-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially conditions were set to 100% power steady state.

Malfunctions were activated individually and then successive Reactor Trips were performed.

The test concluded with Mode 3 Tave = 518°F, and with the Malfunction Response Book description verified.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

XNMS1401 STM HDR XMTR PT-557 FAILS

The malfunction was tested on 10-22-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams.

Initially the plant was at 50% power steady state. A value of 0.3 was entered. Indicated pressure failed to approx. 430 psig. Simulator was re-initialized at 100% steady state and a value of .7 was entered which resulted in PT 557 failing to 975 psig.

The test concluded with Rx tripping on S/G Lo Levels.

The malfunction was approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

XNMS1501 NO RHT STM FRM CNTRL SYS

The malfunction was tested on 10-22-90. No Ramps or delays was used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams.

Initially 100% steady state, the malfunction was used with values of 0.3, 0.6 and 0.9, MNEMONICs MSSPRTC (MSR Setpoint) and PXHTAVG (Tavg) were monitored

The test concluded at 92% steady state, and with the Malfunction description verified.

The malfunction was approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

X:PD1601 STM DUMP CNTRL FAILS ON TRIP

The malfunction was tested on 10-22-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially 100% steady state, the malfunction was taken to "TRUE" and then a MANUAL REACTOR TRIP was initiated. Response was as described in the MALFUNCTION DESCRIPTION.

The test concluded with Post Rx Trip Conditions, maintaining RCS Tave with S/G PORVs.

The malfunction was approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:TU0101 TURB TRIP FROM AST 20-1, 20-2

The malfunction was tested on 10-22-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially conditions were set to 100% steady state. The Malfunction was activated with a value of "TRUE". The Turbine Tripped and the Response was a verified against the Malfunction Description.

The test concluded with the plant in Mode 3, Tave 567°F

The malfunction was approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

X:TU0201 NO TUR TRP ON AUTO S/G

The malfunction was tested on 10-23-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 100% steady state. The malfunction was entered, then a manual Reactor Trip was initiated from the main control board.

The test concluded when approximately 27 sec. had elapsed without a Turbine Trip, at which time the Turbine Tripped from AMSAC.

The malfunction was approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:TU0401 MN TURBINE GOVERNOR VLV NO 1
X:TU0402 MN TURBINE GOVERNOR VLV NO 2
X:TU0403 MN TURBINE GOVERNOR VLV NO 3
X:TU0404 MN TURBINE GOVERNOR VLV NO 4

The malfunctions were tested on 10-29-93. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially at 79% power, the Malfunction was activated as "TRUE".

The test concluded at power, steady state, with the Malfunction Description verified.

Malfunctions were approved for training/examinations, for at power conditions only.

Discrepancies were noted during this test. A DR was written as response to malfunction with the Turbine Generator not loaded. The Turbine failed to overspeed under these conditions. The Malfunction description will have an instructor note warning not to use these malfunctions unless in "AT POWER" conditions.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:TU0501 MN TURBINE GOV VLV FC 1 (2, 3, 4)
THRU
X:TU0504

The malfunction was tested on 10-24-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 50% steady state; The malfunctions were entered separately from initial conditions. As each valve was failed closed the other Governor Valves (GV) opened to compensate.

The test concluded with the plant at steady state conditions with the same MW Load and different GV configuration.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:TU0701 LOSS OF MN TURB OIL PUMP

The malfunction was tested on 10-23-90. No Ramps or del[illegible]e used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially conditions were set to at 100% steady state.

The Malfunction was activated as "TRUE", the Turb Aux L.O. and Seal Oil B/U, and TG EMERG BRG Oil pumps started.

The test concluded maintaining 100% steady state, and with the Malfunction Response description verified.

The malfunction was approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

XNTU0801 MN TURB LUBE OIL PRESS LOW

The malfunction was tested on 10-23-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams.

Initially conditions were set at 100% steady state. A range of values were used from 0.1, to 1.0 The Response was as described in the Malfunction Description.

The test concluded in Post Trip Conditions, steady state.

The malfunction was approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

XNTU0901 MN TURB LUBE OIL TEMP HI

The malfunction was tested on 10-13-90. No Ramps or delays were used. Different severity values were used, in a range of 0.2 to 1.0.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams.

Initially the plant was at 100% steady state when the malfunction was entered.

The test concluded at 100% steady state.

The malfunction was approved for training/examinations, with an Instructor Note to include malfunction 8M02-A-8, CryWolf "Plant Computer System Alarm" and to have typical bearing drain temps ready to provide as simulated local readings. (The plant computer system is not approved for training use.)

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover it on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:TU1001 AC BRNG OIL PUMP WON'T START

The malfunction was tested on 10-23-90. No ramp or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 100% power with the Main Lube Oil Pump supplying lubrication to the main turbine.

The test concluded with verification that if main lube oil pressure dropped, the bearing oil pump and seal oil backup pump would fail to start. When bearing oil pressure decreases to the appropriate setpoint, the emergency oil pump will start and supply turbine lubrication.

The malfunction was approved for training/examinations.

No additional discrepancies we e noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

X:TU1201 MN TURB THRUST BRNG FAILS

The malfunction was tested on 10-23-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was 100% steady state when the malfunction was inserted.

The test concluded with the plant at 0% power, turbine trip/ reactor trip.

The malfunction was approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:TU1301 TURNING GEAR MOTOR FAILURE

The malfunction was tested on 10-23-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 100% steady state. The Reactor was then manually tripped resulting in a turbine trip and coastdown to turning gear engagement speed.

The test concluded when it was verified that the turning gear motor failed to start (due to electrical fault.)

The malfunction was approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

X:EH1401 EHC AUTO MODE FAILURE

The malfunction was tested on 10-23-90. No Ramps were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 100% steady state.

The test concluded with the plant at 100% steady state after the malfunction was entered with a short delay, and the turbine's shift to manual control was verified.

The malfunction was approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

x:EH1501 EHC HYDRAULIC LINE FAILURE

The malfunction was tested on 10-23-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 29% steady state with the turbine on-line when the EHC pipe rupture occurred.

The test concluded when it was verified that the standby EHC pump started on low EHC pressure, appropriate reservoir level alarms came in and the main turbine and operating turbine driven feed pumps tripped on low EHC pressure. The Rx did not trip. Since the conditions were below the P-9 setpoint.

The malfunction was approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

XNTU1601 1st STG PR XMTR PT-506 FAILS 0-100%
XNTU1602 1st STG PR XMTR PT-505 FAILS 0-100%

The malfunctions were tested on 10-23-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams.

Initially the plant was at 75% steady state. The malfunction were entered at varying values which gave the following results for each channel. Rods were left in manual.

.1 - 100 .3 - 300 1.0 - 1000 psig
.2 - 200 .8 - 800

The test concluded with the plant at steady power as it was initially. Rods were temporarily placed in AUTO to verify proper rod motion in AUTO.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

XRPD1601 TREF SIGNAL TO STM DUMPS FAIL +30, -30

The malfunction was tested on 10-23-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams.

Initially the plant was at 75% and the malfunction(s) were activated. The turbine was then ramped down in power at 200% min.

The test concluded when it was verified that a value of -30 has Tref fail below Tavg, the "STM DUMP VLVS TRIP" light comes on with dump demand going to 100% , and that when C-7 was actuated by turbine load decrease all steam dump valves opened. A value of +30 has Tref fail above Tavg. On load rejection (C-7) the dumps do not respond due to Tref being >Tavg. The dumps respond appropriately for turbine trip C-8 for both failures.

The malfunction was approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

XRTU1901 MN TURB VIBRATION HI BRNG 1(9-10)
THRU
XRTU1911

The malfunctions were tested on 10-15-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams.

Initially the plant was at 75% steady state. (IC #15) when the malfunctions were entered, at severity values of 5.0 or 10.0.

The test concluded at 75% steady state, with the Malfunction Description verified.

The malfunction were approved for training/examinations. with an Instructor reminder that the panel CP-018 recorder is not presently modelled, and that "reports" from relay rack indicators must be prepared.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:CD0101 LOSS OF COND VACUUM PUMP 11
X:CD0102 LOSS OF COND VACUUM PUMP 12
X:CD0103 LOSS OF COND VACUUM PUMP 13

The malfunctions were tested on 10-15-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 75% steady state when the malfunction was entered with a value of TRUE. Tests were performed on running pumps.

The test concluded with the plant at 75% steady state, and after verification that each pump restarted at 25 inches vacuum when its malfunction was deactivated.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OI MALFUNCTION TESTS

XRTU2001 MN TURBINE ECCENTRICITY HI

The malfunction was tested on 10-23-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams.

Initially the plant was in Mode 1 with the turbine ready to roll. The Malfunction was inserted and the turbine roll up commenced. (This malfunction is only applicable below 600 rpm turbine speed)

The test concluded that a value of 5.2 will give vibration alarm on CP-007 at = 505 rpm. A value of 5.3 resulted in vibration alarm at = 37 rpm

The malfunction was approved for training/examinations, with a note that the Instructor must provide readings on vibration from RR-035 in relay room due to recorder and proteus points being inoperable.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

XNCD0201 CONDENSER AIR IN LEAKAGE

The malfunction was tested on 10-15-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams.

Initially the plant was at 75% steady state when the malfunction was entered.

The test concluded when it was verified that a severity of .04 resulted in the standby vacuum pump start in 340 secs with no turbine trip. At .1 the standby vacuum pump starts and vacuum stabilizes at 23" at .3, the standby vacuum pump starts but vacuum decreases to < turbine trip setpoint resulting a turbine (trip and Rx trip if > P-9).

The malfunction was approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

XNCD0301 MAIN CONDENSER TUBE LEAK

The malfunction was tested on 10-16-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams.

Initially the plant was at 75% steady state.

The test concluded with the plant at 75% steady state, and with the times to a 3 inch hotwell level change as shown in the Malfunction Response Book verified.

The malfunction was approved for training, with a note to the Instructor to manually include the High Conductivity Alarm in the scenario.

The malfunction was approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:CD0401 LOSS OF MAIN FW PUMP #11 (#12, #13)
THRU
X:CD0403

The malfunctions were tested on 10-16-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially and plant was at 75% steady state (IC #15) the malfunctions were entered one at a time from IC #15 initial conditions. Indications were compared to the Malfunction Response Book.

The test concluded when it was verified that start-up feed pump started and the affected feed pump tripped and coasted down to zero rpm.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:CD0501 HOTWELL LEVEL XMTR FAILS HIGH
X:CD0502 HOTWELL LEVEL XMTR FAILS LOW

The malfunctions were tested on 10-13-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 75% power steady state. The malfunctions were inserted one at a time in the same IC.

The test concluded when the Hotwell Standpipe Alarm (9M01-E-1) came in.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

X:AF0301 LOSS OF AUX FW PUMP #11, #12, #13
THRU
X:AF0303

The malfunctions were tested on 10-15-90. No ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 75% steady state when the malfunction(s) were sequentially activated. The particular pump to be tested was manually started.

The test concluded when it was verified the affected pump will trip if running and fail to start if automatic actuation occurs.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

X:AF0401 LOSS OF STEAM AUX FW PUMP

The malfunction was tested on 10-15-90 and retested on 11-12-90. No ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 75% power steady state when the malfunction was activated.

The test concluded when it was verified that if MOV-143 is shut when the malfunction is activated, it will not open.

The malfunction was not initially approved for training/examinations, on 10-15-90 but was subsequently re-checked on 11-12-90 and approved for training.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

X:AF0501 AFW CROSS-CONNECT VALVE FAILS SHUT
THRU
X:AF0504

The malfunctions were tested on 10-15-90. No ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the test consisted of verifying that the activation of each malfunction prevents any manual opening of the affected valve.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

XNFW0601 MAIN FEED LINE RUPTURE IN CONTAINMENT

The malfunction was tested on 10-29-90. No ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. The range of this malfunction is 0.0 to 1.0. It was tested at values of 0.25 and 0.5.

Initially, conditions were established at 100% power steady state.

The test concluded when it was verified that: (1) the reactor trips on Low-Low "A" S/G Level, and that an SI signal is generated from containment pressure, (2) that containment temperature and pressure steadily trended upward, and (3) the times until receipt of containment pressure, reactor trip, safety injection, and 0% wide range steam generator level matched the times specified in the Malfunction Response Book.

The malfunction was approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

XNFW0701 MN FW RUPTURE OUTSIDE CONTMT

The malfunction was tested on 10-29-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams.

Initially the plant was at 100% steady state. Malfunction severities were inserted at various values, from 0.2 to 1.0.

The test concluded with the plant at post reactor trip conditions.

The malfunction was approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

XNFW0801 HI PRES FW HTR TUBE LEAK

The malfunction was tested on 10-29-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams.

Initially conditions were set to 100% steady state. The malfunction was activated at 0.25 and 0.5.

The test concluded when it was verified that the tube leak on #11A FW Heater results in decreased flow to all S/G and the associated loss of FW Heating causes RCS temp to decrease. A severity of .5 will result in an eventual plant trip. The leak can be isolated by isolation of #11A FW Heater.

The malfunction was approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

XNFW0901 LOSS OF PUMP CONTROL MFP 11, 12, 13
THRU
XNFW0903

The malfunctions were tested on 10-24-90. No Ramps or delays were used. Severity values of 0.1, 0.2, 0.5, 0.8, 0.9 and 1.0 were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams.

Initially the plant was placed at 100% steady state.

The test concluded when it was verified that increasing values caused increasing RPM drops in turbine speed. This reduction in turbine speed causes reduction in FW flow to S/G at larger values (power & pump combination dependent). A Rx trip will occur on LO-LO S/G level.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:PF1001 FAIL AUTO SPEED CNTRL MFP-11
X:PF1002 FAIL AUTO SPEED CNTRL MFP-12
X:PF1003 FAIL AUTO SPEED CNTRL MFP-13

The malfunctions were tested on 10-24-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 100% steady state when the malfunction was entered with a value of TRUE.

The test concluded with the plant at 75% steady state after verifying that the affected pump would not respond to any load change.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

SYNOPSIS OF MALFUNCTION TESTS

X:FW1201 THRU X:FW1203 TURB OVERSPEED TRIP MFP #11, #12, #13

The malfunctions were tested on 10-16-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 75% steady state when the malfunctions were activated.

The test concluded with verification that the affected pump trips, its discharge valve closes the other feed pumps speed up, and startup feedwater pump starts to makeup for loss of feed from the tripped pump.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

X:FW1204 SUFP OVERLOAD TRIP

The malfunction was tested on 10-24-90. No ramps but a 30 second delay was used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 50% steady state when a malfunction value of TRUE was entered with a 30 second delay.

The test concluded at 50% with S/G levels decreasing.

The malfunction was approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:FW1301 **LUBE OIL PRESS LOW MFP #11, #12, #13**
THRU
X:FW1303

The malfunctions were tested on 10-15-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 75% steady state when the malfunctions were activated.

The test concluded when it was verified that the selected MFP trips on Low Lube oil pressure causing decreased F.W. flow to all S/G, that the other feed pumps speed up, and that the startup feedwater pump starts.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:PG1401 **AUTO FW CNTRL SYS FAILS S/G A, B, C, D**
THRU
X:PG1404

The malfunctions were tested on 10-17-90. No ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 100% steady state when the malfunction was activated.

The test concluded when it was verified that the selected F.W valve immediately fails shut - stopping F.W. flow to the respective S/G. Manual control is operational and it can be used to restore level if power is sufficiently low and operator response if fast enough -- otherwise a Rx trip will occur on LO-LO S/G level.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:FW1501 LOSS OF FEED FLOW SIG SG-A
X:FW1502 LOSS OF FEED FLOW SIG SG-B
X:FW1503 LOSS OF FEED FLOW SIG SG-C
X:FW1504 LOSS OF FEED FLOW SIG SG-D

The malfunctions were tested on 10-23-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 100% steady state when the malfunction were entered with a value of TRUE.

The test concluded with the plant at 100% steady state and the Malfunction Description verified.

The malfunctions were approved for training/examinations, with an added Instructor Note that the known deficiency regarding the lack of a feed signal to the Deaerator Level Control System causes the Deaerator to remain more stable than the plant.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:FW1601 MN FW REG VLV F/C FCV-551, 552, 553, 554
THRU
X:FW1604

The malfunctions were tested on 10-17-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 100% steady state when the malfunction was activated.

The test concluded when it was verified that the selected FCV immediately fails closed with no manual control. FW to affected S/G is lost and the Rx trips on LO-LO S/G level - resulting in AFW actuation.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

X:FW1701 MN FW REG VLV STUCK FCV-551
X:FW1702 MN FW REG VLV STUCK FCV-552
X:FW1703 MN FW REG VLV STUCK FCV-553
X:FW1704 MN FW REG VLV STUCK FCV-554

The malfunctions were tested on 10-15-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 75% steady state when the malfunctions were sequentially entered with a value of TRUE.

The test concluded with the plant at 75% steady state.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

XNFW1801 MN FW REG VLV LEAKS FCV-551, 552, 553, 554
THRU
XNFW1804

The malfunctions were tested on 10-17-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams.

Plant response was checked at 10% and 100% steady state.

The test concluded with verifications that flow through the valve increases, with 1.0 being a severity of = 2,000 gpm. During startup (low power) this can result in F.W. isolation and turbine trip on HI-HI level. When MFRV are controlling, this malfunction will represent various effects depending on feed pumps control combination.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

XNFW1901 FW REG BYP VLV STUCK FV-7151
XNFW1902 FW REG BYP VLV STUCK FV-7152
XNFW1903 FW REG BYP VLV STUCK FV-7153
XNFW1904 FW REG BYP VLV STUCK FV-7154

The malfunctions were tested on 10-15-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams.

Initially the plant was at 75% steady state when the malfunctions were sequentially entered with values of 1.0.

The test concluded with the plant at 75% steady state, and the main feed regulating valves closing to compensate for the extra flow through the bypasses.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

XMFW2001 MFP RECIRC VLV F/O FV-7114, 7115, 7116
THRU
XMFW2003

The malfunctions were tested on 10-18-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 100% steady state when the malfunction were activated.

The test concluded when it was verified that the affected recirc valve fails full open causing decreased feed flow and pressure from the respective pump. If pumps are close to capacity (i.e. high power) the resulting flow decrease to S/G's may result in LO-LO level Rx trip.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:CD2301 LOSS OF CONDENSATE PUMP 11, 12, 13
THRU
X:CD2303

The malfunctions were tested on 10-15-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 100% steady state when the malfunction was activated.

The test concluded with verification that the selected condensate pump trips -- reducing flow to D/A and causing D/A level to decrease. Depending on power level and pump combinations this results in a Booster pump trip, then MFP trip on suction low pressure and finally Rx trip on LO-LO S/G level.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

XNCD2401 LEAK IN COND HDR TO HTR 14A, B
THRU
XNCD2402

The malfunctions were tested on 10-21-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams.

Initially the plant was at 100% steady state when the malfunction was activated.

The test concluded with verification that the selected heater had a condensate leak in the line to the heater. This caused a decrease in D/A level which, depending on power level and severity could result in Rx trip on LO-LO S/G level. A severity of .25 Rx will give a Rx Trip = 12 min. (1.0 Rx trip = 6.5 min.)

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

XNCD2501 HI CONDUCTIVITY COND/FW SYS

The malfunctions were tested on 10-24-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams.

Initially the plant was at 100% steady state when the malfunction was entered with various values from 0.1 to 1.0.

The test concluded with the plant at 100% steady state and the specified times-to-alarm verified.

The malfunction was approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

X:CD2701 POLISH DOMIN BYP CD-132 F/C, F/O
THRU
X:CD2702

The malfunctions were tested on 10-24-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 100% steady state when the malfunction was activated.

The test concluded after it was verified that in the F/C position, the valve will not open -- even on a HI D/P condition. F/O causes the valve to open, bypassing the polishers -- decreasing the ability to clean up the condensate system.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:FW2801 LP HTR DRAIN PUMP TRIP
THRU
X:FW2803

The malfunctions were tested on 10-24-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially we set 100% power MOL steady state conditions.

The test concluded with verification that the pump trip alarm was received, condensate flow increased and level in the associated tank increased.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

X:FW2901 TRIP ALL FW BOOSTER PUMPS

The malfunction was tested on 10-18-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 100% steady state when the malfunction was activated.

The test concluded once it was verified that all F.W. Booster Pumps tripped -- causing all Main F.W. Pumps to trip, resulting in a LO-LO S/G level Rx trip and AFW actuation.

The malfunction was approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

SYNOPSIS OF MALFUNCTION TESTS

X:HV0101 HV0101, 02, 03 CRDM COOLING FAN TRIPS
THRU
X:HV0103

The malfunctions were tested on 10-15-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially conditions were 75% power MOL steady state.

The test concluded with verification that alarm 22M01-F2 was received, and that the selected fan actually tripped.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

X:HV0201 LOSS OF CNTMT FAN COOLER 11A, B, C, 12A, B, C
THRU
X:HV0206

The malfunctions were tested on 10-15-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 75% steady state when the malfunctions were sequentially activated and cleared.

The test concluded when it was verified that the selected fan cooler did trip, and that the remaining fan coolers are capable of heat removal during accident conditions.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:RM0601 CNTMT GAS/PART RAD ALARM

The malfunction was tested on 10-24-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 100% steady state when the malfunction was activated.

The test concluded when the RMS alarm on RITS 8011 was verified.

The malfunction was approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

X:RM0701 CNTMT GAS/PART RAD ALARM

The malfunction was tested on 10-24-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 100% steady state when the malfunction was activated.

The test concluded when it was verified that containment vent isolation occurs along with RMS alarm on RITS-8012.

The malfunction was approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:RM0901 INTR RAD LEVEL RIT-8012

The malfunction was tested on 10-24-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 100% steady state when the malfunction was activated.

The test concluded when it was verified that rad levels increase at the RCB Purge Monitor, and that when the setpoint is reached, Purge Isolation occurs.

The malfunction was approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

X:HV0301 LOSS OF NORMAL CNTMT PURGE SUPPLY DAMPER

The malfunction was tested on 10-25-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially 100% power MOL steady state conditions.

The test concluded when it was verified that the specified damper actually tripped.

The malfunction was approved for training/examinations, with a note that the instructor must override the "stop" contact for the running Purge Fan and Activate the Fan Trip Alarm. This is annotated for Instructors in the Malfunction Response Book.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:HV1101 HI TOXIC GAS ESF ACTUATION

The malfunction was tested on 10-25-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 100% steady state with train A CRE in service and train B & C CRE outside air intake dampers open.

The test concluded when it was verified that CR/Kitchen/Toilet fan stops, and that the Train A, B, C inlet isol dampers close.

The malfunction was approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

X:HV1102 BOTH TOXIC GAS MONITORS FAIL

The malfunction was tested on 10-25-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 100% steady state with train A CRE in service with B & C train outside air intake dampers open.

The test concluded when it was verified that CR/Kitchen/Toilet fan stops and all outside air intake dampers close.

The malfunction was approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:HV1103 SMOKE IN CTRL ROOM ESF ACT

The malfunction was tested on 10-25-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially plant was at 100% steady state with all CRE Trains inlet isol dampers open.

The test concluded when it was verified that CR/Kitchen/Toilet fan stops and all outside air intake dampers close.

The malfunction was approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

X:EA0101 LOSS OF ESF DG 11, 12, 13
THRU
X:EA0103

The malfunctions were tested on 10-25-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially we set 100% power MOL steady state conditions.

The test concluded when it was verified that if a DG is running, it will trip. If a DG is not running then it will not start. Removal of the malfunction can allow for restoration of DG.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:EA0201 EMERGENCY DG #11, #12, #13, FAIL TO LOAD
THRU
X:EA0203

The malfunctions were tested on 10-24-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 100% steady state when the malfunctions were activated and then normal power from bus was removed.

The test concluded when it was verified that the selected D/G did come up to speed and voltage and "close in" on the bus and that the sequencer did not load its equipment. Manual loading of equipment is possible with malfunction active.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:EA0301 LOSS OF MAIN GEN EXCITER

The malfunction was tested on 10-25-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 100% steady state when the malfunction was activated.

The test concluded when it was verified that the main gen exciter breaker tripped open, causing loss of generator excitation -- resulting in generator trip and turbine trip. If >P-9 then Rx trip will occur. The remaining systems function properly for Turb/Rx trip.

The malfunction was approved for training/examinations, with a discrepancy written on .75 sec time delay for the turbine Lockout relay and generator voltage/VARS indication during that time period, but this was determined to not adversely affect training.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

SYNOPSIS OF MALFUNCTION TESTS

X:RA0401 AUTO VOLTAGE REGULATOR FAILS

The malfunction was tested on 10-29-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the conditions were set at 50% power MOL steady state.

The test concluded when it was verified that exciter field amps became unstable in automatic but that manual operation of the voltage regulator still operated properly.

The malfunction was approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

X:EA0601 MAIN GEN. OUTPUT BRKR OPENS

The malfunction was tested on 10-29-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 100% steady state when the malfunction was activated.

The test concluded when it was verified that the breaker opening causes load rejection > capability of plant resulting in Rx Trip/Turbine Trip on OTΔT. If < P-9 the reactor will not trip. All other systems function as designed.

The malfunction was approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:EA0701 LOSS OF UAT

The malfunction was tested on 10-29-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 100% steady state when the malfunction was activated.

The test concluded when it was verified that all aux busses were de-energized and that standby bus 1F was de-energized, causing an "A" train Loop. A Turbine trip occurred on Aux XFMER lockout which resulted in Rx trip above P-9. Plant Components/busses de-energized due to loss of Aux busses was verified against wiring diagrams. TSC diesel starts to supply load center 1W.

The malfunction was approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:EA0801 LOSS OF GRID

The malfunction was tested on 10-29-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially conditions were established at 50% power MOL steady state.

The test concluded when it was verified that all off-site power 345 and 138 KV power is lost.

The malfunction was approved for training/examinations.

Some secondary System Components (Pumps) that do not have auto start feature, restart when power is restored if they are not taken Pull-To-Lock. Since procedures direct this particular action, this is not expected to adversely affect training or examinations. The particular pumps are annotated in the Malfunction Response Book.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:EA0901 LOSS OF 13.8 KV STBY BUS 1F, G, H
THRU
X:EA0903

The malfunctions were tested on 10-19-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 50% steady state power when the malfunctions were activated.

The test concluded when it was verified that the selected malfunction caused a "LOOP" signal to be generated for the respective ESF bus causing the respective D/G to start and load the bus through the Mode II Sequencer. No individual malfunction results in an immediate reactor trip.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

X:EA0904 LOSS OF 13.8 KV AUX BUS 1J

The malfunction was tested on 10-11-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 100% steady state when the malfunction was activated.

The test concluded when it was verified that equipment powered by the bus did lose power, RCP 1D tripped (power loss) resulting in Rx Trip. When below P-9 the loss of the RCP did not result in a Rx Trip.

The malfunction was approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

SYNOPSIS OF MALFUNCTION TESTS

X:EA1001 THRU X:EA1002 LOSS OF 4.16 KV BUS 1D1, 1D2

The malfunctions were tested on 10-19-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 50% steady state when each malfunction was activated.

The test concluded when it was verified that the bus fault causes supply breaker to 1D1 or 1D2 to open causing loss of power to the bus and its related components. Tie breaker between 1D1 and 1D2 cannot be closed with fault on bus.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:EA1101 LOSS OF 4.16 KV ESF BUS E1A, B, C
THRU
X:EA1103

The malfunctions were tested on 10-19-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 50% steady state when the malfunction was activated.

The test concluded when it was verified that the fault causes the normal feeder breaker to open causing a "LOOP" on the respective bus. This starts the respective ESF D/G but its output breaker will not close due to the bus fault.

The malfunctions were approved for training/examinations, with use of an instructor note: on D/G lube oil pressure. L.O. pressure drops to 0 when D/G starts. Actual oil pressure is adequate because of its being supplied by D/G attached Lube Oil Pump.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:EA1201 LOSS OF 480V ESF MCC E1A1-3, E1B1-3, E1C13
THRU
X:EA1209

The malfunctions were tested on 10-17-90 - 10-19-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 100% steady state when the malfunction was activated.

The test concluded when it was verified that the supply breaker to the selected bus opened and components supplied by the bus lost power.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X'EA1301 LOSS OF 138 KV EMERGENCY XFMR

The malfunction was tested on 10-19-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 50% steady state when the malfunction was activated.

The test concluded when it was verified that the Feeder Breaker from the 138 KV XFMR to Bus 1L trips open, and that if 1L were supplying an ESF bus that the ESF bus and its respective components will lose power.

The malfunction was approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:EA1401 LOSS OF ALL AC POWER

The malfunction was tested on 10-29-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially conditions were established at 50% power MOL steady state.

The test concluded when it was verified that all 13.8 KV Aux and standby buses de-energize and the ESF DG's do not auto start and the TSC DG fail to start.

The malfunctions were approved for training/examinations, Malfunction X:EA1301 (Loss of 138 KV Emergency Power) must be run at the same time. Caution is necessary if using this malfunction in conjunction with DG malfunctions. These cautions are not seen to adversely affect training or examinations because actual dry-runs of such compounded failures must be run prior to any use, due to the inherent complexity of the logic signals involved.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:EA1501 LOSS OF NON 1E DC PANEL PL 125A

The malfunction was tested on 10-25-90 - 10-26-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 75% steady state when the malfunction was activated.

The test concluded when it was verified that the breaker to panel PL 125A opens causing loss of power to the panel and the components served by the panel.

The malfunction was approved for training/examinations, with the annotated requirement that malfunction X:PD1601 must be activated simultaneously to defeat the steam dumps.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:GE1601 LOSS OF GEN H_2 SEAL OIL REG 6355, 6355A
AND
X:GE1602

The malfunctions were tested on 10-29-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at ~7% steady state with main turbine on the turning gear when the malfunction was activated.

The test concluded when it was verified that H_2 pressure will require power reduction if the turbine is loaded, and that if 6355A fails, H_2 pressure will go to zero.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:AC0101 LOSS OF ACW OPEN LOOP PUMP 11, 12, 13
THRU
X:AC0103

The malfunctions were tested on 10-24-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 100% steady state when the malfunction was activated.

The test concluded when it was verified that the selected pump tripped resulting in the standby pump starting on low pressure with no other appreciable affect on the plant.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

X:AC0201 LOSS OF ACW CLSD LOOP PMP 11, 12, 13
THRU
X:AC0203

The malfunctions were tested on 10-24-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 100% steady state when the malfunction was activated.

The test concluded when it was verified that the selected pump tripped resulting in the standby pump starting on low pressure with no other appreciable affect on the plant.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

XNCT0301 INCR IN CNTMT PRESSURE

The malfunction was tested on 10-17-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction has a range of 0-1.0. The value tested was 0.5.

Initially the plant was at 100% steady state when the malfunction was activated.

The test concluded when it was verified that an Instrument Air Leak occurred in CNTMT causing the air compressor to cycle more and causing gradual increase in CNTMT pressure. Pressure will eventually increase to point to cause SI. Pressure was 0.5 psig after 16 minutes.

The malfunction was approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

XNAR0401 LOSS OF INSTRUMENT AIR

The malfunction was tested on 10-29-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction has a range of 0 to 1.0 test at values of .5, .7, 1.0.

Initially the plant was at 100% steady state when the malfunction was activated.

The test concluded when it was verified that increasing severity causes a greater drop in Instrument Air (IA) pressure to the point where station air will back up IA. With value of 1.0, station air can still provide enough air to prevent any IA operated components from failing to their Loss-Of-Air position.

The malfunctions was approved for training/examinations, with a noted reminder that to get full loss of Instrument Air it is required to also have a station air leak. A deficiency was recognized and annotated for three(3) dampers that failed to the wrong position on total loss of Instrument Air.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

XNAR0501 LOSS OF STATION AIR

The malfunction was tested on 10-17-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction has a range of 0 - 1.0. Malfunction tested to a value of 0.8.

Initially the plant was at 100% steady state when the malfunction was activated.

The test concluded when it was verified that a value of .8 will cause a continued decrease in Service Air pressure. (Service Air has no backup.) The malfunction was approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

X:AN0801 PANEL ANNUNCIATOR FAILURE
THRU
X:AN0810

The malfunctions were tested on 10-17-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction is logical (TRUE or FALSE).

Initially the plant was at 100% steady state when the malfunctions were activated.

The test concluded when it was verified that annunciators on the selected panels will not annunciate. Any further alarms and any present alarms cannot be cleared until malfunction is removed.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 4

SYNOPSIS OF MALFUNCTION TESTS

XIAN0901 CRY WOLF ALARMS
THRU
XIAN2140

The malfunctions were tested on 10-12-90. No Ramps or delays were used.

Correct annunciation was verified using the Malfunction Response Book and appropriate plant logic diagrams. This malfunction have three values 0 = Reset 2 = Blocked 3 = Actuate

Initially the plant was at 100% steady state when the malfunction were activated.

The test concluded when it was verified that a value of 3 will light the selected annunciator. 2 will block or keep it from alarming and 0 will reset a given alarm. Malfunction removal will also reset the alarm.

The malfunctions were approved for training/examinations.

No additional discrepancies were noted during this test that are not already included as an Instructor Note in the Malfunction Response Book, or as a turnover item on the formal pre-session briefing sheet.

ADDENDUM 5

LISTING OF CURRENT MODIFICATION REPORTS (MRs)

MR. NO.		DESCRIPTION	SCHEDULED COMPLETION DATE	APPLICABLE ANS/ANSI 3.5 REQUIREMENT
00429		MODIFY PMSCS SUCH THAT "FREEZE" CAN BE INITIATED FROM THE INSTRUCTOR STATION.	COMPLETION OF SIM. UPGRADE	N/A SIM. ENHANCEMENT
00454		ADD MALF. TO TRIP BISTABLES ON PANEL 6.	12-91	N/A SIM. ENHANCEMENT
00489		MODIFY INPUTS TO NR-45 AND INSTALL ADDITIONAL RECORDERS.	08/91	SEC. 5.3
00491		ADD RCS MID LOOP LEVEL INDICATION.	COMPLETION OF SIM. UPGRADE	SEC. 5.3
00496		REPLACE CET RECORDERS AND ADD ALARM.	12/91	SEC. 5.3
00514		UPDATE ERFDADS DISPLAYS.	12/91	SEC. 5.3
00525		INCREASE SCOPE OF RMS.	COMPLETION OF SIM. UPGRADE	N/A SIM. ENHANCEMENT
0532	*	INSTALL PRINTER CABINETS IN SIM CR.	08/91	N/A SIM. ENHANCEMENT
0535	*	MOD. SIM LIGHTING.	WITHIN 1 YEAR OF REF. PLANT MOD.	SEC. 5.3
0536		INCREASE SCOPE TO INCLUDE BOP DIESEL GENERATOR.	08/91	N/A SIM. ENHANCEMENT

ADDENDUM 5

LISTING OF CURRENT MODIFICATION REPORTS (MRs)
(Continued)

MR. NO.	DESCRIPTION	SCHEDULED COMPLETION DATE	APPLICABLE ANS/ANSI 3.5 REQUIREMENT
0544	MOD. ANNUN ENGRAVING TO INDICATE ERFDADS OR PROTEUS	WITHIN 1 YEAR OF REF. PLANT MOD.	SEC. 5.3
0556	MOD. ERFDADS DISPLAYS	08/91	SEC. 5.3
0558	MOD. ERFDADS DISPLAYS	08/91	SEC. 5.3
0567	MOD. ERFDADS CONT. PWR. FOR RHR/CVCS VLVS.	08/91	SEC. 5.3
0580	INCREASE LABEL SIZE AND INSTALL NEW FEED PUMP RPM METERS	06/91	SEC. 5.3
0595	UPDATE REMOTE FUNCTIONS	08/91	N/A SIM. ENHANCEMENT
0598	ADD LIGHT TO INDICATE WHEN QDPS IS HUNG-UP	08/91	N/A SIM. ENHANCEMENT
0599	MOD. REMOTE TABLES	08/91	N/A SIM. ENHANCEMENT
0600	MOD. REMOTE VALVES	08/91	N/A SIM. ENHANCEMENT
0601	DELETE REMOTE VALVE FOR STM TO S/U DA	08/91	N/A SIM. ENHANCEMENT
0604	MOD. INITIAL VALVES FOR REMOTES	08/91	N/A SIM. ENHANCEMENT

ADDENDUM 5

LISTING OF CURRENT MODIFICATION REPORTS (MRs)
(Continued)

MR. NO.	DESCRIPTION	SCHEDULED COMPLETION DATE	APPLICABLE ANS/ANSI 3.5 REQUIREMENT
0622	COMPLETE INSTALLATION OF VALVE FV-011 ON AUX SHUTDOWN PANEL	05/91	N/A SIM. ENHANCEMENT
0607	ADD MALFUNCTION FOR S/G PORV PRESS CHANNEL	08/91	N/A SIM. ENHANCEMENT
0609	MOD. ELECTRICAL REMOTES	08/91	N/A SIM. ENHANCEMENT
0611	ADD REMOTE FUNCTIONS	08/91	N/A SIM. ENHANCEMENT
0612	ADD S/G PRESS GREATER THAN 1500 PSIG TO ZERROR	08/91	N/A SIM. ENHANCEMENT
0613	MOD. ERFDADS TO INCLUDE THE DAS FUNCTION	08/91	N/A SIM. ENHANCEMENT
0614	ADD INST. REMOTES	08/91	N/A SIM. ENHANCEMENT
0615	ADD ELECTRICAL REMOTES	08/91	N/A SIM. ENHANCEMENT
0616	ADD MISC. REMOTES	08/91	N/A SIM. ENHANCEMENT

* RELATED TO ANSI 3.2.3 "CONTROL ROOM ENVIRONMENT"

ADDENDUM 6

LIST OF CURRENT INITIAL CONDITIONS

IC #	TEMP	PRESS PSIA	POWER	BORON	DESCRIPTION
1	166	92	0	827	POP03-ZG1-STEP 6.3
2	166	95	0	1147	POP03-ZG1-STEP 6.5
3	168	411	0	827	POP03-ZG1-STEP 6.8
4	186	422	0	832	POP03-ZG1-STEP 7.0
5	346	398	0	831	POP03-ZG1-STEP 7.16
6	568	455	0	829	POP03-ZG4-STEP 8.17
7	568	2251	0	998	POP03-ZG4-STEP 5.4
8	568	2252	0	664	POP03-ZG4-STEP 6.0
9	567	2252	0	664	POP03-ZG4-STEP 6.28
10	569	2252	3%	664	POP03-ZG5-STEP 6.0
11	570	2252	7%	665	POP03-ZG5-STEP 6.18.7
12	570	2252	7%	664	POP03-ZG5-STEP 6.70
13	574	2252	29%	457	POP03-ZG5-STEP 7.3.11

ADDENDUM 6

LIST OF CURRENT INITIAL CONDITIONS
(Continued)

IC #	TEMP	PRESS PSIA	POWER	BORON	DESCRIPTION
14	580	2253	50%	387	POP03-ZG5-STEP 7-16-10
15	586	2254	75%	301	POP03-ZG5-STEP 7.16.11
16	592	2254	98%	[illegible]40	POP03-ZG-0007 STEP 5.9
17	567	2251	0	998	POP03-ZG7-STEP 5.3
18	567	1962	0	998	POP03-ZG7-STEP 5.9
19	455	1147	0	996	POP03-ZG7-STEP 5.19
20	352	613	0	1000	POP03-ZG7-STEP 5.23
21	345	358	0	1006	POP03-ZG7-STEP 6.19
22	567	2252	0	358	10-8 AMPS EOL
23	571	2252	25%	160	25% POWER EOL
24	584	2253	50%	63	50% POWER EOL
25	567	2252	0%	100	S/D 10^8 EOL
[illegible]	567	2251	0%	75	S/D 10^8 EOL 2 HRS (POST S/D)

ADDENDUM 6

LIST OF CURRENT INITIAL CONDITIONS
(Continued)

IC #	TEMP	PRESS PSIA	POWER	BORON	DESCRIPTION
27	567	2252	0%	68	S/D 10^8 EOL PEAK XENON
28	567	2252	0%	121	S/D 10^8 EOL 15 HRS (POST S/D)

NOTES:	IC	1-11	XENON FREE
	IC	12	XENON BUILDING UP AND PRESENTLY AT 1.7% POWER VALUE
	IC	13 - 16	EQUILIBRIUM XENON
	IC	17 - 21	SHUTDOWN ICs WITH REAL-TIME XENON ACCUMULATION FOR SHUTDOWN FROM 100% POWER
	IC	22	EOL XENON FREE
	IC	23, 24	EQUILIBRIUM XENON
	IC	25	XENON RISING AND AT 101% POWER EQUIVALENT VALUE
	IC	26 - 28	XENON VALUES FOR 2 HOURS, 7.5 HOURS, AND 15 HOURS AFTER AN EOL S/D FROM 50% POWER

ADDENDUM 7

REMOTE FUNCTIONS (LOCAL OPERATOR ACTIONS) ACCEPTED FOR TRAINING/EXAMINATIONS
REFERENCE ANSI/ANS 3.5, 1985 SECTION 3.4.4

MNEMONIC	DESCRIPTION
IINIRFLL	DELTA FLUX LIMIT LOWER SETPOINT
IINIRFLU	DELTA FLUX LIMIT UPPER SETPOINT
IIRC:69A	VESSEL FLANGE LEAKOFF VALVE
IIRC:69B	VESSEL FLANGE LEAKOFF VALVE
IIRCRASP	HIGH FLUX AT SHUTDOWN ALARM SETPOINT
IIRCRRBC	RCS BORON CONCENTRATION
IICV:102	LETDOWN BACKPRESSURE REGULATING VALVE ISOLATION
IIRP:045	TRAIN "R" TRIP TEST SWITCH
IIRP:046	TRAIN "S" TRIP TEST SWITCH
IICV:209	BLENDER TO FILL RWST
IICV:221	MANUAL IMMEDIATE BORATE VALVE
IICV:226	BA TANKS TO CHARGE PUMPS SUCTION VALVE
IICV:236	B CCP ALTERNATE DISCHARGE TO SEALS
IICV:247	SEAL WATER INJECTION REGULATING VALVE ISOLATION VALVE
IICV:254	CHARGE FLOW CONTROL ISOLATION VALVE
IICV:318	BA TANK 1A OUTLET VALVE
IICV:324	BA TANK 1B OUTLET VALVE
IICV:CVA	BA XFER PUMP SUCTION X-CONN VALVE
IICV:CVB	BA XFER PUMP SUCTION X-CONN VALVE
IICV:PZR	RESET LETDOWN ISOLATION AT LO PZR LVL

ADDENDUM 7

REMOTE FUNCTIONS (LOCAL OPERATOR ACTIONS) ACCEPTED FOR TRAINING/EXAMINATIONS
REFERENCE ANSI/ANS 3.5, 1985 SECTION 3.4.4
(Continued)

MNEMONIC	DESCRIPTION
IICVR104	LETDOWN PRESS REGULATING BYPASS VALVE
IICVR246	SEAL WATER INJECTION REGULATING BYPASS VALVE
IICVR255	CHARGE FLOW CONTROL BYPASS VALVE
IICVR32A	RCP SEAL INJECTION FLOW VALVE
IICVR32B	RCP SEAL INJECTION FLOW VALVE
IICVR32C	RCP SEAL INJECTION FLOW VALVE
IICVR32D	RCP SEAL INJECTION FLOW VALVE
IICVRBC	BORON CONCENTRATION IN BA TANK
IICVRPC	VCT H2 PRESS REGULATING VALVE
IIAS:036	AUX STEAM STARTUP DEAERATOR VALVE
IIAS:128	AUX STEAM FROM BOILER OR UNIT #2
IIAS:186	AUX STEAM TO DEAERATOR
IIASNDEA	AUXILIARY STEAM TO DEAERATOR
IIMS:021	SG A PORV ISOLATION VALVE
IIMS:038	SG B PORV ISOLATION VALVE
IIMS:055	SG C PORV ISOLATION VALVE
IIMS:072	SG D PORV ISOLATION VALVE
IIMS:117	STEAM DUMP ISOLATION VALVE
IIMS:118	STEAM DUMP ISOLATION VALVE
IIMS:121	STEAM DUMP ISOLATION VALVE
IIMS:122	STEAM DUMP ISOLATION VALVE

ADDENDUM 7

REMOTE FUNCTIONS (LOCAL OPERATOR ACTIONS) ACCEPTED FOR TRAINING/EXAMINATIONS
REFERENCE ANSI/ANS 3.5, 1985 SECTION 3.4.4
(Continued)

MNEMONIC	DESCRIPTION
IIMS:125	STEAM DUMP ISOLATION VALVE
IIMS:126	STEAM DUMP ISOLATION VALVE
IIMS:129	STEAM DUMP ISOLATION VALVE
IIMS:130	STEAM DUMP ISOLATION VALVE
IIMS:133	STEAM DUMP ISOLATION VALVE
IIMS:134	STEAM DUMP ISOLATION VALVE
IIMS:137	STEAM DUMP ISOLATION VALVE
IIMS:138	STEAM DUMP ISOLATION VALVE
IICD:013	COND M/U VALVE LCV-7005 ISOLATION
IICD:042	MAIN FEED FEG VALVE "B" ISOLATION
IICD:056	COND DUMP PUMP TO AFWST ISOLATION
IICD:068	MAIN FEED REGULATING VALVE "A" ISOLATION
IICD:089	COND DUMP PUMP TO SMUT ISOLATION
IICD:093	MAIN FEED REGULATING VALVE "C" ISOLATION
IICD:096	COND PUMP 11 SUCTION VALVE
IICD:105	COND PUMP 12 SUCTION VALVE
IICD:109	MAIN FEED REGULATING VALVE "D" ISOLATION
IICD:114	COND PUMP 13 SUCTION VALVE
IICD:125	COND DUMP VALVE LCV-7006 ISOLATION
IICD:187	"D" MAIN FEED BYPASS ISOLATION VALVE
IICD:189	"C" MAIN FEED BYPASS ISOLATION VALVE

ADDENDUM 7

REMOTE FUNCTIONS (LOCAL OPERATOR ACTIONS) ACCEPTED FOR TRAINING/EXAMINATIONS
REFERENCE ANSI/ANS 3.5, 1985 SECTION 3.4.4
(Continued)

MNEMONIC	DESCRIPTION
IICD:191	"B" MAIN FEED BYPASS ISOLATION VALVE
IICD:193	"A" MAIN FEED BYPASS ISOLATION VALVE
IICD:227	SHORT PATH FEED RECIRC VALVES
IICD:467	S/G D LONG PATH RECIRC VALVES
IICD:469	S/G C LONG PATH RECIRC VALVES
IICD:471	S/G B LONG PATH RECIRC VALVES
IICD:473	S/G A LONG PATH RECIRC VALVES
IICD:476	MAIN FEED PUMP HDR BYPASS VALVE
IICD:619	DA LEVEL CONTROL VALVE ISOLATION VALVE
IICD:621	DA LEVEL CONTROL VALVE ISOLATION VALVE
IICD:PMP	CONDENSER DUMP PUMP
IICD:V11	CONDENSER VACUUM PUMP 11
IICD:V12	CONDENSER VACUUM PUMP 12
IICD:V13	CONDENSER VACUUM PUMP 13
IICDR015	COND M/U VALVE LCV-7005 BYPASS
IICDR134	CONDENSER DUMP VALVE BYPASS VALVE
IICDR22A	COND RECIRC TO CONDENSER VALVE
IICDR22B	COND RECIRC TO CONDENSER VALVE
IICDRDP	CONDENSATE DEMINERALIZER DP
IICDX485	DA BLOWDOWN TO COND #13 VALVE
IICW:005	COND 11 SO. CW INLET VALVE

ADDENDUM 7

REMOTE FUNCTIONS (LOCAL OPERATOR ACTIONS) ACCEPTED FOR TRAINING/EXAMINATIONS
REFERENCE ANSI/ANS 3.5, 1985 SECTION 3.4.4
(Continued)

MNEMONIC	DESCRIPTION
IICW:007	COND 11 NO. CW INLET VALVE
IICW:009	COND 12 SO. CW INLET VALVE
IICW:011	COND 12 NO. CW INLET VALVE
IICW:013	COND 13 SO. CW INLET VALVE
IICW:015	COND 13 NO. CW INLET VALVE
IICW:018	COND 11 SO. COND OUTLET VALVE
IICW:020	COND 11 NO. COND OUTLET VALVE
IICW:022	COND 12 SO. COND OUTLET VALVE
IICW:024	COND 12 NO. COND OUTLET VALVE
IICW:026	COND 13 SO. COND OUTLET VALVE
IICW:028	COND 13 NO. COND OUTLET VALVE
IICW:DV1	CIRC PUMP 11 DISCHARGE VALVE
IICW:DV2	CIRC PUMP 12 DISCHARGE VALVE
IICW:DV3	CIRC PUMP 13 DISCHARGE VALVE
IICW:DV4	CIRC PUMP 14 DISCHARGE VALVE
IICW:P11	CIRC PUMP 11 LEVEL SWITCH PERMISSIVE
IICW:P12	CIRC PUMP 12 LEVEL SWITCH PERMISSIVE
IICW:P13	CIRC PUMP 13 LEVEL SWITCH PERMISSIVE
IICW:P14	CIRC PUMP 14 LEVEL SWITCH PERMISSIVE
IIEA:1F1	LC BUS 1F1 FEEDER BREAKER

ADDENDUM 7

REMOTE FUNCTIONS (LOCAL OPERATOR ACTIONS) ACCEPTED FOR TRAINING/EXAMINATIONS
REFERENCE ANSI/ANS 3.5, 1985 SECTION 3.4.4
(Continued)

MNEMONIC	DESCRIPTION
IIEA:1F2	LC BUS 1F2 FEEDER BREAKER
IIEA:1G1	LC BUS 1G1 FEEDER BREAKER
IIEA:1G2	LC BUS 1G2 FEEDER BREAKER
IIEA:1G5	MCC BUS 1G5 FEEDER BREAKER
IIEA:1H1	LC BUS 1H1 FEEDER BREAKER
IIEA:1H2	LC BUS 1H2 FEEDER BREAKER
IIEA:1J1	LC BUS 1J1 FEEDER BREAKER
IIEA:1J2	LC BUS 1J2 FEEDER BREAKER
IIEA:1K1	LC BUS 1K1 FEEDER BREAKER
IIEA:1K2	LC BUS 1K2 FEEDER BREAKER
IIEA:1L1	LC BUS 1L1 FEEDER BREAKER
IIEA:1L2	LC BUS 1L2 FEEDER BREAKER
IIEA:1N	L/C 1N SUPPLY BREAKER
IIEA:1P	L/C 1P SUPPLY BREAKER
IIEA:1R	L/C 1R SUPPLY BREAKER
IIEA:1T	L/C 1T SUPPLY BREAKER
IIEA:1U1	L/C 1U1 SUPPLY BREAKER
IIEA:1U2	L/C 1U2 SUPPLY BREAKER
IIEA:1W1	L/C 1W1 SUPPLY BREAKER
IIEA:1W2	L/C 1W2 SUPPLY BREAKER
IIEA:BOP	BOP DG BREAKER

ADDENDUM 7

REMOTE FUNCTIONS (LOCAL OPERATOR ACTIONS) ACCEPTED FOR TRAINING/EXAMINATIONS
REFERENCE ANSI/ANS 3.5, 1985 SECTION 3.4.4
(Continued)

MNEMONIC	DESCRIPTION
IIEA:DG	DG TROUBLE ANNUNICATOR LOCAL RESET
IIEA:MA1	ESF MCC BUS E1A1 FEEDER BREAKER
IIEA:MA2	ESF MCC BUS E1A2 FEEDER BREAKER
IIEA:MA23	ESF MCC BUS E1A3 FEEDER BREAKER
IIEA:MA5	ESF MCC BUS E1A5 FEEDER BREAKER
IIEA:MB1	ESF MCC BUS E1B1 FEEDER BREAKER
IIEA:MB1	ESF MCC BUS E1B2 FEEDER BREAKER
IIEA:MB3	ESF MCC BUS E1B3 FEEDER BREAKER
IIEA:MB3	ESF MCC BUS E1B3 FEEDER BREAKER
IIEA:MB5	ESF MCC BUS E1B5 FEEDER BREAKER
IIEA:MC1	ESF MCC BUS E1C1 FEEDER BREAKER
IIEA:MC1	ESF MCC BUS E1C2 FEEDER BREAKER
IIEA:MC3	ESF MCC BUS E1C3 FEEDER BREAKER
IIEA:MC3	ESF MCC BUS E1C3 FEEDER BREAKER
IIEA:MC5	ESF MCC BUS 1C5 FEEDER BREAKER
IIEA:MF1	MCC BUS 1F1 FEEDER BREAKER
IIEA:MK1	ESF MCC BUS 1K1 FEEDER BREAKER
IIEA:MK2	ESF MCC BUS 1K2 FEEDER BREAKER
IIEA:ML1	ESF MCC BUS 1L1 FEEDER BREAKER
IIEA:TBF	LC 1F1/1F2 TIE BREAKER
IIEA:TBG	LC 1G1/1G2 TIE BREAKER

ADDENDUM 7

REMOTE FUNCTIONS (LOCAL OPERATOR ACTIONS) ACCEPTED FOR TRAINING/EXAMINATIONS
REFERENCE ANSI/ANS 3.5, 1985 SECTION 3.4.4
(Continued)

MNEMONIC	DESCRIPTION
IIEA:TBH	LC 1H1/1H2 TIE BREAKER
IIEA:TBJ	LC 1J1/1J2 TIE BREAKER
IIEA:TBK	LC 1K1/1K2 TIE BREAKER
IIEA:TBL	LC 1L1/1L2 TIE BREAKER
IIEA:TBU	LC 1F1/1U2 TIE BREAKER
IIEA:BE1	E1-I BATTERY SUPPLY BREAKER
IIED:BE2	E1-II BATTERY SUPPLY BREAKER
IIED:BE3	E1-III BATTERY SUPPLY BREAKER
IIED:BE4	E1-IV BATTERY SUPPLY BREAKER
IIXX:XFR	TRANSFER SWITCH(ES) FROM CONTROL ROOM TO AUX SHUTDOWN PANEL
IIAF:012	AFW PUMP 14 DISCH ISOL VALVE
IIAF:014	AFW PUMP 14 DISCH ISOL VALVE
IIAF:037	AFW PUMP 14 REC VLV TO AFWST
IIAF:040	AFW PUMP 11 REC VLV TO AFWST
IIAF:041	AFW PUMP 11 DISCH ISOL VALVE
IIAF:042	AFW PUMP 11 DISCH ISOL VALVE
IIAF:059	AFW PUMP 12 DISCH ISOL VALVE
IIAF:061	AFW PUMP 12 DISCH ISOL VALVE
IIAF:070	AFW PUMP 12 REC VLV TO AFWST
IIAF:078	AFW PUMP 13 DISCH ISOL VALVE

ADDENDUM 7

REMOTE FUNCTIONS (LOCAL OPERATOR ACTIONS) ACCEPTED FOR TRAINING/EXAMINATIONS
REFERENCE ANSI/ANS 3.5, 1985 SECTION 3.4.4
(Continued)

MNEMONIC	DESCRIPTION
IIAF:080	AFW PUMP 13 DISCH ISOL VALVE
IIAF:092	AFW PMP 13 REC VLV TO AFWST
IIAF:515	AFW X-CONN FROM PUMP 13
IIAF:516	AFW X-CONN FROM PUMP 12
IIAF:517	AFW X-CONN FROM PUMP 12
IIAF:518	AFW X-CONN FROM PUMP 14
IIAF:FST	AFWST FILL VALVE FRM DEMIN
IICC:231	MAN M/U TO CCW SRG TNK VLV
IICCN009	CCW PUMP A TO HDR ISOL VLV
IICCN120	CCW PUMP B TO HDR ISOL VLV
IICCN179	CCW PUMP C TO HDR ISOL VLV
IIEC:128	ECW INLET VLV TO CCW HX A
IIEC:180	ECW INLET VLV TO CCW HX C
IIEC:181	ECW INLET VLV TO CCW HX B
IIEL:DG1	STBY DIESEL GEN 11 CNTRL XFR
IIEL:DG2	STBY DIESEL GEN 12 CNTRL XFR
IIEL:DG3	STBY DIESEL GEN 13 CNTRL XFR
IIES:356	HI RADIATION ACTUATION TEST
IIES:357	HI RADIATION ACTUATION TEST
IIES:358	HI RADIATION ACTUATION TEST
IIES:480	HI RADIATION ACTUATION TEST

ADDENDUM 7

REMOTE FUNCTIONS (LOCAL OPERATOR ACTIONS) ACCEPTED FOR TRAINING/EXAMINATIONS
REFERENCE ANSI/ANS 3.5, 1985 SECTION 3.4.4
(Continued)

MNEMONIC	DESCRIPTION
IIES:481	HI RADIATION ACTUATION TEST
IIES:482	HI RADIATION ACTUATION TEST
IIES:LA1	SPRAY ACT BYPASS TEST CH 1
IIES:LA2	SPRAY ACT BYPASS TEST CH 2
IIES:LA3	SPRAY ACT BYPASS TEST CH 3
IIES:LA4	SPRAY ACT BYPASS TEST CH 4
IIES:RS1	DG #1 LD SEQNCR LOCAL RESET
IIES:RS2	DG #2 LD SEQNCR LOCAL RESET
IIES:RS3	DG #3 LD SEQNCR LOCAL RESET
IIAC:105	SUCTION VALVE FOR EMERGENCY COOLING OF AIR COMPRESSOR
IIAC:EAP	AIR COMPRESSOR EMERGENCY COOLING PUMP
IIGS:AXA	GLAND STEAM AIR EXHAUSTER "A"
IIGS:AXB	GLAND STEAM AIR EXHAUSTER "B"
IIIA:FDB	INSTRUMENT AIR FILTER/DRYER BYPASS VALVE
IIIA:I11	INSTRUMENT AIR COMPRESSOR #11
IIIA:I12	INSTRUMENT AIR COMPRESSOR #12
IIIA:IAC	STATION AIR TO INSTRUMENT AIR CROSS-CONNECT VALVE
IIIA:S11	STATION AIR COMPRESSOR #11
IIIA:S12	STATION AIR COMPRESSOR #12
IIIARAAP	% PLUGGING OF INSTRUMENT AIR AFTER FILTER

ADDENDUM 7

REMOTE FUNCTIONS (LOCAL OPERATOR ACTIONS) ACCEPTED FOR TRAINING/EXAMINATIONS
REFERENCE ANSI/ANS 3.5, 1985 SECTION 3.4.4
(Continued)

MNEMONIC	DESCRIPTION
IIIARAPP	% PLUGGING OF INSTRUMENT AIR PRE-FILTER
IIHVRCWT	CIRCULATING WATER TEMPERATURE
IIHVROAT	OUTSIDE AIR TEMPERATURE
IIES:LB2	S/G HI-HI BISTABLE "B" CHANNEL 2
IIES:LB3	S/G HI-HI BISTABLE "B" CHANNEL 3
IIES:LD2	S/G HI-HI BISTABLE "C" CHANNEL 2
IIES:LD3	S/G HI-HI BISTABLE "C" CHANNEL 3
IIRP:003	S/G LO-LO BISTABLE "A" CHANNEL 2
IIRP:034	S/G LO-LO BISTABLE "B" CHANNEL 3
IIRP035	S/G LO-LO BISTABLE "B" CHANNEL 2
IIRP:036	S/G LO-LO BISTABLE "B" CHANNEL 3
IIRP:037	IMPULSE PRESSURE TO P-13 CHANNEL 1
IIRP:038	C-5 INPUT FROM PT-505
IITU:BLK	BLOCK AMSAC TURBINE TRIP
IITU:RET	REMOTE TURBINE TRIP

ADDENDUM 8

MANUAL RX TRIP TRANSIENT TEST DATA

1.0 Discussion

The intent of the transient test is to verify simulator performance. Transients must be capable of continuing until such time that a stable, controllable and safe condition is attained which can be continued to a cold shutdown condition or until the simulator operating limits are exceeded.

2.0 Reference(s)

2.1 ANSI/ANS-3.5, 1985, 4.2.1, 4.3, A.3.3 ANS NPP Simulators For Use In Operator Training.

2.2 Reg. Guide 1.149, Nuclear Power Plant Simulation Facilities For Use In Operator License Examinations.

3.0 Equipment

3.1 None

4.0 Initial conditions

4.1 Initial conditions (ICs) will be as stated in procedure.

5.0 Acceptance criteria

5.1 Acceptance criteria shall be that which is stated in ANSI/ANS 3.1, 1985, Section 4.2 (Transient operation).

6.0 Non-acceptance of simulator results

6.1 Simulator results do not have to parallel source data. However, observable differences, differences that would detract from positive training, and differences declared unacceptable by evaluation based on acceptance criteria, will not be used for routine training without instructor intervention to discuss proper response. Unacceptable transients will not be used for examinations without real-time dry-runs of each scenario.

7.0 Procedure

Note: After initiation of transient, <u>operators are to take no followup actions unless otherwise noted</u>.

Note: All transients are to be carried to a stable plant condition.

ADDENDUM 8

MANUAL RX TRIP TRANSIENT TEST DATA
(continued)

7.1 Perform the following transients

7.1.1 Manual RX trip

A. Initialize to 100% (IC-16)

B. Manually trip reacto"

C. Run for 5 minutes

D. Freeze simulator

E. Collect data as per Tableau 1.

F. Repeat steps C thru E until stable plant conditions are reached.

G. Record number of times data was taken.

Complete SAT
UNSAT

ADDENDUM 8

MANUAL RX TRIP TRANSIENT TEST DATA

MANUAL REACTOR TRIP FROM 100% POWER

The simulator was initialized to 100% steady state power (IC-16) and a manual reactor trip was initiated. No operator follow-up actions were taken. The reactor trip was initiated approximately five seconds after data collection was started. The parameters listed in ANSI/ANS-3.5, 1985 Appendix B-B2.2.1 were collected for fifteen minutes with a time resolution of one half Second.

The test data, required to be collected by ANSI/ANS 3.5, 1985, Appendix B, was reviewed by a panel of experts. The individuals and their qualifications are listed in Section 10 (Simulator Performance Test).

The test data was compared to reference plant RETRAN curves and each parameter was analyzed to determine if the acceptance criteria as stated in ANSI/ANS 3.5, 1985 Section 4.2 (Transient Operation) was met. The following are the results of this review:

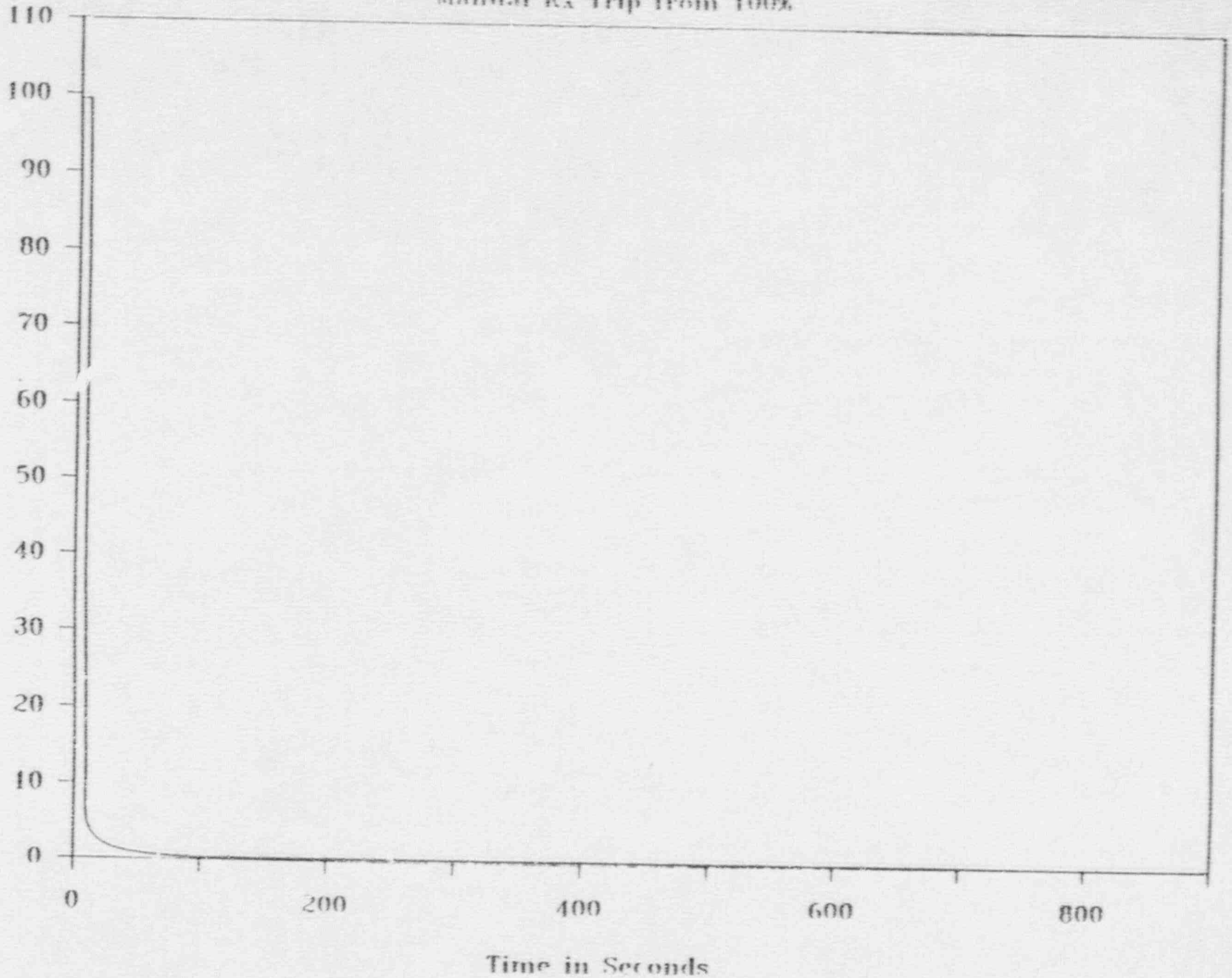
TEST RESULTS

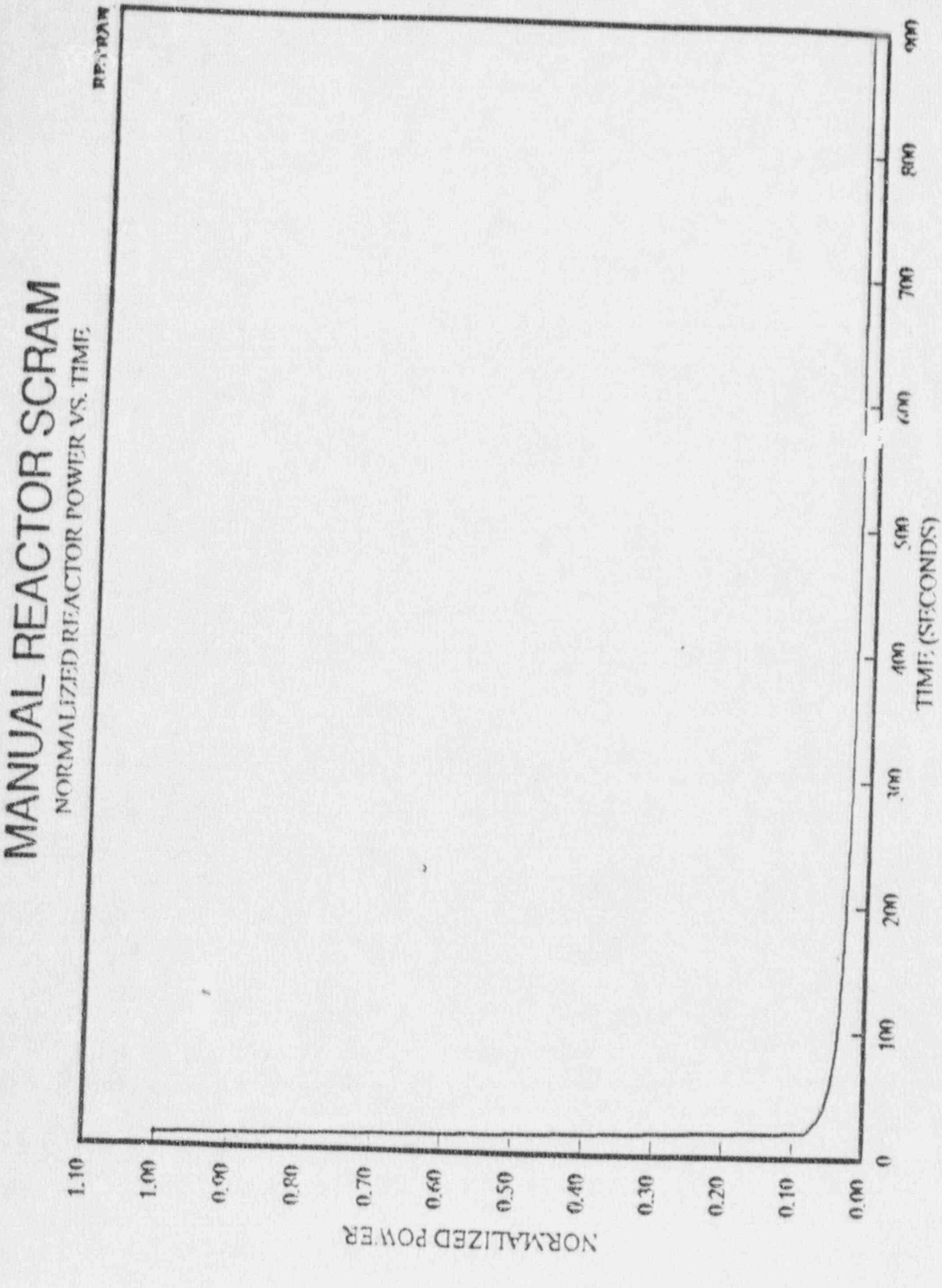
Several discrepancies were identified associated with this transient. It was the consensus of the panel that the parameters trended in the appropriate direction, however, the magnitude of change was not correct. The S/G dynamic response was identified as the root cause.

It is anticipated that, at the completion of the simulator upgrade project, all identified discrepancies associated with this transient will be corrected. See Section 12 for the Simulator Upgrade Plan and Schedule.

STPEGS Simulator Transient Plot

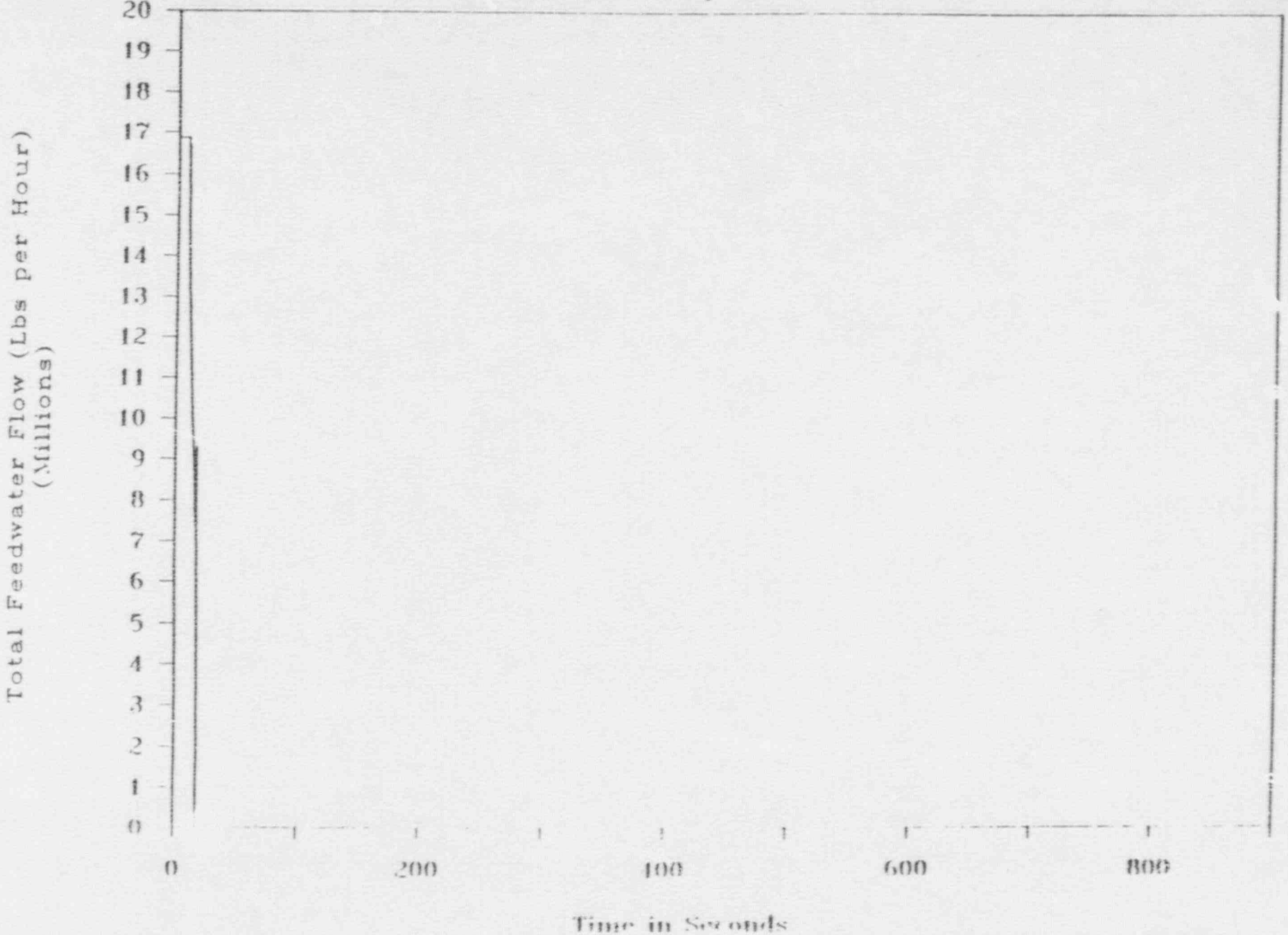
Manual Rx Trip from 100%




MANUAL REACTOR SCRAM
NORMALIZED REACTOR POWER VS. TIME
NORMALIZED POWER
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
0
100
200
300
400
500
600
700
800
900
TIME (SECONDS)

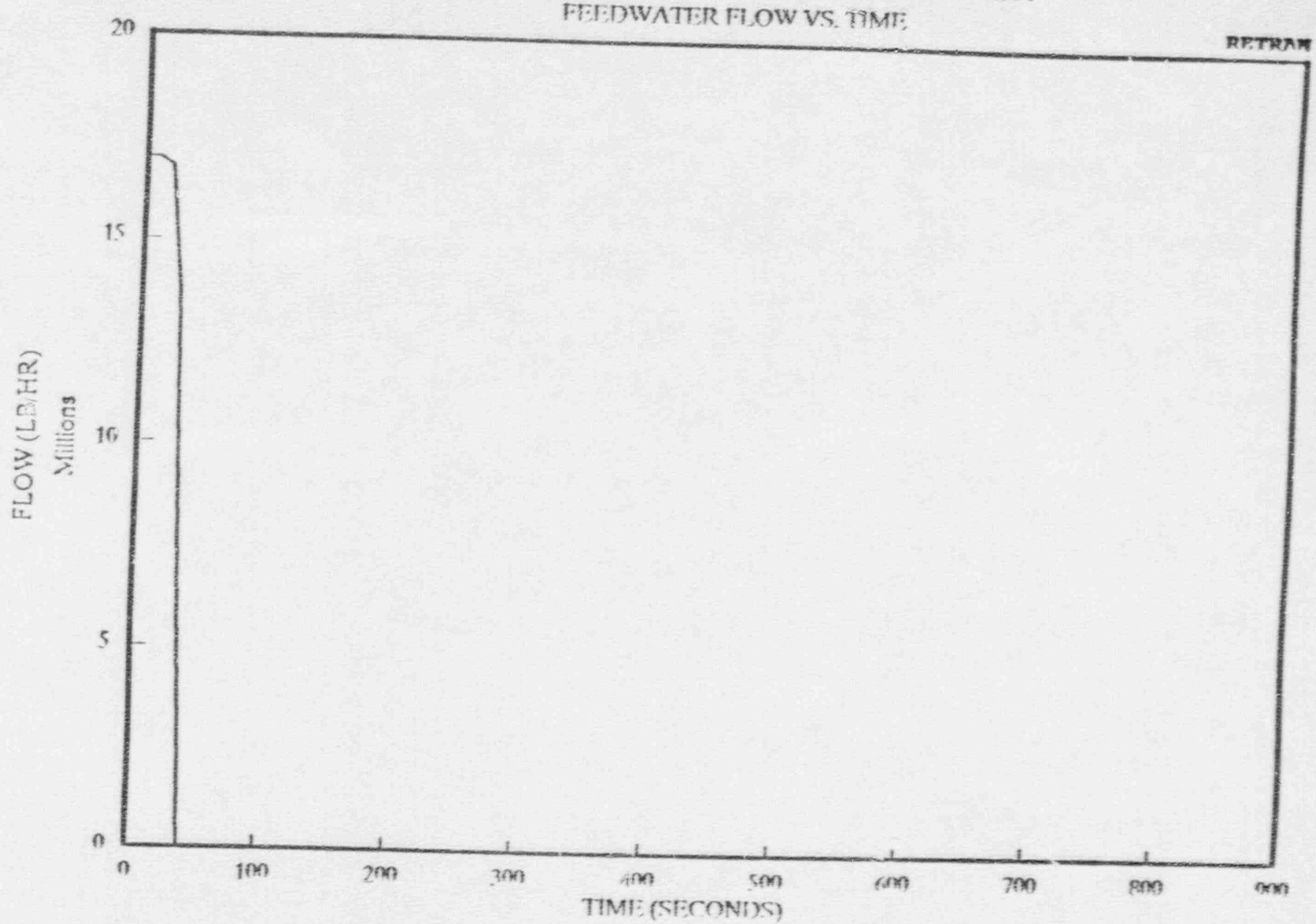
STPEGS Simulator Transient Plot

Manual Rx Trip from 100%



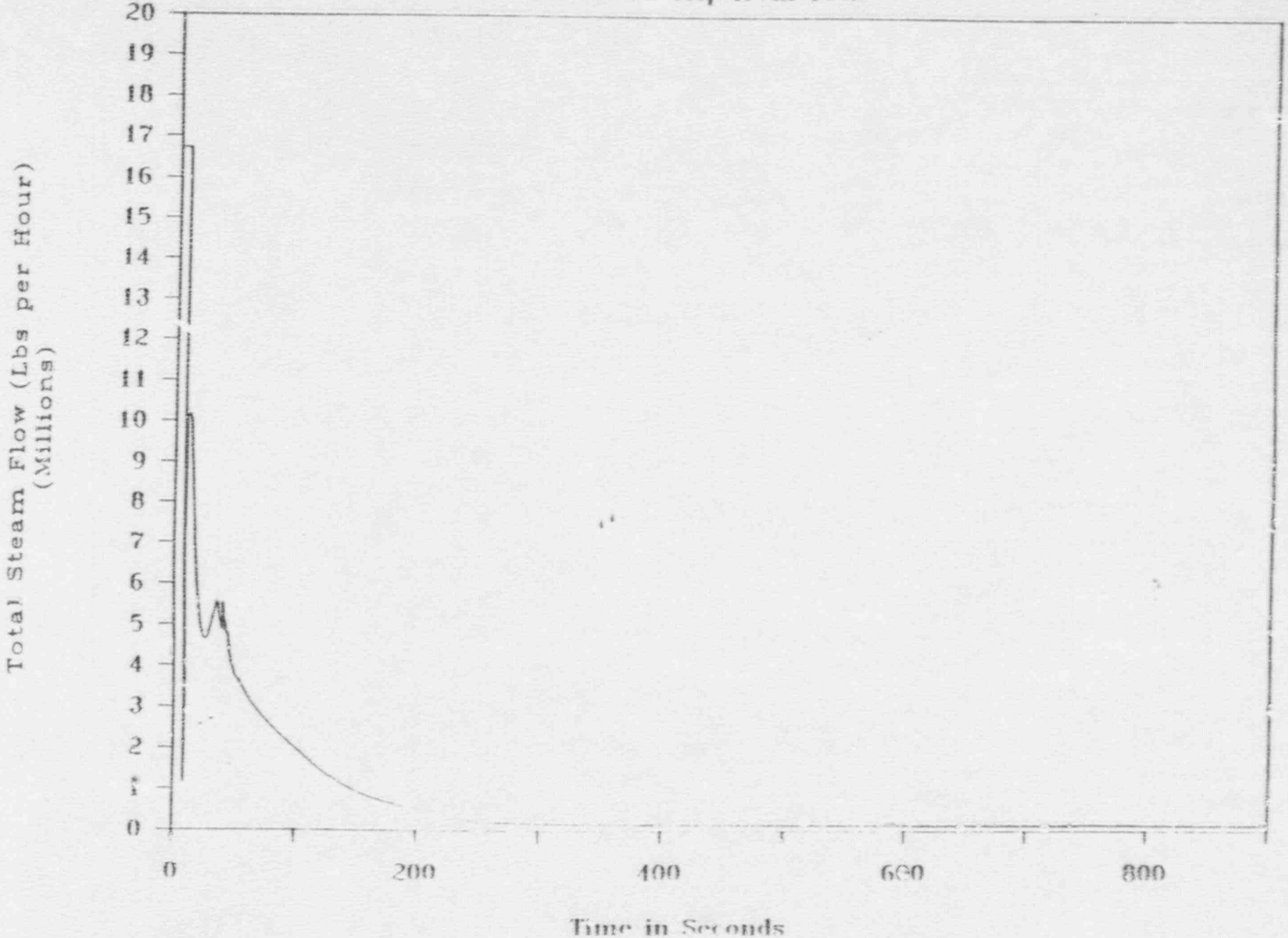
MANUAL REACTOR SCRAM

FEEDWATER FLOW VS. TIME



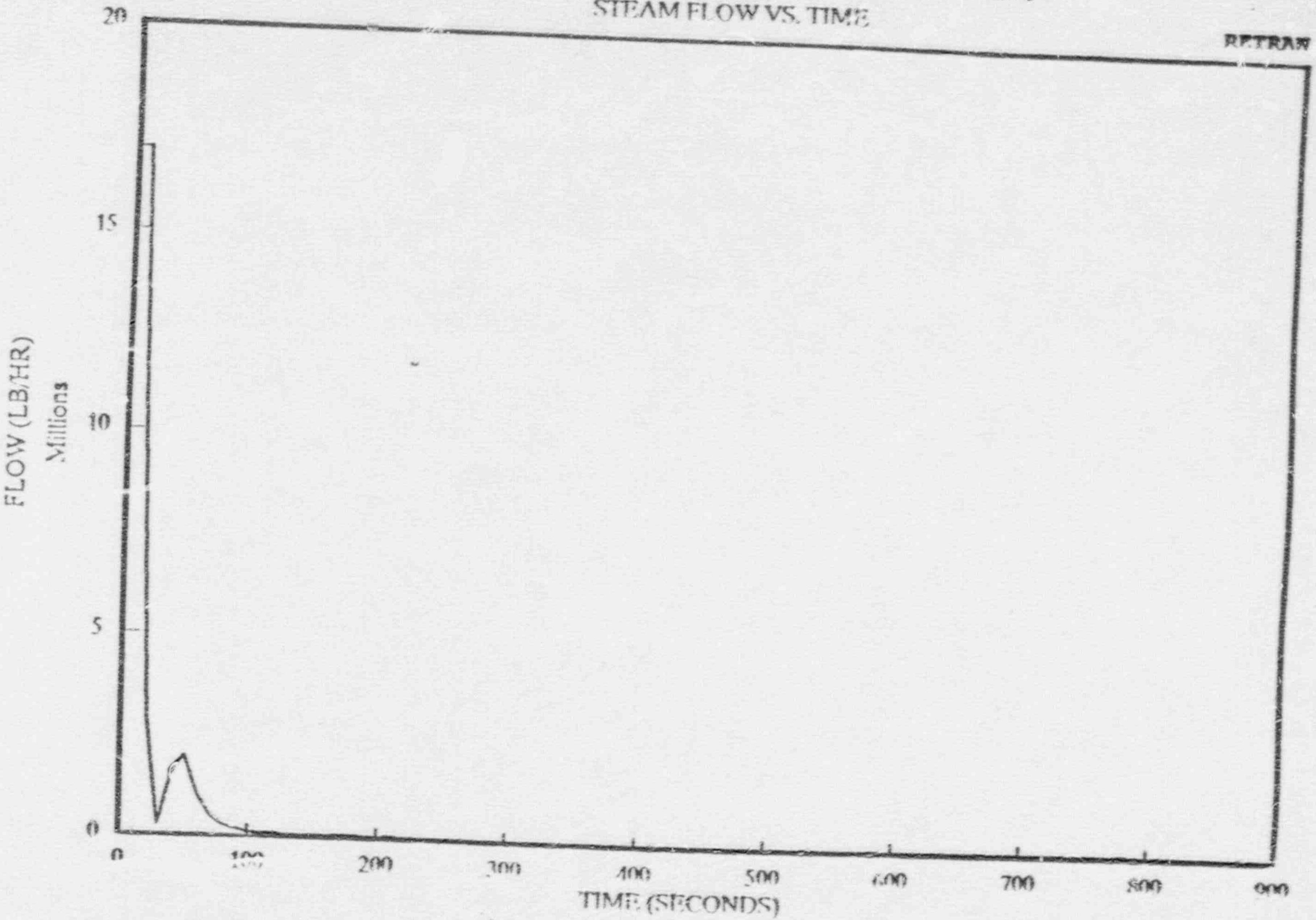
STPEGS Simulator Transient Plot

Manual Rx Trip from 100%



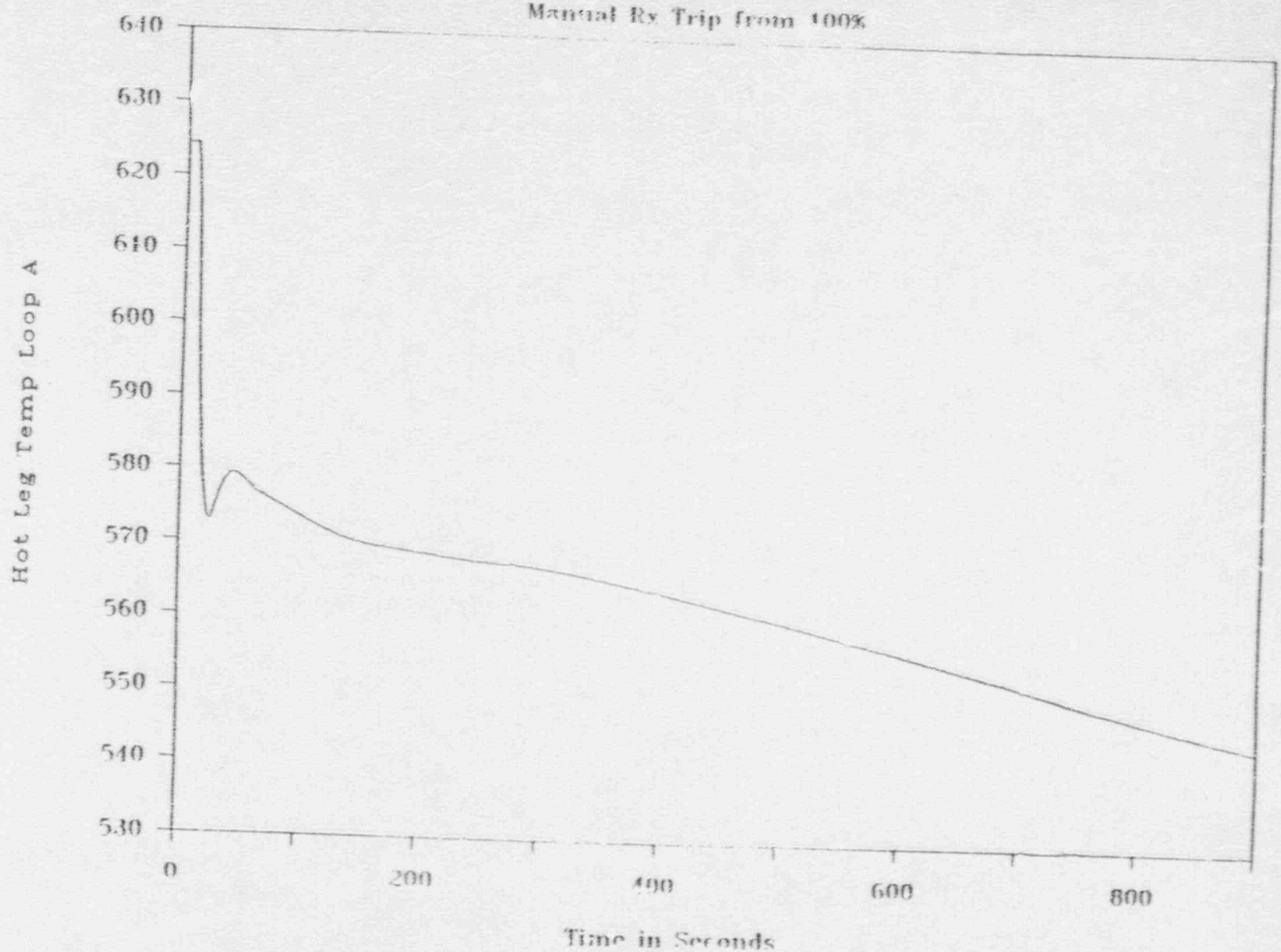
MANUAL REACTOR SCRAM

STEAM FLOW VS. TIME



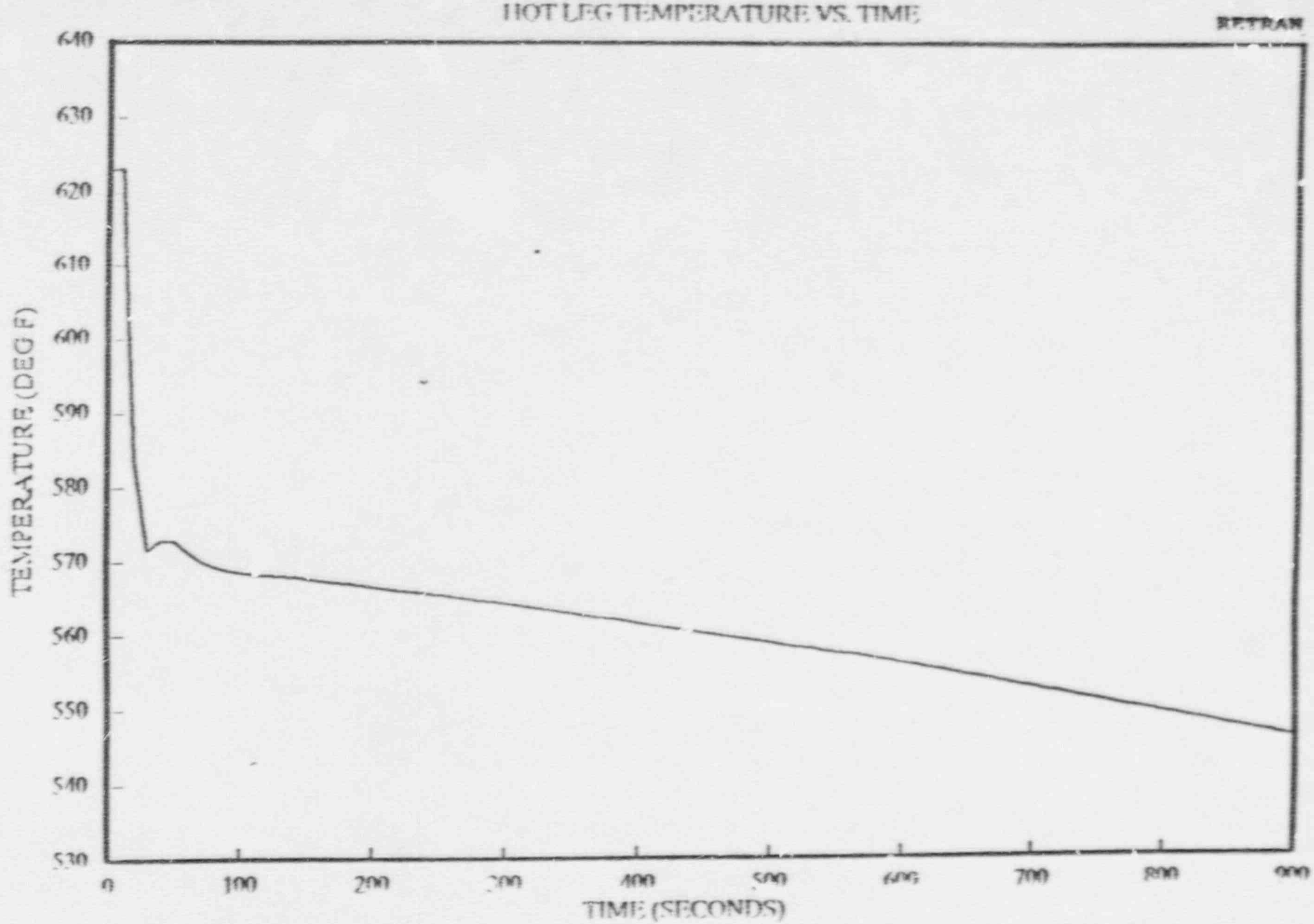
STPEGS Simulator Transient Plot

Manual Rx Trip from 100%



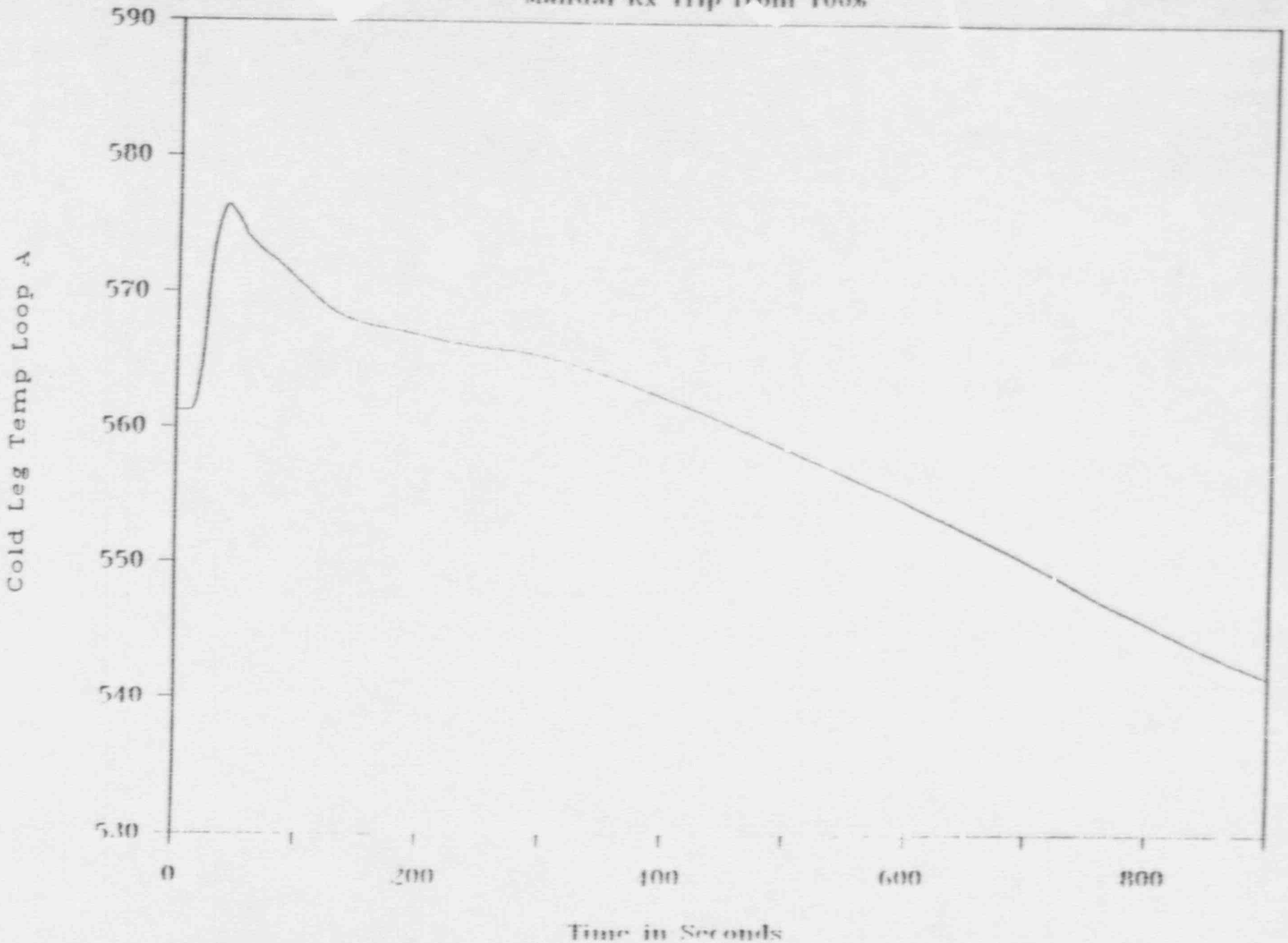
MANUAL REACTOR SCRAM

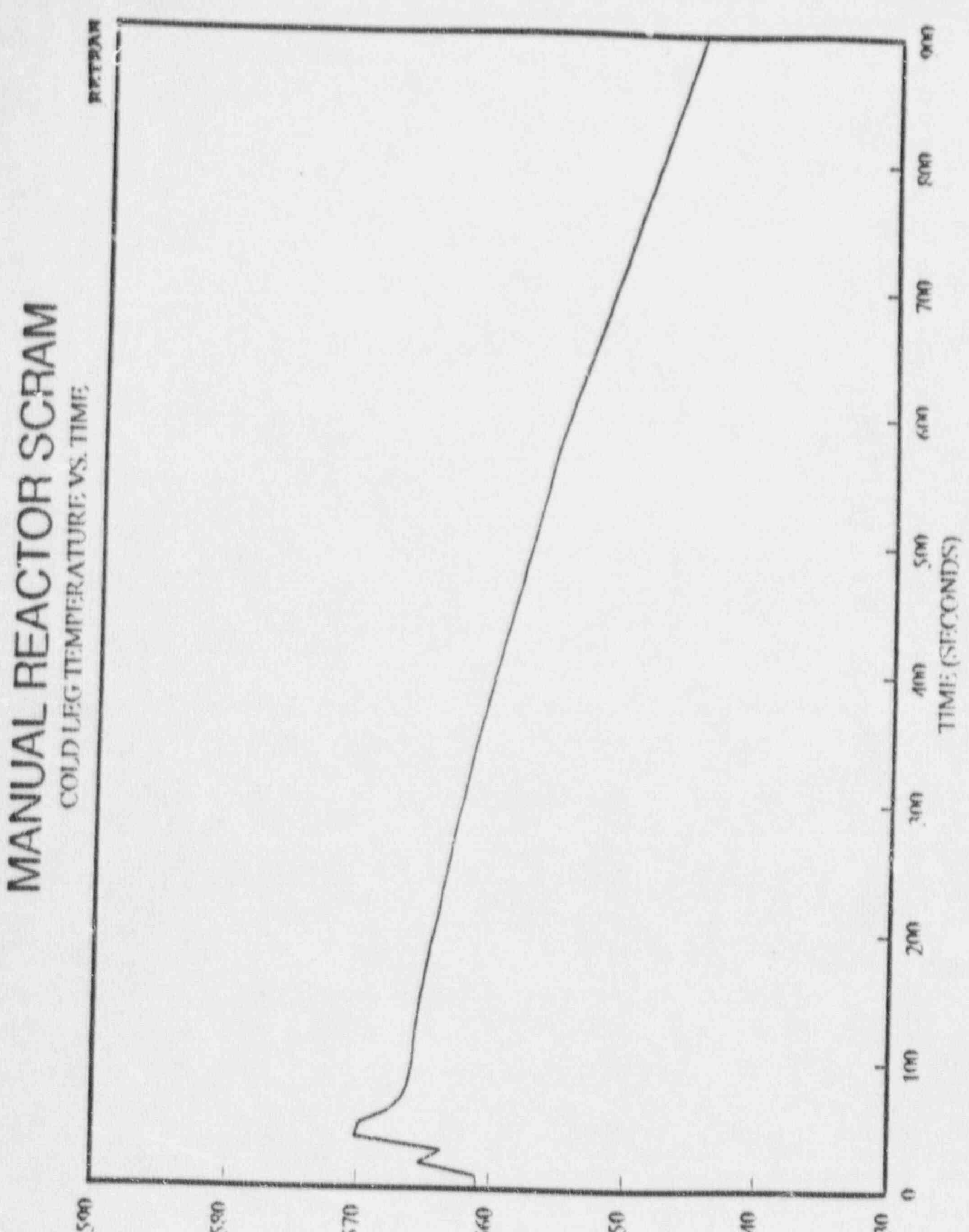
HOT LEG TEMPERATURE VS. TIME



STPEGS Simulator Transient Plot

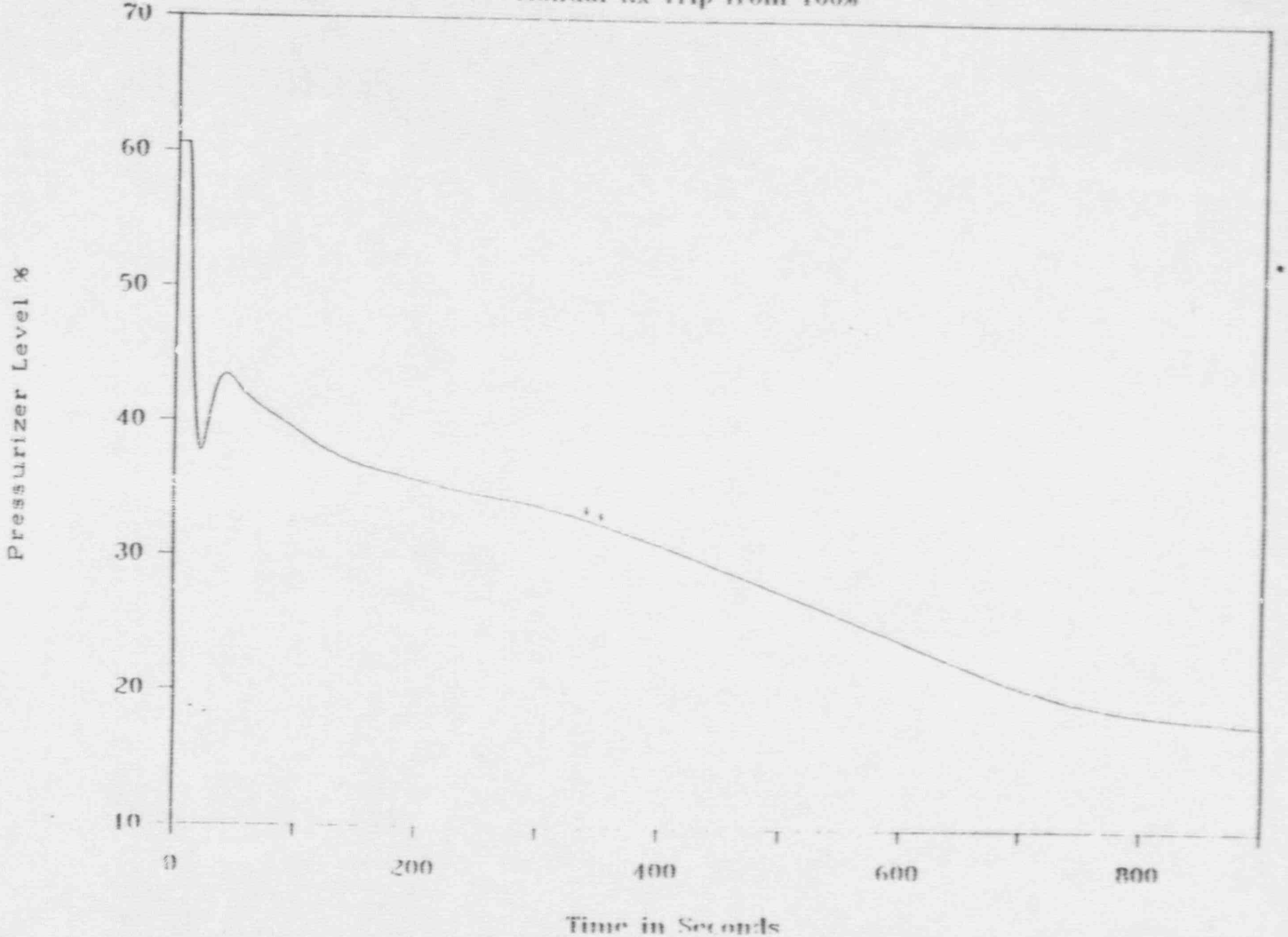
Manual Rx Trip from 100%




MANUAL REACTOR SCRAM
COLD LEG TEMPERATURE VS. TIME
TEMPERATURE (DEG F)
TIME (SECONDS)
RETRAN
530
540
550
560
570
580
590
0
100
200
300
400
500
600
700
800
900

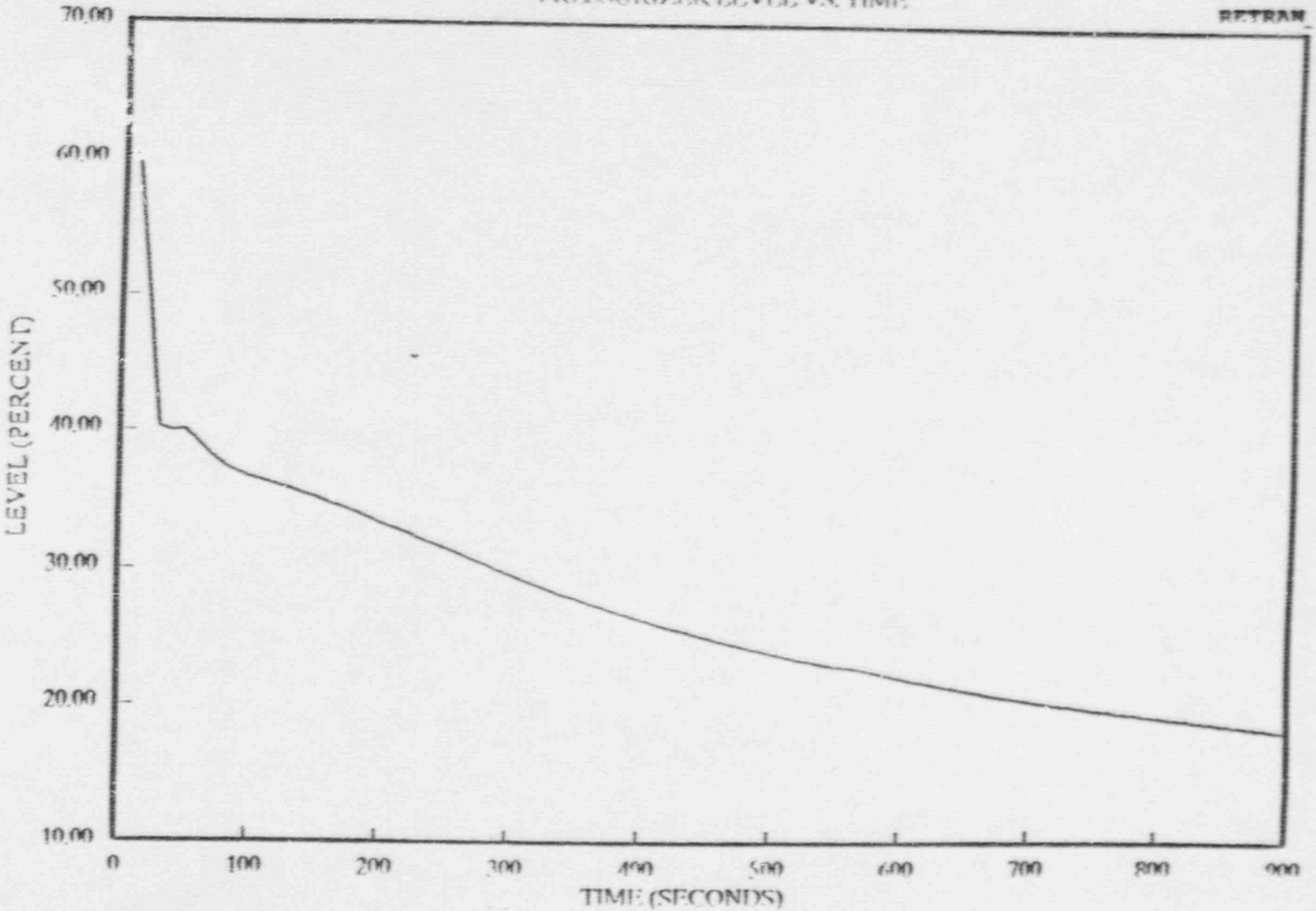
STPEGS Simulator Transient Plot

Manual Rx Trip from 100%



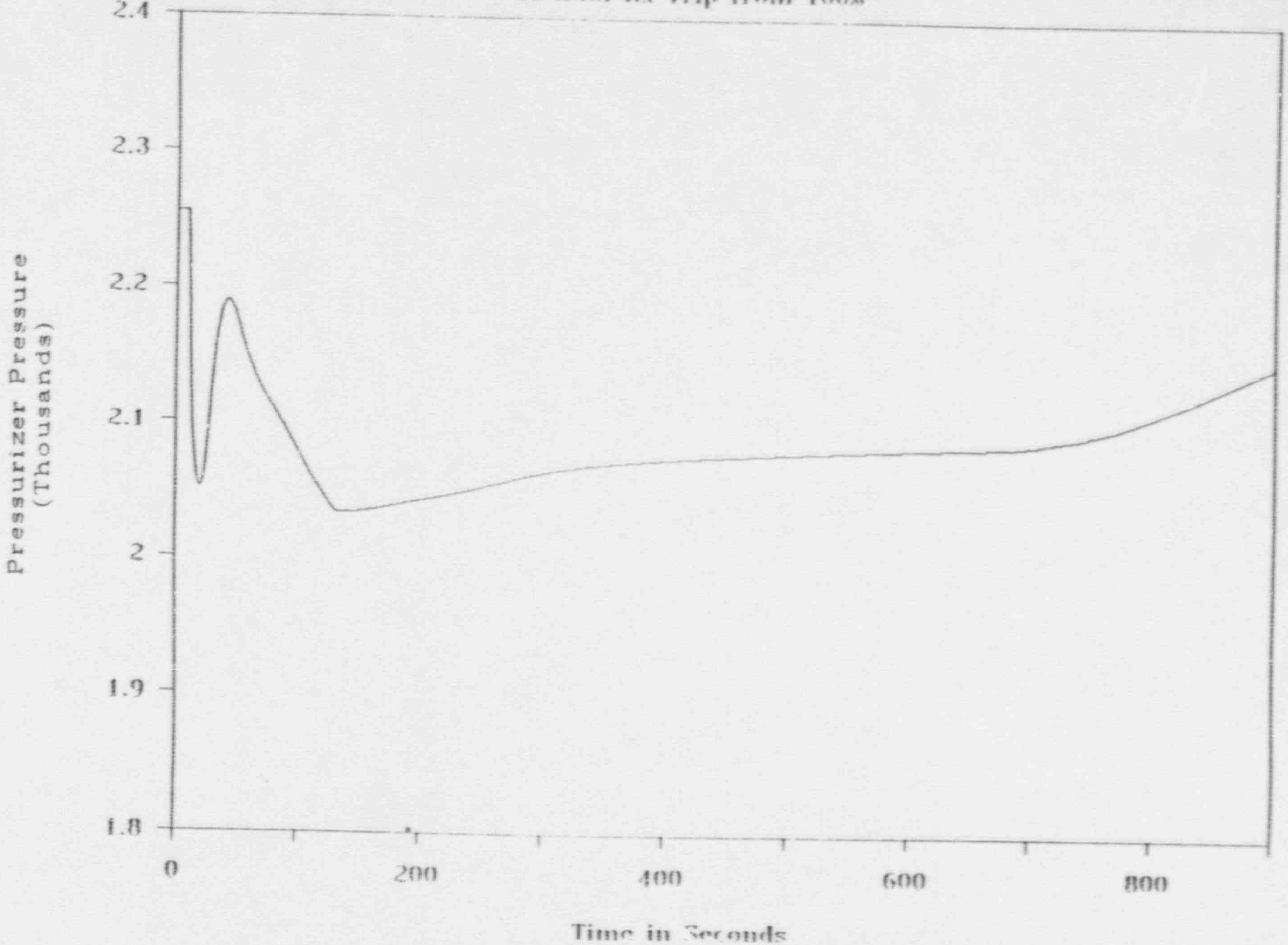
MANUAL REACTOR SCRAM

PRESSURIZER LEVEL VS. TIME

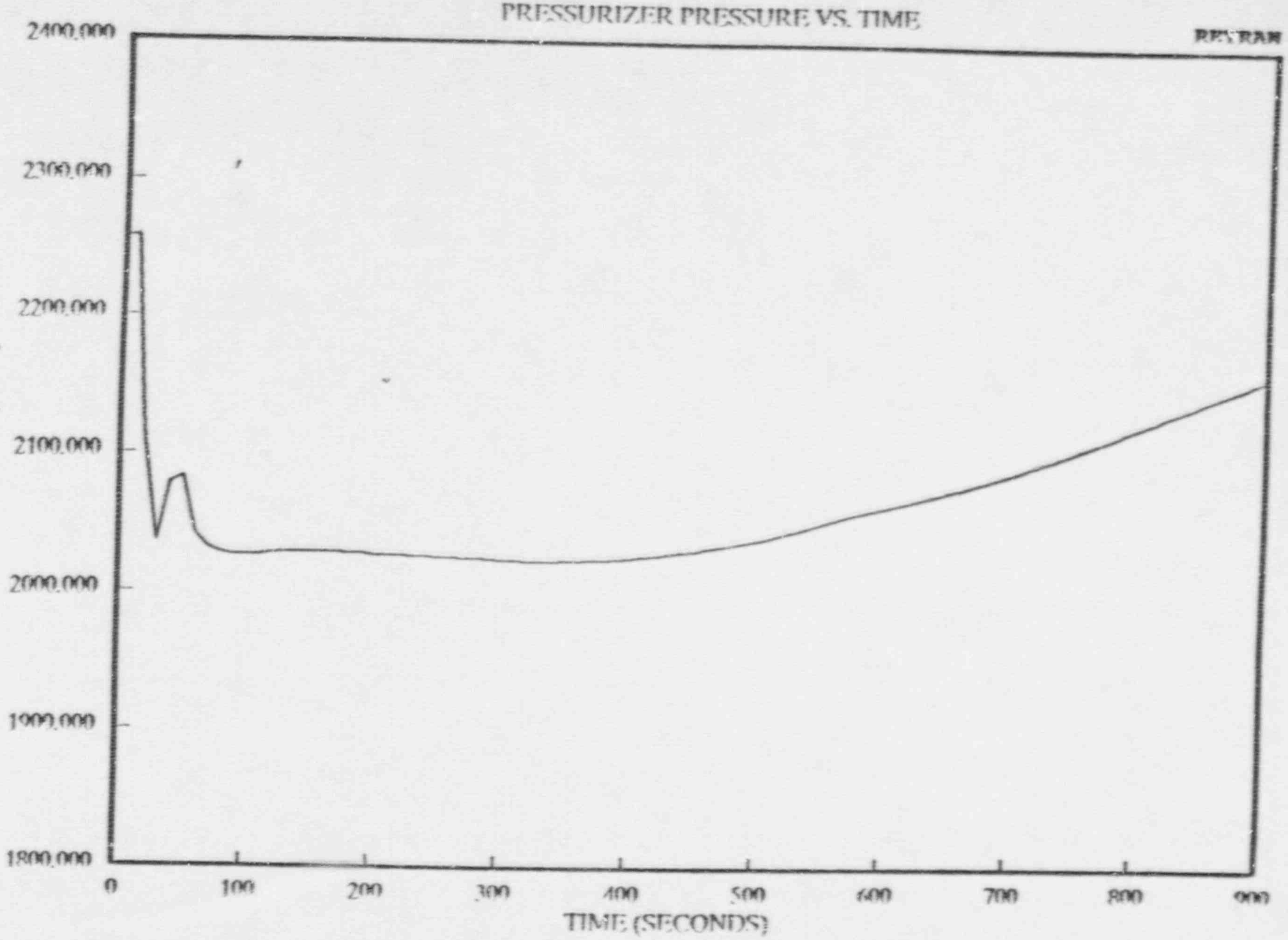


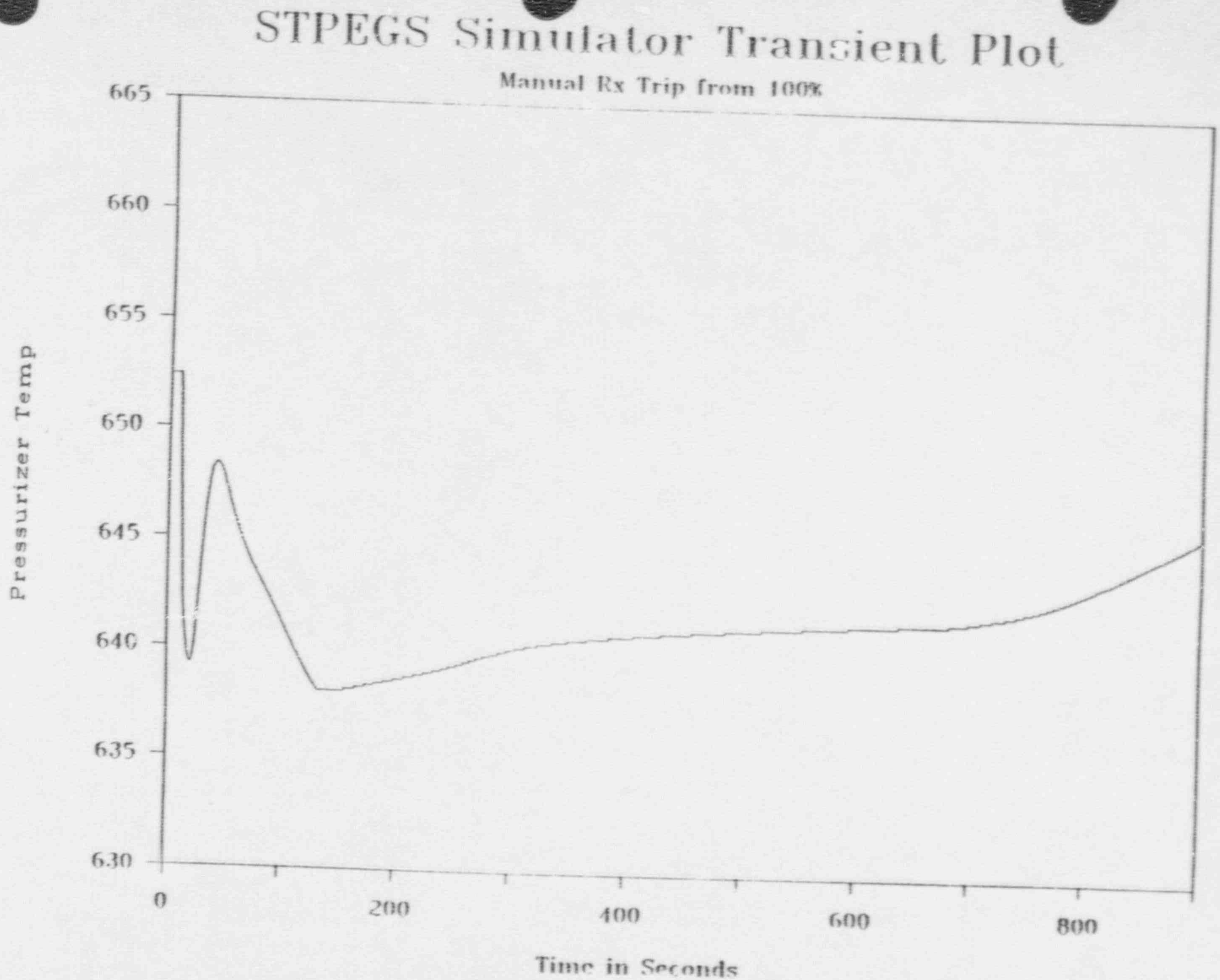
STPEGS Simulator Transient Plot

Manual Rx Trip from 100%



MANUAL REACTOR SCRAM

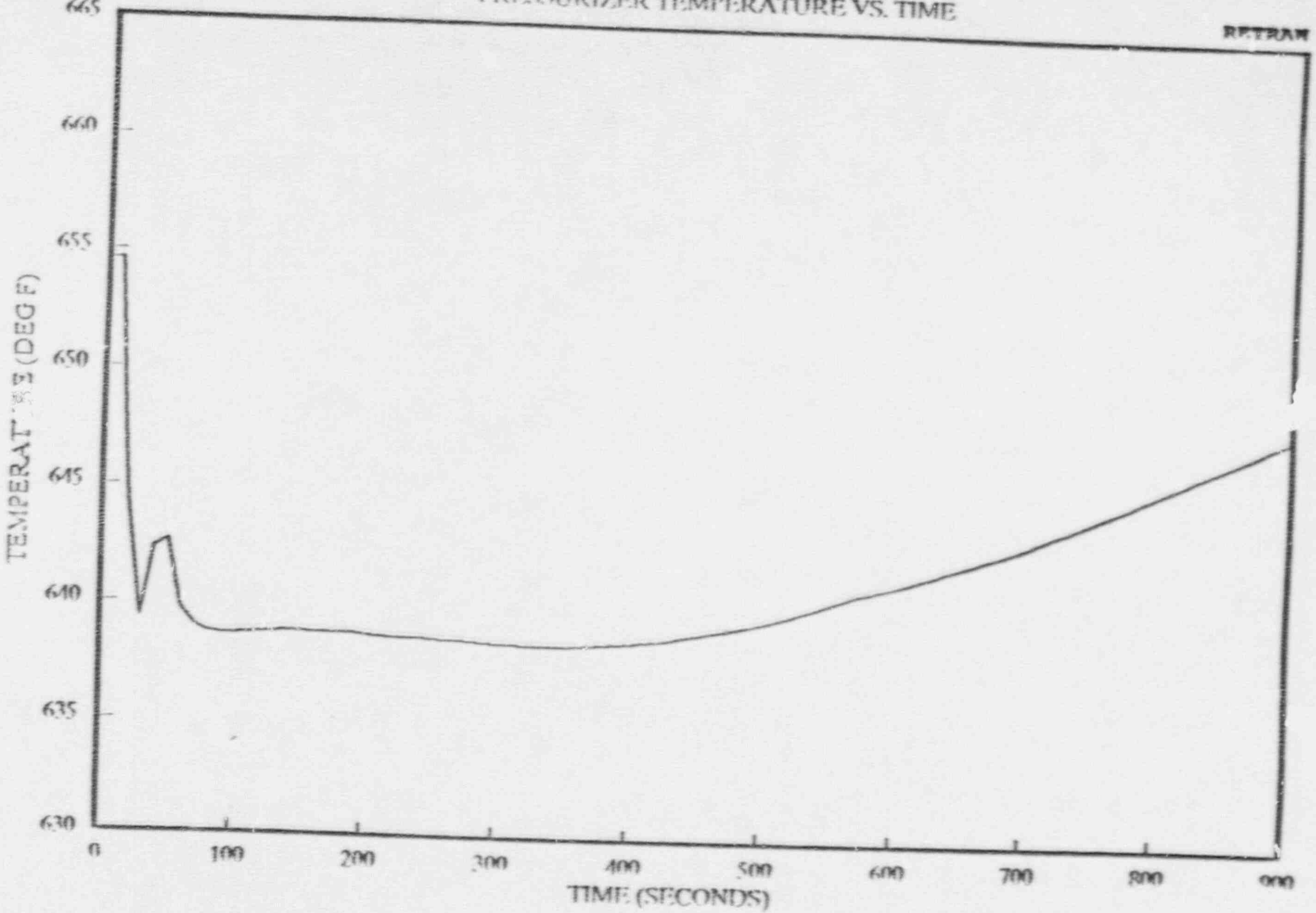




STPEGS Simulator Transient Plot
Manual Rx Trip from 100%
Pressurizer Temp
665
660
655
650
645
640
635
630
0
200
400
600
800
Time in Seconds

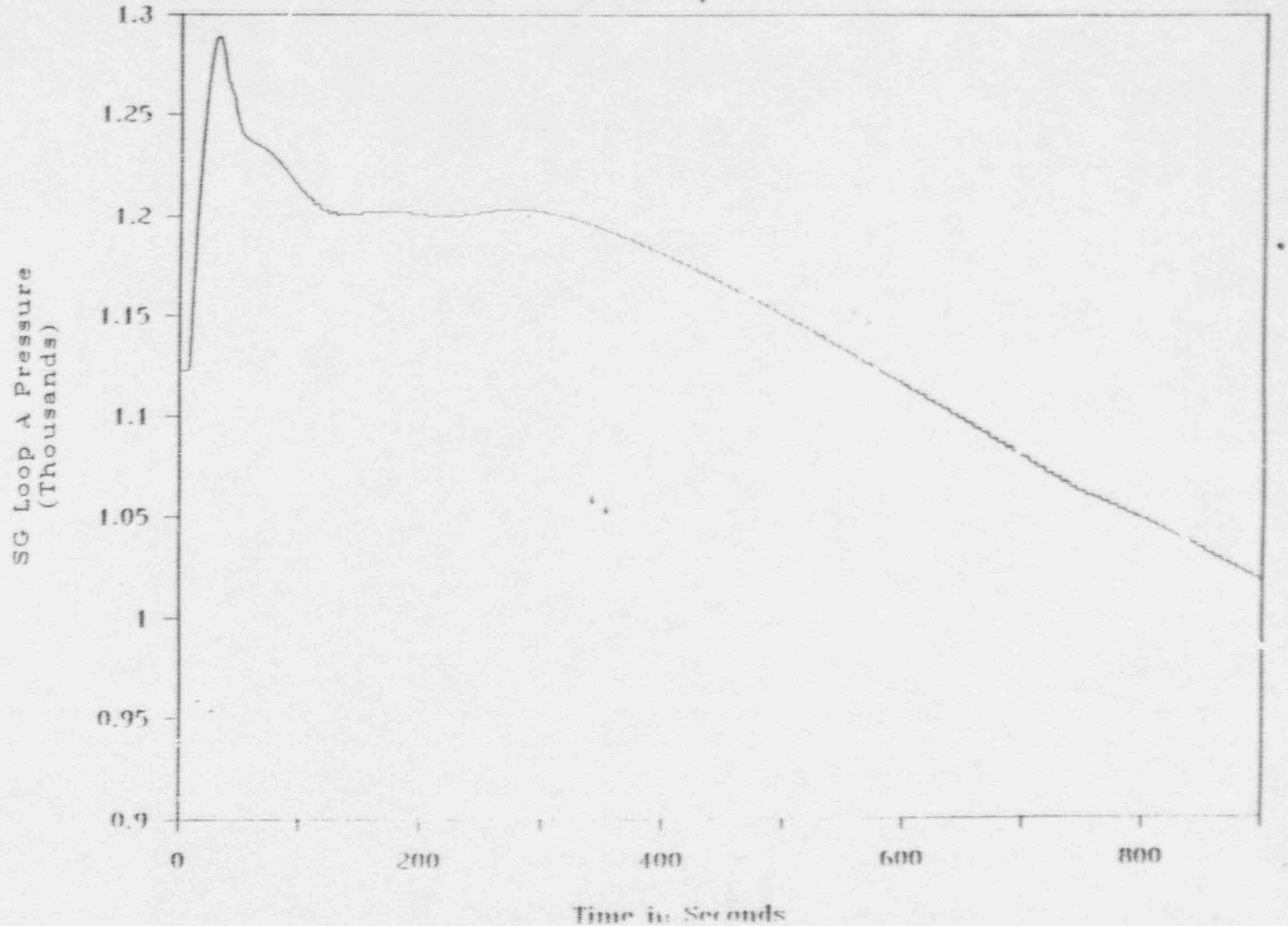
MANUAL REACTOR SCRAM

PRESSURIZER TEMPERATURE VS. TIME



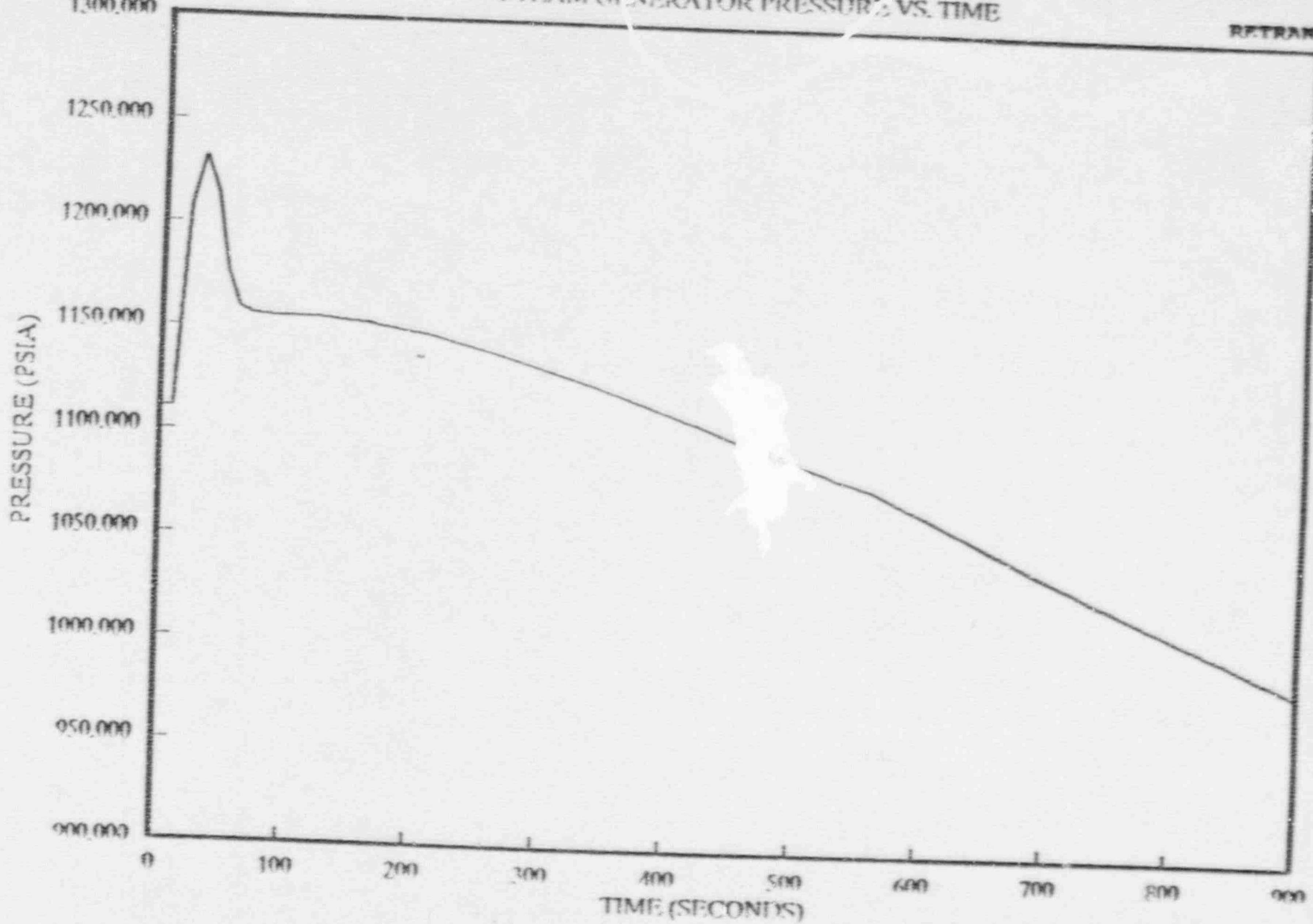
STPEGS Simulator Transient Plot

Manual Rx Trip from 100%



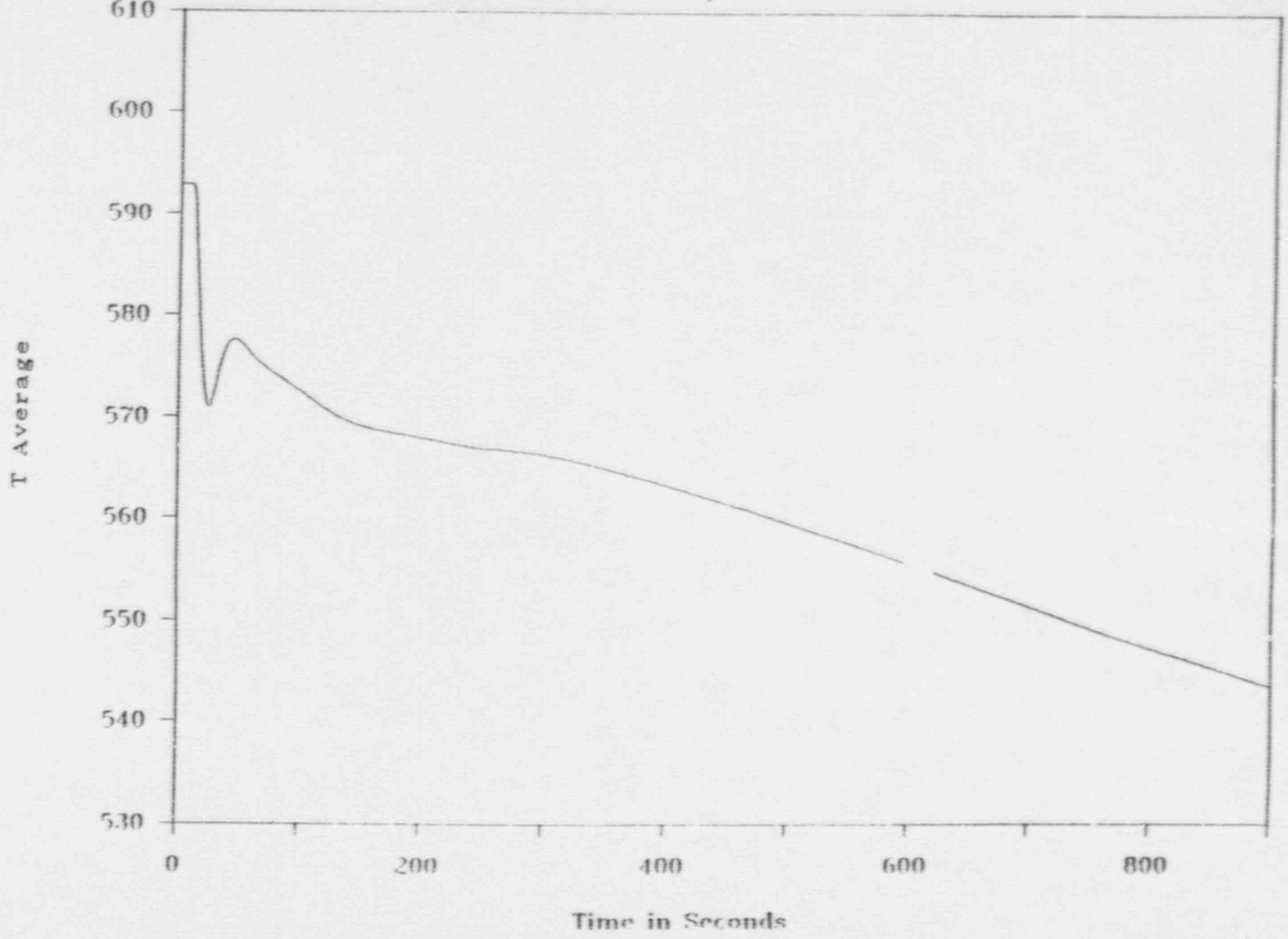
MANUAL REACTOR SCRAM

STEAM GENERATOR PRESSURE VS. TIME



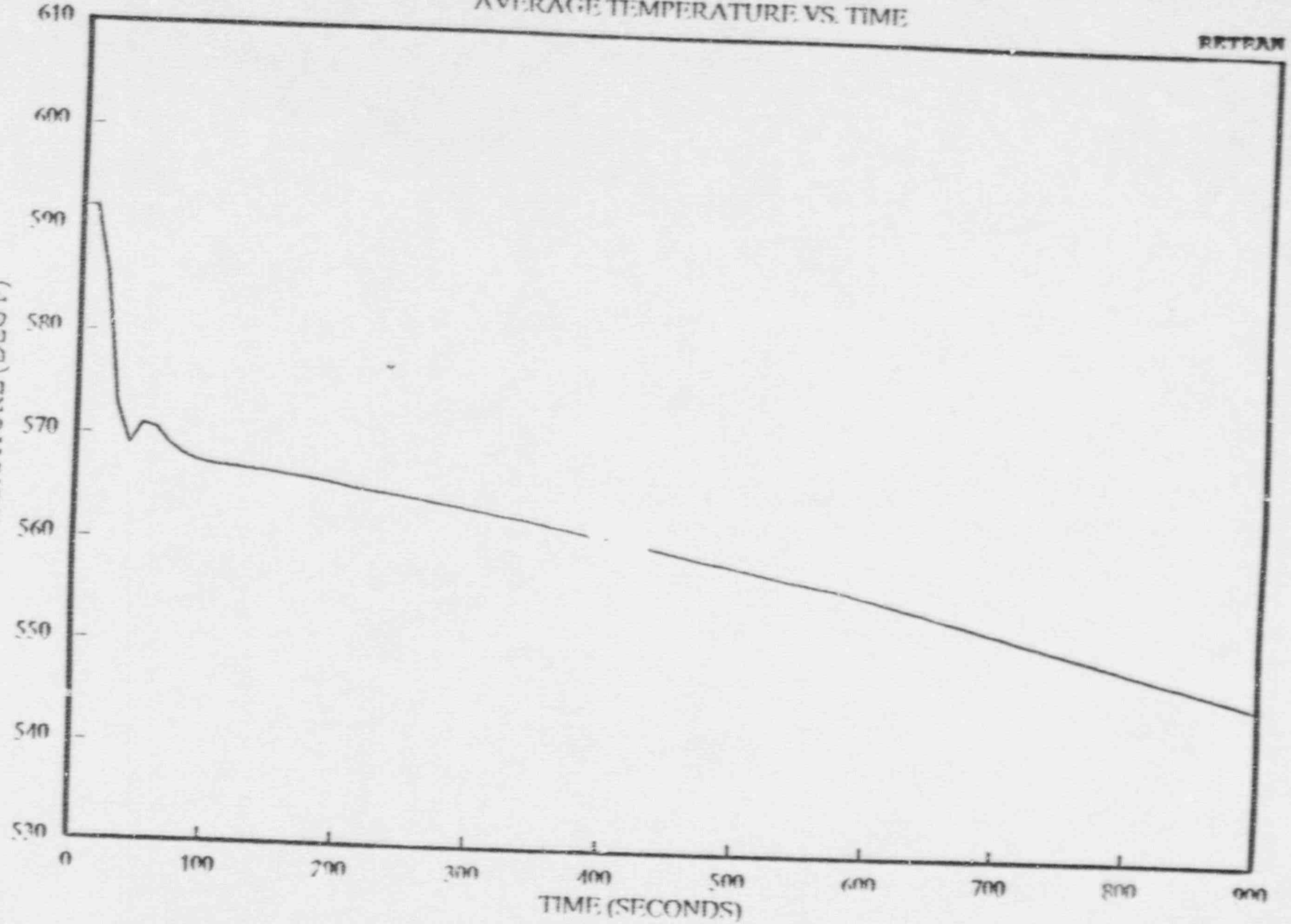
STPEGS Simulator Transient Plot

Manual Rx Trip from 100%



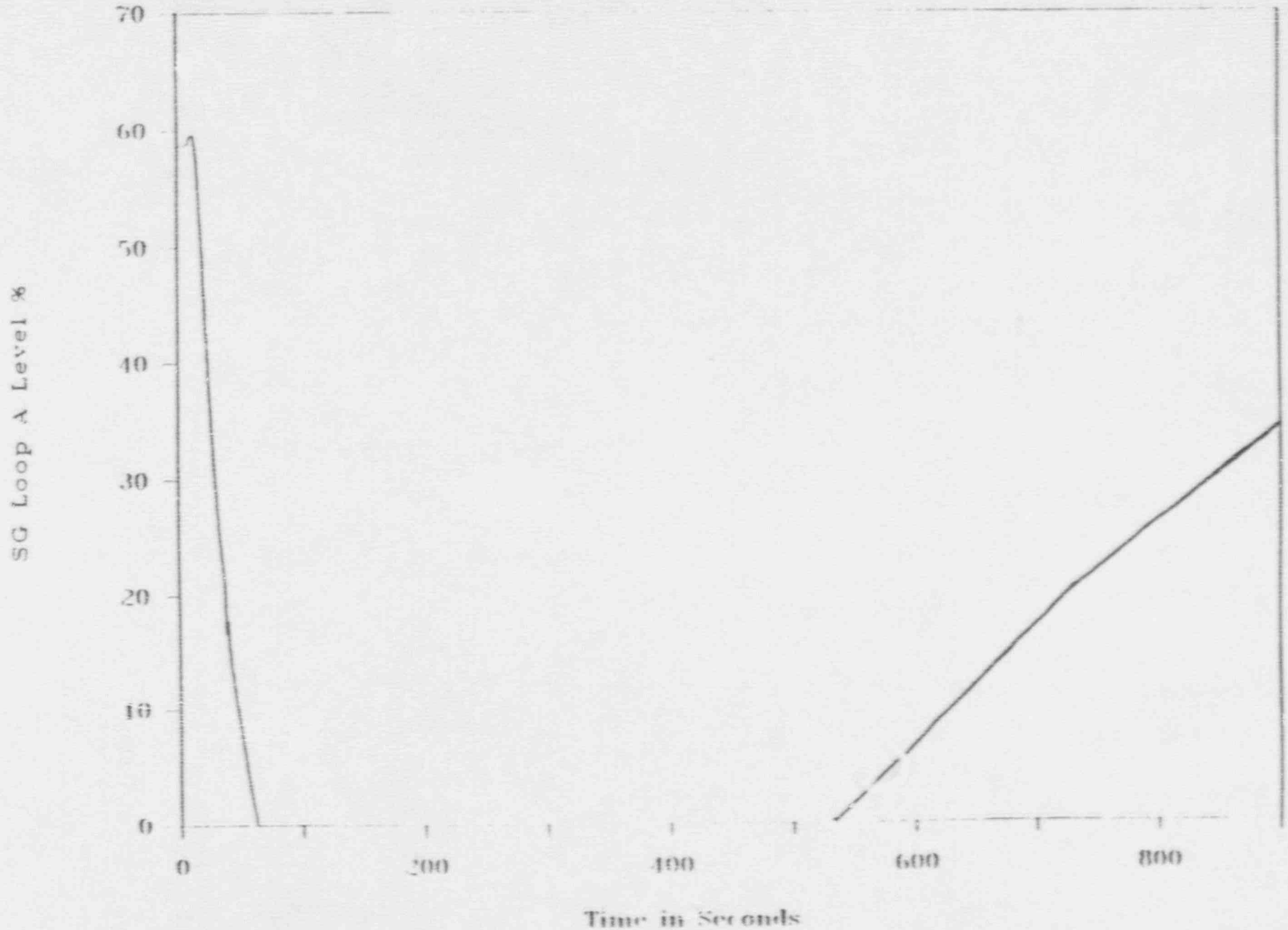
MANUAL REACTOR SCRAM

AVERAGE TEMPERATURE VS. TIME



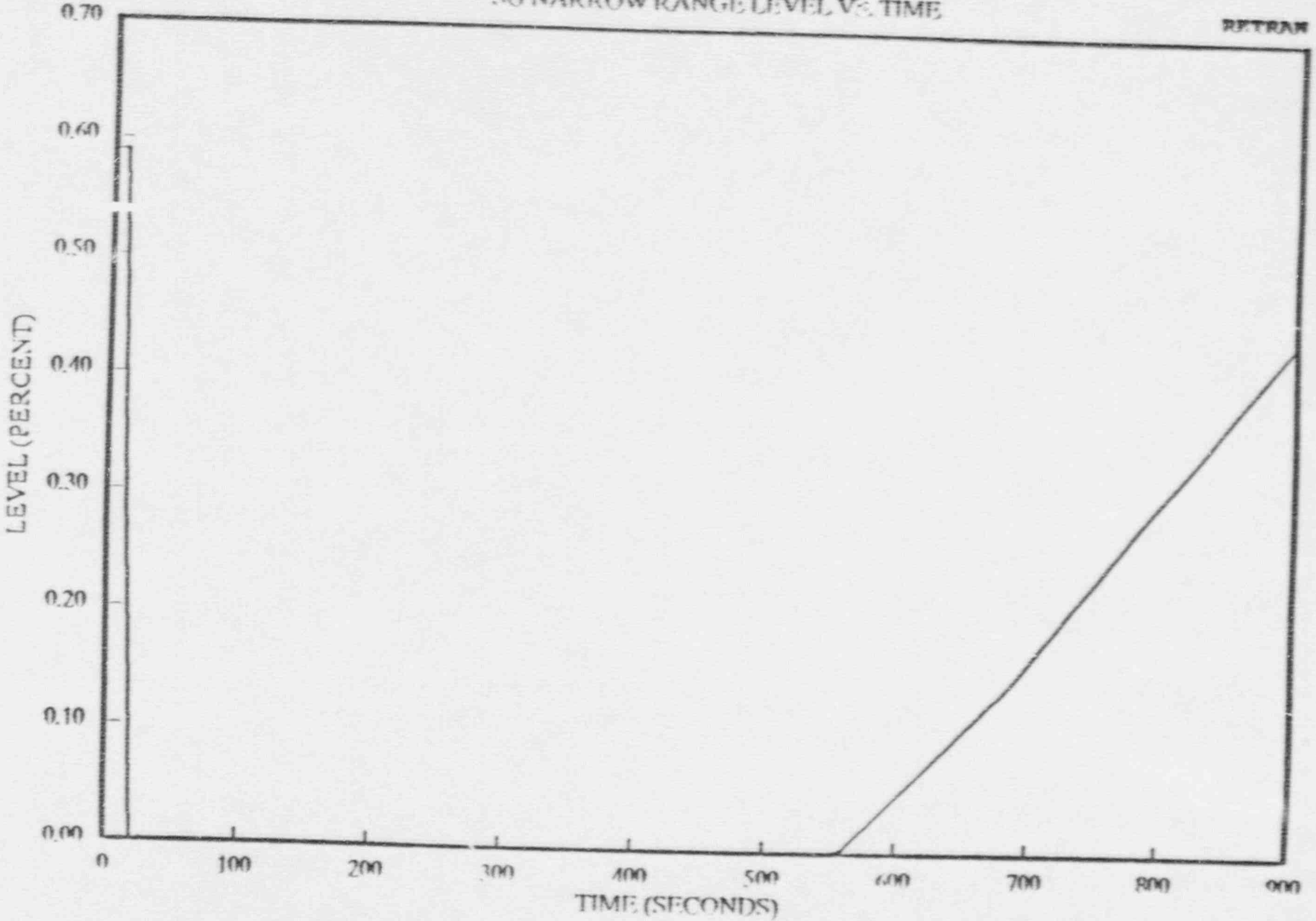
STPEGS Simulator Transient Plot

Manual Rx Trip from 100%



MANUAL REACTOR SCRAM

SG NARROW RANGE LEVEL VS. TIME



ADDENDUM 9
SYNOPSIS OF TRANSIENT TEST RESULTS

SIMULTANEOUS TRIP OF ALL FEEDWATER PUMPS

The simulator was initialized to 100% steady state power (IC-16) and malfunctions X:CD0401 through X:CD0403 (Loss Of Main Feedwater Pumps) were initiated with a five second time delay. The start-up FW pump was rendered inoperable by placing it into the pull-to-lock position. No operator follow-up actions were taken. Data collection was started approximately five seconds prior to the malfunction actuation. Parameters listed in ANSI/ANS-3.5, 1985 Appendix B-B2.2.1 Were collected for fifteen minutes with a time resolution of one-half second.

The test data, required to be collected by ANSI/ANS-3.5, 1985, Appendix B, was reviewed by a panel of experts. The individuals and their qualifications are listed in Section 10 (Simulator Performance Test).

The test data was compared to reference plant RETRAN curves and each parameter was analyzed to determine if the acceptance criteria as stated in ANSI/ANS-3.5, 1985 Section 4.2 (Transient Operation) was met. The following are the results of this review:

TEST RESULTS

Several discrepancies were identified associated with this transient. See Addendum 1.7 for identified discrepancies associated with the requirements of ANSI/ANS-3.5, 1985 Appendix B.2.2 (Transient Performance). It was the consensus of the panel that the parameters trended in the correct direction, however, the magnitude of change was not correct. The S/G dynamic response was determined to be the root cause.

It is anticipated that, at the completion of the simulator upgrade project, all identified discrepancies associated with this transient will be corrected. See Section 12 for the simulator upgrade plan and schedule.

ADDENDUM 9
SYNOPSIS OF TRANSIENT TEST RESULTS
(Continued)

SIMULTANEOUS CLOSURE OF ALL MAIN STEAM ISOLATION VALVES

The simulator was initialized to 100% steady state power (IC-16) and malfunctions X:MS0601 through X:MS0604 (MSIV fails closed) were initiated with a five second time delay. No operator follow-up actions were taken. Data collection was started approximately five seconds prior to the malfunction actuation. Parameters listed in ANSI/ANS-3.5, 1985 Appendix B-B2.2.1 were collected for fifteen minutes with a time resolution of one-half second.

The test data, required to be collected by ANSI/ANS-3.5, 1985, Appendix B, was reviewed by a panel of experts. The individuals and their qualifications are listed in Section 10 (Simulator Performance Test).

The test data was compared to reference plant RETRAN curves and each parameter was analyzed to determine if the acceptance criteria as stated in ANSI/ANS-3.5, 1985 Section 4.2 (Transient Operation) was met. The following are the results of this review:

TEST RESULTS

Several discrepancies were identified associated with this transient. See Addendum 1.7 For identified discrepancies associated with the requirements of ANSI/ANS-3.5, 1985 Appendix B.2.2 (Transient Performance). It was the consensus of the panel that the parameters trended in the correct direction, however, several oscillations were noted related to the steam generators, the overall S/G dynamic response is not correct.

It is anticipated that, at the completion of the simulator upgrade project, all identified discrepancies associated with this transient will be corrected. See Section 12 for the simulator upgrade plan and schedule.

ADDENDUM 9
SYNOPSIS OF TRANSIENT TEST RESULTS
(Continued)

SIMULTANEOUS TRIP OF ALL REACTOR COOLANT PUMPS

The simulator was initialized to 100% steady state power (IC-16) and malfunctions X:RC1001 through X:RC1004 (RCP trips on under voltage) were initiated with a five second time delay. No operator follow-up actions were taken. Data collection was started approximately five seconds prior to the malfunction actuation. Parameters listed in ANSI/ANS-3.5, 1985 Appendix B-B2.2.1 Were collected for fifteen minutes with a time resolution of one-half second.

The test data, required to be collected by ANSI/ANS-3.5, 1985, Appendix B, was reviewed by a panel of experts. The individuals and their qualifications are listed in Section 10 (Simulator Performance Test).

The test data was compared to reference plant RETRAN curves and each parameter was analyzed to determine if the acceptance criteria as stated in ANSI/ANS-3.5, 1985 Section 4.2 (Transient Operation) was met. The following are the results of this review:

TEST RESULTS

Several discrepancies were identified associated with this transient. See Addendum 1.7 For identified discrepancies associated with the requirements of ANSI/ANS-3.5, 1985 Appendix B.2.2 (Transient Performance). It was the consensus of the panel that several of the parameters did not follow the expected trend. Several parameters had oscillations which could not be explained.

The impact on the examination process is minimal. While anomalies were visible on the one-half second resolution hard-copy graph, they were not discernible from the control boards. Consequently there is no interference with regard to the ability to complete the immediate or recovery actions of the emergency procedures.

It is anticipated that, at the completion of the simulator upgrade project, all identified discrepancies associated with this transient will be corrected. See Section 12 for the simulator upgrade plan and schedule.

TRIP OF ANY SINGLE REACTOR COOLANT PUMP

The simulator was initialized to 100% steady state power (IC-16) and malfunctions X:RC1002 (RCP (B) trips on under voltage) was initiated with a five second time delay. No operator follow-up actions were taken. Data collection was started approximately five seconds prior to the malfunction actuation. Parameters listed in ANSI/ANS-3.5, 1985 Appendix B-B2.2.1 were collected for fifteen minutes with a time resolution of one-half second.

The test data, required to be collected by ANSI/ANS-3.5, 1985, Appendix B, was reviewed by a panel of experts. The individuals and their qualifications are listed in Section 10 (Simulator Performance Test).

The test data was compared to reference pla RETRAN curves and each parameter was analyzed to determine if the acceptance criteria as stated in ANSI/ANS-3.5, 1985 Section 4.2 (Transient Operation) was met. The following are the results of this review:

TEST RESULTS

Several discrepancies were identified with this transient. See Addendum 1.7 for identified discrepancies associated with the requirements of ANSI/ANS-3.5, 1985 Appendix B.2.2 (Transient Performance). It was the consensus of the panel that the parameters trended in the correct direction, however, the magnitudes of change were not correct.

It is anticipated that, at the completion of the simulator upgrade project, all identified discrepancies associated with this transient will be corrected. See Section 12 for the simulator upgrade plan and schedule.

ADDENDUM 9
SYNOPSIS OF TRANSIENT TEST RESULTS
(Continued)

MAIN TURBINE TRIP FROM APPROXIMATELY 40% POWER

The simulator was initialized to approximately 50% power (IC-14), power was then reduced below the turbine trip setpoint and allowed to stabilize. A manual turbine trip was initiated and no operator follow-up actions were taken. Data collection was started approximately five seconds prior to the manual turbine trip. Parameters listed in ANSI/ANS-3.5, 1985 B-B2.1 were collected for fifteen minutes with a time resolution of one-half second.

The test data, required to be collected by ANSI/ANS-3.5, 1985, Appendix B, was reviewed by a panel of experts. The individuals and their qualifications are listed in Section 10 (Simulator Performance Test).

The test data was compared to reference plant RETRAN curves and each parameter was analyzed to determine if the acceptance criteria as stated in ANSI/ANS-3.5, 1985 Section 4.2 (Transient Operation) was met. The following are the results of this review:

TEST RESULTS

Several discrepancies were identified with this transient. See Addendum 1.7 For identified discrepancies associated with the requirements of ANSI/ANS-3.5, 1985 Appendix B.2.2 (Transient Performance). It was the consensus of the panel that the parameters trended in the correct direction, however, the magnitudes of change were not correct. The S/G model was determined to be the root cause.

It is anticipated that, at the completion of the simulator upgrade project, all identified discrepancies associated with this transient will be corrected. See Section 12 for the simulator upgrade plan and schedule.

MAXIMUM RATE POWER RAMP (100% - 75% - 100%) AT 0.5%/MIN

The simulator was initialized to 100% steady state power (IC-16) and power was ramped from 100% to 75% to 100% at a rate of 0.5% Per minute with the control rods in automatic. Other than making the necessary adjustments on the Turbine EH Controller no other operator follow-up actions were taken. Data collection was started approximately five seconds prior to initiating the power ramp. Parameters listed in ANSI/ANS-3.5,-1985 Appendix B-B2.2.1 were collected for fifteen minutes with a time resolution of one-half second.

The test data, required to be collected by ANSI/ANS-3.5, 1985, Appendix B, was reviewed by a panel of experts. The individuals and their qualifications are listed in Section 10 (Simulator Performance Test).

The test data was compared to reference plant RETRAN curves and each parameter was analyzed to determine if the acceptance criteria as stated in ANSI/ANS-3.5, 1985 Section 4.2 (Transient Operation) was met. The following are the results of this review:

TEST RESULTS

Several discrepancies were identified with this transient. See Addendum 1.7 for identified discrepancies associated with the requirements of ANSI/ANS-3.5, 1985 Appendix B.2.2 (Transient Performance). It was the consensus of the panel that the parameters trended correctly with the exception of those related to the S/G.

It is anticipated that, at the completion of the simulator upgrade project, all identified discrepancies associated with this transient will be corrected. See Section 12 for the simulator upgrade plan and schedule.

ADDENDUM 9
SYNOPSIS OF TRANSIENT TEST RESULTS
(Continued)

MAXIMUM SIZE LOCA COMBINED WITH LOSS OF OFF SITE POWER

The simulator was initialized to 100% steady state power (IC-16) and malfunctions X:RC0101 (RCS Cold Leg Rupture Loop A) and X:EA0801 (Loss Of Grid) were initiated with a five second time delay. No operator follow-up actions were taken. Data collection was started approximately five seconds prior to the malfunction actuation. Parameters listed in ANSI/ANS-3.5, 1985 Appendix B-B2.2.3 were collected for fifteen minutes with a time resolution of one half second.

The test data, required to be collected by ANSI/ANS-3.5, 1985, Appendix B, was reviewed by a panel of experts. The individuals and their qualifications are listed in Section 10 (Simulator Performance Test).

The test data was compared to reference plant RETRAN curves and each parameter was analyzed to determine if the acceptance criteria as stated in ANSI/ANS-3.5, 1985 Section 4.2 (Transient Operation) was met. The following are the results of this review:

TEST RESULTS

Several discrepancies were identified with this transient. It was the consensus of the panel that the overall response of this transient is unsatisfactory primarily due to the relatively low core exit thermocouple temperatures maintained through the examined transient. As noted in the general transient test description, the proper trends are discussed with operators when this transient is used during training. The non-responsiveness of the thermocouples is also included as a routine item on all pre-session briefings. See Addendum 1.7 For identified discrepancies associated with the requirements of ANSI/ANS-3.5, 1985 Appendix B.2. (Transient Performance).

For examination purposes the impact is significant but not preclusive. All of the required and relevant emergency actions for this LOCA and loss of off-site power can still be properly taken. The net result of the deficiency is a de facto limitation on the number of further compounded failures that could be added to this scenario, (for example a further loss of all three class 1E electric supplies).

It is anticipated that, at the completion of the simulator upgrade project, all identified discrepancies associated with this transient will be corrected. See Section 12 for the simulator upgrade plan and schedule.

ADDENDUM 9
SYNOPSIS OF TRANSIENT TEST RESULTS
(Continued)

MAXIMUM SIZE UNISOLABLE MAIN STEAM LINE RUPTURE

The simulator was initialized to 100% steady state power (IC-16) and malfunction XNMS0201 (Steam Break In Containment Loop 1) was initiated at the maximum severity with a five second time delay. No operator follow-up actions were taken. Data collection was started approximately five seconds prior to the malfunction actuation. Parameters listed in ANSI/ANS-3.5, 1985 Appendix B-B2.2.3 were collected for fifteen minutes with a time resolution of one-half second.

The test data, required to be collected by ANSI/ANS-3.5, 1985, Appendix B, was reviewed by a panel of experts. The individuals and their qualifications are listed in Section 10 (Simulator Performance Test).

The test data was compared to reference plant RETRAN curves and each parameter was analyzed to determine if the acceptance criteria as stated in ANSI/ANS-3.5, 1985 Section 4.2 (Transient Operation) was met. The following are the results of this review:

TEST RESULTS

Several discrepancies were identified with this transient. It was the consensus of the panel that the overall results were unsatisfactory since the containment and RCS response were not correct. As noted in the general transient test description, the proper trends are discussed with operators when this transient is used during training. See Addendum 1.7 for identified discrepancies associated with the requirements of ANSI/ANS-3.5, 1985 Appendix B.2.2 (Transient Performance).

While readily discernible during the expert panel review, these discrepancies are not considered to preclude a valid examination for the following reasons.

(1) Maximum severity malfunctions for steam breaks both inside and outside containment were run as part of the malfunction test (please see Addendum 4, pages 100 and 101). The discrepancies neither precluded the ability to take the proper emergency procedure actions nor were noticeable at the control boards.

ADDENDUM 9
SYNOPSIS OF TRANSIENT TEST RESULTS
(Continued)

MAXIMUM SIZE UNISOLABLE MAIN STEAM LINE RUPTURE

(2) Any examination would include required operator actions that are not represented (deliberately) in this transient test.

(3) Additional compounded malfunctions to be added to this basic scenario must be first validated by a real-time dry-run of the total scenario.

It is anticipated that, at the completion of the simulator upgrade project, all identified discrepancies associated with this transient will be corrected. See Section 12 for the simulator upgrade plan and schedule.

ADDENDUM 9
SYNOPSIS OF TRANSIENT TEST RESULTS
(Continued)

SLOW PRIMARY SYSTEM DEPRESSURIZATION TO SATURATED CONDITIONS

The simulator was initialized to 100% steady state power (IC-16) and high head safety injection pumps were placed in the "pull to lock" position and malfunction XNRC1301 (Pressurizer PORV Leak) was initiated at the maximum rate with a five second time delay. No operator follow-up actions were taken. Data collection was started approximately five seconds prior to the malfunction actuation. Parameters listed in ANSI/ANS-3.5, 1985 Appendix B-B2.2.4 were collected for fifteen minutes with a time resolution of one-half second.

The test data, required to be collected by ANSI/ANS-3.5, 1985, Appendix B, was reviewed by a panel of experts. The individuals and their qualifications are listed in Section 10 (Simulator Performance Test).

The test data was compared to reference plant RETRAN curves and each parameter was analyzed to determine if the acceptance criteria as stated in ANSI/ANS-3.5, 1985 Section 4.2 (Transient Operation) was met. The following are the results of this review:

TEST RESULTS

Some discrepancies were identified associated with this transient. It was the consensus of the panel that the parameters trended in the correct direction, however, the basic RCS mass balance is not correct. See Addendum 1.7 for identified discrepancies associated with the requirements of ANSI/ANS-3.5, 1985 Appendix B.2.2 (Transient Performance).

It is anticipated that, at the completion of the simulat upgrade project, all identified discrepancies associated wi this transient will be corrected. See Section 12 for the simulator upgrade plan and schedule.

ADDENDUM 10
OVERRIDES ACCEPTED FOR TRAINING/EXAMINATIONS

MNEMONIC	HARDWARE DESIGNATOR	DESCRIPTION
SILR931	1R005+1	RWST LEVEL LR-931 PEN 1-RED
SILG931	1R005-2	RWST LEVEL LR-931 PEN 2-GRN
SIPT960	1I034-1	ACC TK 1A PRESS PI-960
SIPT961	1I034-2	ACC TK 1A PRESS PI-961
SILT950	1I035-1	ACC TK 1A LEVEL LI-950
SILT951	1I035-2	ACC TK 1A LEVEL LI-951
SIFT901	1I031	HHSI PUMP 1A COLD LEG FLOW FI-901
SIFT917	1I032	HHSI PUMP 1A HOT LEG FLOW FI-917
SIFT851	1I003	LHSI/RHR 1A COLD LEG FLOW FI-851
SIFT927	1I033	LHSI PUMP 1A HOT LEG FLOW FI-927
SIPT962	1I085-1	ACC TK 1B PRESS PI-962
SIPT963	1I085-2	ACC TK 1B PRESS PI-963
SILT952	1I086-1	ACC TK 1B LEVEL LI-952
SILT953	1I086-2	ACC TK 1B LEVEL LI-953
SIFT902	1I087	HHSI PUMP 1B COLD LEG FLOW FI-902
SIFT918	1I089	HHSI PUMP 1B HOT LEG FLOW FI-918
SIFT852	1I090	LHSI/RHR 1B COLD LEG FLOW FI-852
SIFT928	1I093	LHSI PUMP 1B HOT LEG FLOW FI-928
SIPT964	1I095-1	ACC TK 1C PRESS PI-964
SIPT965	1I095-2	ACC TK 1C PRESS PI-965
SILT954	1I096-1	ACC TK 1C LEVEL LI-954
SILT955	1I096-2	ACC TK 1C LEVEL LI-955
RCIP406A	1I105	REACTOR COOLANT PRESS
SIFT903	1I097	HHSI PUMP 1C COLD LEG FLOW FI-903
SIFT919	1I098	HHSI PUMP 1C HOT LEG FLOW FI-919
SIFT853	1I100	LHSI/RHR 1C COLD LEG FLOW FI-853
SIFT929	1I103	LHSI PUMP 1C HOT LEG FLOW FI-929
CC1F4564	1I080	RHR HX 1C CCW OUTL FLOW FI-4564
RWSTL932	1I048	RWST LEVEL III LI-932
SILRWST	1I084	RWST LEVEL II LI-931
ECTI6893	1I081	ECW SUP TEMP LOOP 1C TI-6893
ECLI6931	1I083	ECW PUMP 1C BAY LEVEL LI-6931
SIPT904	1I030	HHSI PUMP 1A DISCH PRESS PI-904
SIPT861	1I005	LSHI/RHR PUMP 1A DISCH PI-861
RHFT867	1I004	RHR PUMP 1A DISCH FLW FI-867
RHFT868	1I094	RHR PUMP 1B DISCH FLOW FI-868
SIPT905	1I088	HHSI PUMP 1B DISCH PRESS PI-905
SIPT862	1I091	LHSI/RHR PUMP 1B DISCH PRESS PI-862
SIPT906	1I099	HHSI PUMP 1C DISCH PRESS PI-906
SIPT863	1I101	LHSI/RHR PUMP 1C DISCH PRESS PI-863
RHFT869	1I104	RHR PUMP 1C DISCH FLOW FI-869

ADDENDUM 10
OVERRIDES ACCEPTED FOR TRAINING/EXAMINATIONS
(Continued)

MNEMONIC	HARDWARE DESIGNATOR	DESCRIPTION
SITE874	1R001-1	RHR HX 1A INLET/OUTL TEMP RED TR-874
SITE857	1R001-2	RHR HX 1A INLET/OUTL TEMP GRN
SITE8[illegible]	1R002-1	RHR HX 1B INLET/OUTL TEMP RED TR-875
SITE8[illegible]	1R002-2	RHR HX 1B INLET/OUTL TEMP GRN
SITE876	1R006-1	RHR HX 1C INLET/OUTL TEMP RED TR-876
SITE859	1R006-2	RHR HX 1C INLET/OUTL TEMP GRN
HVIT9681	2I080	CONTMT BLDG TEMP TI-9681
HVIM9682	2I081	CONTMT BLDG MOISTURE MI-9682
CCIF4536	2I084	RCFC 11A COOL WTR OUTL FLOW FI4536
HVT9664	2I085	RCFC 001 AIR INLET TEMP TI-9664/9665
HVT9665	2I085	RCFC 001 AIR INLET TEMP TI-9664/9665
CCIF4538	2I087	RCFC 12A COOL WTR OUTL FLOW FI-4538
HVT9673	2I088	RCFC 002 AIR INLET TEMP TI-9673/9674
HVT9674	2I088	RCFC 002 AIR INLET TEMP TI-9673/9674
CCIF4553	2I052	RCFC 11B COOL WTR OUTL FLOW FI-4553
HVT9661	2I005	RCFC 003 AIR INLET TEMP TI-9661/9662
HVT9662	2I005	RCFC 003 AIR INLET TEMP TI-9661/9662
CCIF4555	2I051	RCFC 12B COOL WTR OUTL FLOW FI-4555
HVT9667	2I007	RCFC 004 AIR INLET TEMP TI-9667/9668
HVT9668	2I007	RCFC 004 AIR INLET TEMP TI-9667/9668
CCIF4570	2I0[illegible]	RCFC 11C COOL WTR OUTL FLOW FI-4570
HVT9670	2I094	RCFC 005 AIR INLET TEMP TI-9670/9671
HVT9671	2I094	RCFC 005 AIR INLET TEMP TI-9670/9671
CCIF4572	2I095	RCFC 12C COOL WTR OUTL FLOW FI-4572
HVT9676	2I096	RCFC 006 AIR INLET TEMP TI-9696/9677
HVT9677	2I096	RCFC 006 AIR INLET TEMP TI-9676/9677
CCIL4504	2I108	CCW SURGE TK COMP A LEVEL LI-4506
CCIL4506	2I048	CCW SURGE TK COMP B LEVEL LI-4506
CCIL4508	2I109	CCW SURGE TK COMP C LEVEL LI-4508
ECLPNDG	2R005-1	ECW POND LEVEL LR-6900
ECLPNDR	2R005-2	ECW POND LEVEL LR-6900
CSLT812A	2I090	SPR ADD TK 1A LVL LI-812A
CSPT810	2I091	SPR ADD TK 1A PRESS PI-810
CSFT813A	2I092	SPR PUMP 1A DISCH FLOW FI-813A
CSLT822A	2I026	CNTMT SPR TK 1B ADD TK LVL LI-822A
CSPT820	2I027	SPR ADD TK 1B PRESS PI-820
CSFT823A	2I028	SPR PUMP 1B DISCH FLOW FI-823A
CSLT932A	2I097	SPR ADD TK 1C LVL LI-832A
CSFT830	2I098	SPR ADD TK 1C PRESS PI-830
CSFT833A	2I099	SPR PUMP 1C [illegible] FLOW FI-833A
CCIT4510	2I100	CCW HX 1A [illegible] TEMP TI-4510
CCIF4512	2I101	CCW LOOP 1A FLOW FI-4512
CCIP4513	2I102	CCW HX 1A OUTL PRESS PI-4513

ADDENDUM 10
OVERRIDES ACCEPTED FOR TRAINING/EXAMINATIONS
(Continued)

MNEMONIC	HARDWARE DESIGNATOR	DESCRIPTION
ECTI6883	2I103	ECW SPLY TEMP LOOP 1A TI-6883
ECPI6881	2I104	ECW PUMP 1A DISCH PRESS PI-6881
ECLI6911	2I105	ECW PUMP 1A BAY LVL LI-6911
CCIF4530	2I106	RHR HX 1A CCW OUTL FLOW FI-4530
CCIT4515	2I045	CCW HX 1B OUTL TEMP TI-4515
CCIF4517	2I046	CCW LOOP 1B FLOW FI-4517
CCIP4518	2I047	CCW HX 1B OUTL PRESS PI-4518
ECTI6888	2I054	ECW SPLY TEMP LOOP 1B TI-6888
ECPI6886	2I050	ECW PUMP 1B DISCH PRESS PI-686
ECLI6921	2I049	ECW PUMP 1B BAY LVL LI-6921
CCIF4547	2I043	RHR HX 1B CCW OUTL FLOW FI-4547
CCIT4524	2I110	CCW HX 1C OUTL TEMP TI-4520
CCIF4522	2I111	CCW LOOP 1C FLOW FI-4522
CCIP4523	2I112	CCW HX 1C OUTL PRESS PI-4523
EDCVA11	3I078	DC BUS A 11 VOLTAGE TR A/CH I
EDCVB11	3I086	DC BUS B 11 VOLTAGE TR B/CH III
EDCVC11	3I090	DC BUS C 11 VOLTAGE TR C/CH IV
EDCVD11	3I082	DC BUS D 11 VOLTAGE TR D/CH II
EAC1051M	3I055	DG 11 KILOWATTS
EAC1054M	3I056	DG 11 KVARS
EAC1056M	3I057	DG 11 AMPERES
EAC1064M	3I058	DG 11 SPEED
EAC1052M	3I059	DG 11 HERTZ
EAC1055M	3I060	DG 11 VOLTAGE
EAC1050M	3I062	ESF BUS E1A VOLTAGE
EACVE1A	3I114	DG 11 TRANSF E1A VOLTS
EAC2070M	3I067	DG 12 KILOWATTS
EAC2073M	3I068	DG 12 KVARS
EAC2075M	3I069	DG 12 AMPERES
EAC2063M	3I070	DG 12 SPEED
EAC2071M	3I071	DG 12 HERTZ
EAC2074M	3I072	DG 12 VOLTAGE
EAC2069M	3I074	ESF BUS E1B VOLTAGE
EACVE1B	3I115	DG 12 TRANSF E1B VOLTS
EAC3045M	3I045	DG 13 KILOWATTS
EAC3048M	3I048	DG 13 KVARS
EAC3050M	3I050	DG 13 AMPERES
EAC3039M	3I039	DG 13 SPEED
EAC3046M	3I046	DG 13 HERTZ
EAC3049M	3I049	DG 13 VOLTAGE
EAC3044M	3I044	ESF BUS E1C VOLTAGE
EACE1C	3I116	DG 13 TRANSF E1C VOLTS

ADDENDUM 10
OVERRIDES ACCEPTED FOR TRAINING/EXAMINATIONS
(Continued)

MNEMONIC	HARDWARE DESIGNATOR	DESCRIPTION
EDCEA111	3I079	BATT CHG E1A11-1 CURRENT
EDCEA112	3I080	BATT CHG E1A11-2 CURRENT
EDCIA11	3I081	BATT A11 CURRENT
EDCEB111	3I087	BATT CHG E1B11-1 CURRENT
EDCEB112	3I088	BATT CHG E1B11-2 CURRENT
EDCIB11	3I089	BATT B11 CURRENT
EDCEC111	3I091	BATT CHG E1C11-1 CURRENT
EDCEC112	3I092	BATT CHG E1C11-2 CURRENT
EDC1C11	3I093	BATT C11 CURRENT
EDCED111	3I083	BATT CHG E1D11-1 CURRENT
EDCED112	3I084	BATT CHG E1D11-2 CURRENT
EDCID11	3I085	BATT D11 CURRENT
EDCV048	3I102	DC BUS EPL 048 VOLT E
EDCB048A	3I104	BATT CHG BC 048 A CURRENT
EDCB048B	3I103	BATT CHG BC 048 B CURRENT
EDCB048	3I105	BATT 048 CURRENT
EDCV125D	3I098	DC BUS EPL 125 VOLT E
EDCB125A	3I100	BATT CHG 125 A CURRENT
EDCB125B	3I099	BATT CHG BC 125 B CURRENT
EDCB125	3I101	BATT EBT 125 CURRENT
EDCV250	3I094	DC BUS EBT 250 VOLT E
EDCB250A	3I096	BATT CHG BC 250 A CURRENT
EDCB250B	3I095	BATT CHG BC 250 B CURRENT
EDCB250	3I097	BATT EBT 250 CURRENT
EAC1063M	3I063	DG 11 FUEL OIL STOR TK
EAC1041M	3I064-1	DG 11 STARTING AIR PRESS PI-5432A
EAC5433A	3I064-2	DG 11 STARTING AIR PRESS PI-5433A
EAC1040A	3I065	DG 11 JACKET WTR PRESS PI-5407A
EAC1040B	3I106	DG 11 JACKET WTR TEMP TI-5412A
EAC1074A	3I066	DG 11 LUBE OIL PRESS PI-5497A
EAC1074B	3I107	DG 11 LUBE OIL TEMP TI-5484A
EAC2062M	3I075	DG 12 FUEL OIL STOR TK LVL LI-9111
EAC2031M	3I076-1	DG 12 STARTING AIR PRESS PI-5532A
EAC5533A	3I076-2	DG 12 STARTING AIR PRESS PI-5533A
EAC2032A	3I077	DG 12 JACKET WTR PRESS PI-5507A
EAC2032B	3I108	DG 12 JACKET WTR TEMP TI-5512A
EAC2053A	3I112	DG 12 LUBE OIL PRESS PI-5597A
EAC2053B	3I109	DG 12 LUBE OIL TEMP TI-5584A
EAC303M	3I028	DG 13 FUEL OIL STOR TK LVL LI-9113
EAC3012M	3I012-1	DG 13 STARTING AIR PRESS PI-5632A
EAC5633A	3I012-2	DG 13 STARTING AIR PRESS PI-5633A
EAC3035A	3I035	DG 13 JACKET WTR PRESS PI-5607A

ADDENDUM 10
OVERRIDES ACCEPTED FOR TRAINING/EXAMINATIONS
(Continued)

MNEMONIC	HARDWARE DESIGNATOR	DESCRIPTION
EAC3035B	3I110	DG 13 JACKET WTR PRESS TI-5612A
EAC3051A	3I151	DG 13 LUBE OIL PRESS PI-5697A
EAC3051B	3I111	DG 13 LUBE OIL TEMP TI-5684A
CVLT110	4R002R	BORIC ACID BLEND FR-110
CVT111	4R002G	BORIC ACID BLEND FR-110
BTLT380	4I009	BTRS CHILLER SURG TK 1A LVL LI-0380
BTTT379	4I010	BTRS CHILLER SURG TK 1A TEMP TI0379
BTTT376	4I075	CHILLED WTR/LTDN CHILL HX 1A TMP TI-376
BFTFT375	4I012	BTRS CHILLER 1A TOTAL FLOW FI-0375
CVFT156A	4R003R	RCP 1A FLOW FR-0156
CVFT156B	4R003G	RCP 1A FLOW FR-0156
CVFT144	4R003B	RCP 1A FLOW FR-0156
CVFT157A	4R004R	RCP 1B FLOW FR-0157
CVFT157B	4R004B	RCP 1B FLOW FR-0157
CVFT145	4R004G	RCP 1B FLOW FR-0157
CVFT158A	4R005R	RCP 1C FLOW FR-0158
CVFT158B	4R005B	RCP 1C FLOW FR-0158
CVFT146	4R005G	RCP 1C FLOW FR-0158
CVFT159A	4R006R	RCP 1D FLOW FR-0159
CVFT159B	4R006B	RCP 1D FLOW FR-0159
CVFT147	4R006G	RCP 1D FLOW FR-0159
CVTT125	4I036	RC LTDN ORIF REL VLV DISCH TMP TI125
RCIT609	4I076	RC PRZR 1A SURG LINE TEMP TI-0609
RCIT605	4I077-1	PZR SPY VLV SUP TEMP LOOP 1 TI-605, 606
RCIT606	4I077-2	PZR SPY VLV SUP TEMP LOOP 1 TI-605,606
RCIT607	4I078	RC PRZR 1A STM TEMP TI-0607
RCIT608	4I079	RC PRZR 1A LIQUID TEMP TI-0608
RCIT676	4I080-1	RC PZR 1A SFTY POR DSCH TMP TI-676, 677
RCIT677	4I080-2	RC PZR 1A SFTY POR DSCH TMP TI-676, 677
RCIT678	4I081-1	RC PZR 1A SFTY VLV DSCH TMP TI-678, 679
RCIT679	4I081-2	RC PZR 1A SFTY VLV DSCH TMP TI-678, 679
RCIL465	4I082-1	RC PRZR 1A LVL LI-0465, 0466
RCIL466	4I082-2	RC PRZR 1A LVL LI-0465, 0466

ADDENDUM 10
OVERRIDES ACCEPTED FOR TRAINING/EXAMINATIONS
(Continued)

MNEMONIC	HARDWARE DESIGNATOR	DESCRIPTION
RCIL467	4I083-1	PRZR VLV/PRZR PROG-CLD COMP LVL LI-0467
RCIL675	4I083-2	PRZR VLV/PRZR PROG-CLD COMP LVL LI-0467
RCIP455	4I084-1	RC PRZR 1A PRESS PI-0455, 0456
RCIP456	4I084-2	RC PRZR 1A PRESS PI-0455, 0456
RCIP457	4I085-1	RC PRZR 1A PRESS PI-0457, 0458
RCIP458	4I085-2	RC PRZR 1A PRESS PI-0457, 0458
HVISCNSL	4I059	SECONDARY CNTMT NORMAL SUMP LVL LI-7811
CVPT152	4I001	RCP 1A SEAL NO 1 DP PI-0152
CVPT153	4I003	RCP 1B SEAL NO 1 DP PI-0153
CVPT154	4I004	RCP 1C SEAL NO 1 DP PI-0154
CVPT155	4I007	RCP 1D SEAL NO 1 DP PI-0155
CVTT216	4I050	RC PUMPS SEAL INJ TEMP TI-0216
RCIL670	4I070	PRT WTR LVL LI-0670
RCIP669	4I071	PRT PRESS PI-0669
RCIT668	4I072	PRT WTR TEMP TI-0668
CVPT4904	4I026	RCDT PUMPS 1A, 1B DISCH PRESS PI-4904
CVFT4905	4I022	RCDT PUMPS 1A, 1B DISCH FLOW FI-4905
CVTT4906	4I069-1	RCDT HX 1A INL/OUTL TEMP TI-4906, 4906A
CVT4906A	4I069-2	RCDT HX 1A INL/OUTL TEMP TI-4906, 4906A
CVLT4901	4I025	RCDT 1A LVL LI-4901
CVPT4900	4I027	RCDT 1A PRESS PI-4900
CVTT4902	4I028	RCDT 1A TEMP TI-4902
HVICNSL	4I060	CNTMT NORMAL SUMP LVL LI-7812
CVTT229	4I038	EXCESS LETDN HX 1A OUTL TEMP TI-0229
CVTT228	4I037	EXCESS LETDN HX 1A OUTL PRESS PI-0228
CVLT7653	4I018	RMW STORAGE TK 1A LVL LI-7653
CVLIT103	4I073	BA TK 1A LVL LI-0103
CVTT104	4I013-1	BA TK 1A, 1B TEMPS TI-0104, 0107
CVTT107	4I013-2	BA TK 1A, 1B TEMPS TI-0104, 0107
CVLT106	4I074	BA TK 1B LVL LI-0105
CVPT7656	4I017	RMW PUMPS 1A, 1B DISCH HDR PRESS PI-7656

ADDENDUM 10
OVERRIDES ACCEPTED FOR TRAINING/EXAMINATIONS
(Continued)

MNEMONIC	HARDWARE DESIGNATOR	DESCRIPTION
BTTT386	4I031-1	THRM HX 1A OUTL REGEN DEMIN TI-386, 389
BTTT389	4I031-2	THRM HX 1A OUTL REGEN DEMIN TI-386, 389
BTTT381	4I030	LETDN REHEAT HX 1A OUTL TMP TI-381
BTFT385	4I029	THERM REGEN DEMIN FLOW FI-0385
CVPT115	4I015	VCT 1A PRESS PI-0115
CVLT112	4I016	VCT 1A LVL LI-0112
CVFT120A	4I034	ALTERN BORIC ACID MAKEUP FLOW FI-0120A
CVPT135	4I041	LETDN HX 1A OUTL PRESS PI-0135
CVTT130	4I042	LETDN HX 1A OUTL TEMP TI-0130
CVTT127	4I035	REGEN HX 1A LETDN OUTL TEMP TI-0127
CVFT132	4I043	LETDN HX 1A FLW FI-0132
CVPT204	4I044	CENTRIF CHG PMP DSCH HDR PRESS PI-0204
CVFT205A	4I046	RC CHARGING FLOW FI-0205A
CVTT126	4I045	REGEN HX 1A CHG OUTL TEMP TI-0126
RCIF417A	5I070	RX COOLANT FLOW LOOP 1
RCIIRCPA	5I074	RX COOLANT FLOW PMP 1A CURRENT
RCIF427A	5I071	RX COOLANT FLOW LOOP 2
RCIIRCPB	5I075	RX COOLANT FLOW PMP 1B CURRENT
RCIF437A	5I072	RX COOLANT FLOW LOOP 3
RCIIRCPC	5I076	RX COOLANT FLOW PMP 1C CURRENT
RCIF447A	5I073	RX COOLANT FLOW LOOP 4
RCIIRCPD	5I077	RX COOLANT FLOW PMP 1D CURRENT
NILP1DC5	5I058-1	PWR RANGE 41 DETECTOR CURRENT
NILP2DC5	5I058-2	PWR RANGE 41 DETECTOR CURRENT
NILP3DC5	5I059-1	PWR RANGE 43 DETECTOR CURRENT
NILP4DC5	5I059-2	PWR RANGE 44 DETECTOR CURRENT
NILP1PP5	5I060-1	PWR RANGE 41% POWER
NILP2PP5	5I060-2	PWR RANGE 42% POWER
NILP3PP	5I061-1	PWR RANGE 43% POWER
NILP4PP	5I061-2	PWR RANGE 44% POWER
RCIT600	5I002	REACTOR VESSEL FLANGE LEAKOFF
NIIS1NL5	5I031-1	SOURCE RANGE 31 CPS NEUTRON LEVEL
NILS2NL5	5I031-2	SOURCE RANGE 32 CPS NEUTRON LEVEL
NILS1SUR	5I033-1	SOURCE RANGE SUR
NILS2SUR	5I033-2	SOURCE RANGE SUR
NILI1NL5	5I035-1	INTER RANGE 35 CURRENT LEVEL
NILI2NL5	5I035-2	INTER RANGE 36 CURRENT LEVEL
NILI1SUR	5I037-1	INTER RANGE SUR
NILI2SUR	5I037-2	INTER RANGE SUR

ADDENDUM 10
OVERRIDES ACCEPTED FOR TRAINING/EXAMINATIONS
(Continued)

MNEMONIC	HARDWARE DESIGNATOR	DESCRIPTION
PXCS1660	5I030	ROD SPEED SI-0660
PXCHTAUG	5I078-1	AUCTIONEERED HI-AVG
PXCTREF	5I078-2	T-REFERENCE
PXC5157	5I057	T ERROR TI-0612
RPCT412A	5I003	RC LOOP 1 TAVG TI-0412A
RCIT413R	5I062	RC LOOP 1A HOT LEG TEMP
RCIT414R	5I063	RC LOOP 1A COLD LEG TEMP
RPC5I04	5I004	RC LOOP 1A DELTA T TI-0411
RPC5114A	5I014-1	RC LOOP 1A OP/DT T TI-0412
RPC5114B	5I014-2	RC LOOP 1A OP/DT SETPT TI-0412
RPCT422A	5I016	RC LOOP 1B TAVG TI-0422A
RCIT423R	5I064	RC LOOP 1B HOT LEG TEMP
RPCT424R	5I065	RC LOOP 1B COLD LEG TEMP
RPCT421	5I017	RC LOOP 1B DELTA T TI-0422
RPC5115A	5I015-1	RC LOOP 1B OP/DT TI-0422 SETPT
RPC511B	5I015-2	RC LOOP 1B OP/DT TI-0412
RPC5125B	5I025	RC LOOP 1C TAVG TI-0432A
RCIT433R	5I066	RC LOOP 1C HOT LEG TEMP
RCIT434R	5I067	RC LOOP 1C COLD LEG TEMP
RPC5126R	5I026	RC LOOP 1C DELTA T TI-0431
RCP5123A	5I023-1	RC LOOP 1C OP/DT SETPT TI-0431
RPC5123B	5I023-2	RC LOOP 1C OP/DT TI-0432
RPC5122	5I022	RC LOOP 1D TAVG TI-0442A
RCIT433G	5I068	RC LOOP 1D HOT LEG TEMP
RCIT434G	5I069	RC LOOP 1D COLD LEG TEMP
RPC5121	5I021	RC LOOP 1D OP/DT SETPT TI-0442
RPC5124B	5I024-2	RC LOOP 1D OP/DT TI-0442
PLCR465R	5R008-1	PRZR LEVEL/PROGRAM LR-0465
PLCR465G	5R008-2	PRZR LEVEL/PROGRAM LR-0456
RCIP455R	5R007-1	PRZR PRESS RECORDER PR-0455
PXCHTAUG	5R005-1	AUCTIONEERED TAVG TR-0612
PXCTREF	5R005-2	AUCTIONEERED TAVG TR-0612
RXOCAE5	5M06-J3	BANK A-E5
RXOCAE11	5M06-J3	BANK A-E11
RXOCAL11	5M06-J3	BANK A-L11
RXOCAL5	5M06-J3	BANK A-L5
RXOCAH6	5M06-J3	BANK A-H6
RXOCAF8	5M06-J3	BANK A-F8
RXOCAH10	5M06-J3	BANK A-H10
RXOCAK8	5M06-J3	BANK A-K8
RXOCBF2	5M06-J3	BANK B-F2
RXOCBB10	5M06-J3	BANK B-10
RXOCBK14	5M06-J3	BANK B-K14

ADDENDUM 10
OVERRIDES ACCEPTED FOR TRAINING/EXAMINATIONS
(Continued)

MNEMONIC	HARDWARE DESIGNATOR	DESCRIPTION
RXOCBP6	5M06-J3	BANK B-P6
RXOCBB6	5M06-J3	BANK B-B6
RXOCBF14	5M06-J3	BANK B-F14
RXOCBP10	5M06-J3	BANK B-P10
RXOCBK2	5M06-J3	BANK B-K2
RXOCCH2	5M06-J3	BANK C-H2
RXOCCB8	5M06-J3	BANK C-B8
RXOCCH14	5M06-J3	BANK C-H14
RXOCCP8	5M06-J3	BANK C-P8
RXOCCF6	5M06-J3	BANK C-F6
RXOCCF10	5M06-J3	BANK C-F10
RXOCCK10	5M06-J3	BANK C-K10
RXOCCK6	5M06-J3	BANK C-K6
RXOCDD4	5M06-J4	BANK D-D4
RXOCDM12	5M06-J4	BANK D-M12
RXOCDD12	5M06-J4	BANK D-D12
RXOCDM4	5M06-J4	BANK D-M4
RXOCDH8	5M06-J4	BANK D-H8
RXOSAD2	5M06-J4	SHUTDOWN BANK A-D2
RXOSAB12	5M06-J4	SHUTDOWN BANK A-B12
RXOSAM14	5M06-J4	SHUTDOWN BANK A-M14
RXOSAP4	5M06-J4	SHUTDOWN BANK A-P4
RXOSAB4	5M06-J4	SHUTDOWN BANK A-B4
RXOSAD14	5M06-J4	SHUTDOWN BANK A-D14
RXOSAP12	5M06-J4	SHUTDOWN BANK A-P12
RXOSAM2	5M06-J4	SHUTDOWN BANK A-M2
RXOSBG3	5M06-J4	SHUTDOWN BANK B-G3
RXOSBC9	5M06-J4	SHUTDOWN BANK B-C9
RXCOBJ13	5M06-J4	SHUTDOWN BANK B-J13
RXOSBN7	5M06-J4	SHUTDOWN BANK B-N7
RXOSBC7	5M06-J4	SHUTDOWN BANK B-C7
RXOSBG13	5M06-J4	SHUTDOWN BANK B-G13
RXOSBN9	5M06-J4	SHUTDOWN BANK B-N9
RXOSBJ3	5M06-J4	SHUTDOWN BANK B-J3
RXOSCE3	5M06-J5	SHUTDOWN BANK C-E3
RXOSCC11	5M06-J5	SHUTDOWN BANK C-C11
RXOSCL13	5M06-J5	SHUTDOWN BANK C-L13
RXOSCN5	5M06-J5	SHUTDOWN BANK C-N5
RXOSCD5	5M06-J5	SHUTDOWN BANK D-C5
RXOSDE13	5M06-J5	SHUTDOWN BANK D-E13
RXSDN11	5M06-J5	SHUTDOWN BANK D-N11
RXOSDL3	5M06-J5	SHUTDOWN BANK D-L3

ADDENDUM 10
OVERRIDES ACCEPTED FOR TRAINING/EXAMINATIONS
(Continued)

MNEMONIC	HARDWARE DESIGNATOR	DESCRIPTION
RXOSEH4	5M06-J5	SHUTDOWN BANK E-H4
RXOSED8	5M06-J5	SHUTDOWN BANK E-D8
RXOSEH12	5M06-J5	SHUTDOWN BANK E-H12
RXOSEM8	5M06-J5	SHUTDOWN BANK E-M8
SGFT512	6I099-1	SG 1A STM FLOW FI-0512, 0513
SGFT513	6I099-2	SG 1A STM FLOW FI-0512, 0513
SGFT510	6I098-1	SG 1A FW FLOW FI-0510, 0511
SGFT511	6I098-2	SG 1A FW FLOW FI-0510, 0511
SGLI571	6I046-1	SG 1A NR LVL LI-0519, 0571
SGLI571A	6I046-2	SG 1A NR LVL LI-0519, 0571
SGCLI551	6I120	SG 1A PROG LVL LI0551
SFGT522	6I090-1	SG 1B STM FLOW FI-0522, 0523
SFGT523	6I090-2	SG 1B STM FLOW FI-0522, 0523
SFGT520	6I089-1	SG 1B STM FLOW FI-0520, 0521
SFGT520	6I089-1	SG 1B STM FLOW FI-0520, 0521
SFGT521	6I089-2	SG 1B STM FLOW FI-0520, 0521
SFGL572	6I075-1	SG 1B NR LVL LI-0529, 0572
SGLI522	6I075-2	SG 1B NR LVL LI-0529, 0572
PGCLI552	6I121	SG 1B PROG LVL LI-0552
SGFT533	6I114-1	SG 1C STM FLOW FI-0532, 0533
SGFT532	6I114-2	SG 1C STM FLOW FI-0532, 0533
SGFT530	6I113-1	SG 1C FW FLOW FI-0530, 0531
SGFT531	6I113-2	SG 1C FW FLOW FI-0530, 0531
SGLI573	6I142-1	SG 1C NR LVL LI-0539, 0573
SGLI573A	6I042-2	SG 1C NR LVL LI-0539, 0573
PGCLI553	6I122	SG 1C PROG LVL LI-0553
SGFT542	6I106-1	SG 1D STM FLOW FI-0542, 0543
SGFT543	6I106-2	SG 1D STM FLOW FI-0542, 0543
SGFT540	6I105-1	SG 1D STM FLOW FI-0540, 0541
SGFT541	6I105-2	SG 1D STM FLOW FI-0540, 0541
PGCLI554	6I123	SG 1D PROG LVL LI-0554
SGLI574	6I076-1	SG 1D NR LVL LI-0549, 0574
SGLI524	6I076-2	SG 1D NR LVL LI-0549, 0574
FWT7119	6I071-1	FW LINE 1A TEMP DEVIATION TI-7119, 7119A
FWD7119A	6I071-2	FW LINE 1A TEMP DEVIATION TI-7119, 7119A
AFA074P1	6I084-1	AUX FW FLOW TO SG 1A FI-7525
FWT7121	6I072-1	FW LINE 1B TEMP DEVIATION TI-7121, 7121A
RPCT421	6I072-2	FW LINE 1B TEMP DEVIATION TI-7121, 7121A

ADDENDUM 10
OVERRIDES ACCEPTED FOR TRAINING/EXAMINATIONS
(Continued)

MNEMONIC	HARDWARE DESIGNATOR	DESCRIPTION
FWF7104	6I057	SGFP FLOW FI-7104
FWP7107	6I058	SGFP 11 DISCH PRESS PI-7107
AFA056P2	6I094-1	AUX FW FLOW TO SG 1B FI-7524
FWF7109	6I059	SGFP 12 FLOW FI-7109
FWP7112	6I050	SGFP 12 DISCH PRESS PI-7112
FWT7123	6I073-1	FW LINE 1C TEMP DEVIATION TI-7123, 7123B
AFA034P3	6I103-1	AUX FW FLOW TO SG 1C FI-7523
SGFR551F	6R014-1	STM GEN 1A UR-551
SGFR551M	6R014-2	STM GEN 1A UR-551
SGFR551	6R014-3	STM GEN 1A UR-551
MSAD07P6	6R082-1	STM 1A STM PRESS PI-0514, 0515
MSA022P2	6R082-2	STM 1A STM PRESS PI-0514, 0515
SGFR552F	6R015-1	STM GEN 1B UR-552
SGFR552M	6R015-2	STM GEN 1B UR-552
SGFR552	6R015-3	STM GEN 1B UR-552
MSA019P6	6R092-1	SG 1B STM PRESS PI-0524, 0525
MSA014P2	6R092-2	SG 1B STM PRESS PI-0524, 0525
SGFR553F	6R016-1	STM GEN 1C UR-553
SGFR553M	6R016-2	STM GEN 1C UR-553
SGFR553	6R016-3	STM GEN 1C UR-553
MSA056P6	6I101-1	SG 1C STM PRESS PI-0534, 0535
MSA023P2	6I101-2	SG 1C STM PRESS PI-0534, 0535
SGFR554F	6R017-1	STM GEN 1D UR-554
SGFR554M	6R017-2	STM GEN 1D UR-554
SGFR554	6R017-3	STM GEN 1D UR-554
MSA024P6	6I108-1	SG 1D STM PRESS PI-0544, 0545
MSA024P6	6I108-1	SG 1D STM PRESS PI-0544, 0545
MSA015P6	6I108-2	SG 1D STM PRESS PI-0544, 0545
FWLPGV1	6M008-M1	LO PRESS GVP %
FWT7102	6I067	SGFP SUCTION HDR TEMP TI-7102
FWP7101	6I068	SGFP DISCH HDR PRESS PI-7101
FWT7124	6I069	FW HTR 11A/11B DISCH TEMP TI-7124
FWP558	6I070	FW HTR 11A/11B DISCH PRESS PI-0558
FWHPGV1	6M008-M3	HI PRESS GVP %
FWF7114	6I051	SGFP 13 FLOW FI-7114
FWP7117	6I052	SGFP 13 DISCH PRESS PI-7117
FWT7125	6I045-1	FW LINE 1D TEMP DEVIATION TI-7125, 7125A
FWD7125	6I045-2	FW LINE 1D TEMP DEVIATION TI-7125, 7125A
AFAD73P1	6I112-1	AFW PMP FLOW TO SG 1D FI-7526
AFAD72P1	6I111-1	AFW PMP 14 DISCH PRESS PI-7529

ADDENDUM 10
OVERRIDES ACCEPTED FOR TRAINING/EXAMINATIONS
(Continued)

MNEMONIC	HARDWARE DESIGNATOR	DESCRIPTION
FWLPGV2	6M009-M1	LO PRESS GVP %
FWHPGV2	6M009-M3	HI PRESS GVP %
FWLPGV3	6M010-M1	LO PRESS GVP %
FWHPGV3	6M010-M3	HI PRESS GVP %
MSA015P7	7I015	MAIN STM HDR PRESS PI-557
MSA016P7	7I017	LEFT STM CHEST PRESS PI-7483
MSA017P7	7I018	RIGHT STM CHEST PRESS PI-7484
MSA014P7	7I014	TURB IMPULSE PRESS I/II PI-505, 506
EAC0046M	7I014	TURB IMPULSE PRESS I/II PI-505, 506
EAC9035M	7I019	GEN H2 PURITY AI-6057
EAC9036M	7I020	GEN H2 PRESS PI-6059
EAC9037M	7I021	GEN H2 CLD GAS TEMP TI-6050
EAC0046M	7I025	GENERATOR AMPS
EAC0049M	7I026	GENERATOR VOLTS
EAC0044M	7I028	GENERATOR MEGAWATTS
EAC0047M	7I029	GENERATOR MEGAVARS
EAC0042M	7I030	EXCITER FIELD AMPS
EAC0045M	7I031	EXCITER FIELD VOLTS
EAC0064M	7I023	345KV RUNNING VOLTAGE
EAC0065M	7I024	345KV INCOMING VOLTAGE
EAC002AM	7I022	GENERATOR SYNCHROSCOPE
EHMTVTRK	7M004-M1	EHC OPER DISP PAN
EHMGVTRK	7M004-M1	EHC OPER DISP PAN
EHMTV1VP	7M004-M1	EHC OPER DISP PAN
EHMTV2VP	7M004-M9	EHC OPER DISP PAN
EHMTV3VP	7M004-M8	EHC OPER DISP PAN
EHMTV4VP	7M004-M7	EHC OPER DISP PAN
EHMGV1VP	7M004-M6	EHC OPER DISP PAN
EHMGV2VP	7M004-M5	EHC OPER DISP PAN
EHMGV3VP	7M004-M4	EHC OPER DISP PAN
EHMGV4VP	7M004-M3	EHC OPER DISP PAN
EHMGOVC	7M004-M2	EHC OPER DISP PAN
EHMVPL	7M004-M1	EHC OPER DISP PAN
EHMSPEED	7M004-M1	EHC OPER DISP PAN
EHMMW	7M004-M1	EHC OPER DISP PAN
PDCSTMDD	7I011	STM DUMP DEMAND DI-555
TUPLUBE	7I007	MAIN BRG OIL PRESS PI-6232
TUTLUHEX	7I006	L.O. COOLERS OULT TEMP TI-6207A
TUPEHHP	7I013	EHC FLUID PRESS PI-6308
EAC0048M	7I027	GEN VOLT REG NULL METER
EACB003R	8R003	GEN MEGAWATTS

ADDENDUM 10
OVERRIDES ACCEPTED FOR TRAINING/EXAMINATIONS
(Continued)

MNEMONIC	HARDWARE DESIGNATOR	DESCRIPTION
MSAORTC1	8M002-M6	INLET S.T. 11L M-6+
MSAORTC2	8M002-M5	INLET S.T. 11L M-5+
MSAORTC3	8M002-M4	INLET S.T. 12L M-4+
MSAORTC4	8M002-M3	INLET S.T. 12L M-3+
MSAORTC5	8M002-M2	INLET S.T. 13L M-2+
MSAORTC6	8M002-M1	INLET S.T. 13L M-1+
CRCSTAPR	8I057	STA AIR PRESS PI-8509
CRCINAOP	8I058	INSTR AIR DRYER OUTL PRESS PI-8563
FWL7175	8I059-1	DEAER STORAGE TK LVL LI7175, 7175A
FWL7175A	8I059-2	DEAER STORAGE TK LVL LI7175, 7175A
FWP7174	8I061	DEAER PRESS PI-7174
FWP7383	8I037	LP HDP 11 DISCH PRESS PI-7383
FWF7384A	8I047	LP HDP 11 DISCH FLOW PI-7384A
FWP7388	8I009	LP HDP 12 DISCH PRESS PI-7388
FWF7389A	8I048	LP HDP 12 DISCH FLOW PI-7389A
FWP7393	8I021	LP HDP 13 DISCH PRESS PI-7393
FWF7394A	8I049	LP HDP 13 DISCH FLOW PI-7394A
MSA003P7	8I056	GLAND SEAL STM HDR PRESS PI-6151
MSA002P7	8I055	HP STM SEAL SPILLOVER PI-6154
MSA001P7	8I054	STM SEAL HDR TEMP TI-6972
CWLI6670	9I017	RESERVOIR LVL LI-6670
FWP6557	9I043	COND 11 VACUUM PI-7485
FWP6558	9I044	COND 12 VACUUM PI-7486
FWP6559	9I045	COND 13 VACUUM PI-7488
FWL7351	8I025	FLASH TK 11 LVL LI-7351
FWL7355	8I026	FLASH TK 12 LVL LI-7355
FWL7359	8I027	FLASH TK 13 LVL LI-7359
CDF7022	8I060	COND FLOW FI-7022
FWP7017	8I020	GLAND STM COND INL PRESS PI-7017
FWL7007	8I019	HOTWELL STD PIPE LVL LI-7007
FWCBP11	8I062	FW BSTR PUMP 11 AMPS
FWCBP12	8I063	FW BSTR PUMP 12 AMPS
FWCBP13	8I064	FW BSTR PUMP 13 AMPS
FWCA11	8I065	CONDENSATE PUMP 11 AMPS
FWCA12	8I066	CONDENSATE PUMP 12 AMPS
FWCA13	8I067	CONDENSATE PUMP 13 AMPS
ACPCHXO	9I041	ACW CL DISCH HDR PRESS PI-6809
ACPODPM	9I042	ACW OL DISCH HDR PRESS PI-6756
CWICP11	9I047	CIRC WTR PUMP 11 AMPS
CWICP12	9I048	CIRC WTR PUMP 12 AMPS
CWICP13	9I049	CIRC WTR PUMP 13 AMPS
CWICP14	9I050	CIRC WTR PUMP 14 AMPS

ADDENDUM 10
OVERRIDES ACCEPTED FOR TRAINING/EXAMINATIONS
(Continued)

MNEMONIC	HARDWARE DESIGNATOR	DESCRIPTION
EAC0064M	10M064	RUNNING VOLTS
EAC010BM	10I010-1	SYNCH SCOPE
EAC0065M	10M065	INCOMING VOLTS
EAC0066M	10M066	SWITCH YARD NORTH BUS VOLTS
EAC0067M	10M067	SWITCH YARD SOUTH BUS VOLTS
EAC0061M	10I061	AUX BUS 1D1 FROM XFMR 1D1 AMPS
EAC0063M	10I063	AUX BUS 1D2 FROM XFMR 1D2 AMPS
EAC0062M	10I062	AUX BUS 1D1 VOLTS
EAC0064M	10I064	AUX BUS 1D2 VOLTS
EAC0004M	10I004	UAT TO AUX BUS 1F AMPS
EAC0007M	10I007	AUX BUS 1F VOLTS
EAC0006M	10I006	STBY XFMR 1 (2) TO STBY BUS 1F AMPS
EAC0005M	10I005	STBY XFMR 2 (1) TO STBY BUS 1F AMPS
EAC0008M	10I008	STBY BUS 1F VOLTS
EAC0039M	10I039	STBY BUS 1F XFMR E1A AMPS
EAC0015M	10I015	UAT TO AUX BUS 1G AMPS
EAC0018M	10I018	AUX BUS 1G VOLTS
EAC0017M	10I017	STBY XFMR 1 TO STBY BUS 1G AMPS
EAC0016M	10I016	STBY XFMR 2 TO STBY BUS 1G AMPS
EAC0019M	10I019	STBY BUS 1G VOLTS
EAC0040M	10I040	STBY BUS 1G TO XFMR E1B AMPS
EAC0023M	10I023	UAT TO AUX BUS 1H AMPS
EAC0026M	10I026	AUX BUS 1H VOLTS
EAC0025M	10I025	STBY XFMR 1 TO STBY BUS 1H AMPS
EAC0024M	10I024	STBY XFMR 1 TO STBY BUS 1H AMPS
EAC0027M	10I027	STBY BUS 1H VOLTS
EAC0041M	10I041	STBY BUS 1H TO XFMR E1C AMPS
EAC0031M	10I031	UAT TO AUX BUS 1J AMPS
EAC0033M	10I033	STBY XFMR 1 TO AUX BUS 1J AMPS
EAC0037M	10I037	AUX BUS 1J VOLTS
EAC0032M	10I032	STBY XFMR 2 TO AUX BUS 1J AMPS
EAC0034M	10I034	EMER BUS 1L TO XFMR E1A AMPS
EAC0035M	10I035	EMER BUS 1L TO XFMR E1B AMPS
EAC0038M	10I038	EMER BUS 1L VOLTS
EAC0036M	10I036	EMER BUS 1L XFMR E1C AMPS
EAC0059A	10I59A	PILOT WIRE RELAY MILLAMETER
EAC0059B	10I59B	PILOT WIRE RELAY MILLAMETER

ADDENDUM 11
SURVEILLANCE TEST LIST

THE FOLLOWING IS A LIST OF SAFETY RELATED SURVEILLANCE PROCEDURES WHICH HAVE BEEN SELECTED BY THE SIMULATOR CONFIGURATION MANAGEMENT COMMITTEE AS REQUIRED FOR TRAINING.

EACH SURVEILLANCE PROCEDURE WAS COMPLETED USING A CONTROLLED COPY OF THE REFERENCE PLANT PROCEDURE.

THE COMPLETED PROCEDURES ARE MAINTAINED BY THE SIMULATOR SUPPORT SECTION AND ARE AVAILABLE FOR REVIEW.

PROCEDURE	TEST RESULTS
OFF/ONSITE SUPPLY BREAKER OPER (EA-002)	COMPLETED SAT 10/10/90
AFW P-11 INSERVICE TEST (AF-0001)	COMPLETED SAT 10/10/90
AFW P-12 INSERVICE TEST (AF-0002)	COMPLETED SAT 10/10/90
AFW P-13 INSERVICE TEST (AF-0003)	COMPLETED SAT 10/10/90
AFW P-14 INSERVICE TEST (AF-0007)	TESTED UN-SAT 10/10/90 DR #90211
CCW P-1A INSERVICE TEST (CC-0001)	COMPLETED SAT 10/10/90
CCW P-1B INSERVICE TEST (CC-0002)	COMPLETED SAT 10/10/90
CCW P-1C INSERVICE TEST (CC-0003)	COMPLETED SAT 10/10/90
STBY DG-11 OP TEST (DG-0001)	COMPLETED SAT 10/23/90
STBY DG-12 OP TEST (DG-0002)	COMPLETED SAT 10/23/90
STBY DG-13 OP TEST (DG-0003)	COMPLETED SAT 10/23/90

ADDENDUM 11
SURVEILLANCE TEST LIST
(Continued)

PROCEDURE	TEST RESULTS
RX CONT FAN COOLER OPERABILITY (HC-0001)	COMPLETED SAT 10/10/90
CR EMERG VENT SYSTEM (HE-0001)	COMPLETED SAT 10/10/90
FUEL HANDLING BLDG VENT (HF-0001)	COMPLETED SAT 10/11/90
MS SYS VLV OPER. TEST (MS-0001)	TESTED 10/11/90 MSIV B/P TEST UN-SAT BEYOND SCOPE OF SIM. REMAINDER COMPLETED SAT.
DAILY PR NI CHANNEL CALIBRATION (NI-0001)	TESTED 10/11/90 PROCEDURE CAN BE RUN ON SIM. BUT DATA COL. METHOD IS BEYOND SCOPE OF SIMULATION.
REACTOR COOLANT INVENTORY (RC-0006)	COMPLETED SAT 10/11/90 DR #1732 WRITTEN ON A SLOW RISE IN VCT LEVEL
PZR PORV OPERABILITY TEST (RC-0010)	TESTED UN-SAT 10/11/90 DR #90199 WRITTEN
RHR P-1A INSERVICE TEST (RH-0001)	COMPLETED SAT 10/10/90
RHR P-1B INSERVICE TEST (RH-0002)	TESTED UN-SAT 10/10/90 DR #90227 WRITTEN
RHR P-1C INSERVICE TEST (RH-0003)	COMPLETED SAT 10/10/90
MONTHLY CONT ROD OPER. (RS-0001)	COMPLETED SAT 10/09/90

ADDENDUM 11
SURVEILLANCE TEST LIST
(Continued)

PROCEDURE	TEST RESULTS
QPTR SURVEILLANCE WITH THE QPTR ALARM INOPERABLE. (1PSP10-NI-0002)	COMPLETED SAT 10/10/90
MONTHLY BORIC ACID FLOW PATH VERIFICATION (CV-0009)	COMPLETED SAT 10/10/90

ADDENDUM 12

FOUR YEAR SIMULATOR PERFORMANCE TEST SCHEDULE

The performance test schedule to be conducted over the next four years will consist of the following tests. The Performance Tests required by ANSI/ANS-3.5-1985 will be conducted annually.

MALFUNCTION 4 YEAR TEST SCHEDULE

MALFUNCTIONS TO BE TESTED DURING 1991

MNEMONIC	DESCRIPTION	TRIPLE CODE
X:RX0101	AUTO MODE CONT ROD WITHDRWL	01-01-01
X:RX0301	GRP-1, CB-C FAILS TO MOVE	01-03-01
X:RX0501	ROD H2 FAIL TO MOVE W/BNK C	01-05-01
X:RX0505	ROD F6 FAIL TO MOVE W/BNK C	01-05-05
X:RX0509	ROD D4 FAIL TO MOVE W/BNK D	01-05-09
X:RX0513	ROD H8 FAIL TO MOVE W/BNK D	01-05-13
X:RX0701	DROP ROD C9 OF SD B	01-07-01
X:RX0705	DROP ROD H14 OF CB C	01-07-05
X:RX0709	DROP ROD D12 OF CB D	01-07-09
X:RX0804	DROP GRP 2 RODS CB D	01-08-04
X:RX1101	ROD EJECTION D12 CB D GRP 2	01-11-01
X:RX1105	ROD EJECTION M12 CB D GRP 1	01-11-05
X:RX1203	FAILURE OF AUTO SI SGNL	01-12-03
X:RX1207	RX TRIP BKR R FAILS TO OPEN	01-12-07
X:RX1302	DRPI FAILURE DATA B	01-13-02
X:RX1404	FAIL DRPI CHANNEL J13	01-14-04
X:RX1408	FAIL DRPI CHANNEL H6	01-14-08
X:RX1412	FAIL DRPI CHANNEL H2	01-14-12
X:RX1501	COMPLETE LOSS OF DRPI	01-15-01
X:RX1604	FAIL ROD BLOCK C4	01-16-04
X:RX1802	C/BNKS IN WHEN OUT REQUIRED	01-18-02
X:RX1902	RX TRIP BKR P4 BKR OPEN TR R	01-19-02
X:RX2002	ROD G13 STUCK ON RX TRIP	01-20-02
X:RP2103	LOW FLOW RX TRIP LP 3 CH 1	01-21-03
X:RP2110	LOW FLOW RX TRIP LP 2 CH 3	01-21-10
X:RP2111	LOW FLOW RX TRIP LP 3 CH 3	01-21-11
X:RP2112	LOW FLOW RX TRIP LP 4 CH 3	01-21-12
X:RP2208	OP/DT RUNBACK CHNL 4	01-22-08
X:RP2212	OT/DT RX TRIP CHNL 4	01-22-12
X:RP2216	OT/DT RUNBACK CHNL 4	01-22-16
X:RX2304	LO T AVG LOOP 4 B/S	01-23-04
X:RX2308	LO-LO T AVG LOOP 4 B/S	01-23-08
X:RP2404	SPRAY ACT TEST BYP CH 4 B/S	01-24-04

ADDENDUM 12

FOUR YEAR SIMULATOR PERFORMANCE TEST SCHEDULE
(Continued)

MNEMONIC	DESCRIPTION	TRIPLE CODE
X:RP2409	CTMT PRESS HI-3 CH 2 B/S	01-24-09
X:RP2502	PZR PRESS LO RX TRIP CH 2	01-25-02
X:RP2506	PZR PRESS LO SI CH 2	01-25-06
X:RP2510	PZR PRESS HI RX TRIP CH 2	01-25-10
X:RP2514	PZR PRESS BLOCK CH 2	01-25-14
X:RP2518	PZR LEVEL HI RX TRIP CH 3	01-25-18
X:RP2603	RCP 1C U/V RX TRIP CH-3 B/S	01-26-03
X:RP2607	RCP 1C U/F RX TRIP CH-3 B/S	01-26-07
X:NI2703	SR TRIP/BYP CH 1 B/S	01-27-03
X:NI2707	IR TRIP/BYP CH 1 B/S	01-27-07
X:NI2801	POWER RANGE P-8 CH 1 B/S	01-28-01
X:NI2805	POWER RANGE P-9 CH 1 B/S	01-28-05
X:NI2809	POWER RANGE P7/P10 CH 1 B/S	01-28-09
X:NI2901	PR OVRPWR ROD STOP BYP CH 1	01-29-01
X:NI2905	POWER RANGE LO CH 1 B/S	01-29-05
X:NI2909	POWER RANGE HI CH 1 B/S	01-29-09
X:NI2913	POWER RANGE RATE CH 1 B/S	01-29-13
XNNI3001	SR CHNL 31 FAILS HI	01-30-01
XRNI3201	SOURCE RANGE CH 31 SLUGGISH	01-32-01
X:NI3402	IR CH 36 OVER COMPENSATED	01-34-02
X:NI3602	IR CH 36 FAILS HIGH	01-36-02
X:NI3802	LOSS OF PWR TO PR CH 42	01-38-02
X:RC0102	RCS COLD LEG RUPTURE LOOP 1B	02-01-02
XNRC0302	RCS LEAK, FLOW XMTR LOOP B	02-03-02
XNRC0501	RCS LEAK, RV HEAD FLANGE	02-05-01
X:RC0704	SHEARED RCP SHAFT - RCP 1D	02-07-04
X:RC0804	LOCKED RCP ROTOR - RCP 1D	02-08-04
X:RC0904	RCP 1D TRIPS ON UNDER FREQ	02-09-04
X:RC1004	RCP 1D TRIP ON UNDER VOLTAGE	02-10-04
XNRC1401	PZR SAFETY VLV LEAK PSV 3450	02-14-01
X:RC1502	PZR SPRAY VLV FC PCV-655C	02-15-02
X:PZ1702	PZR PRES CONTROL FAIL +30PSI	02-17-02
XNRC1903	PT 457 FAILS TO ANY POSITION	02-19-03
X:RC2101	PZR HTR B/U GP E FAILS ON	02-21-01
X:RC2303	PZR HTR GP C FAIL TO COME ON	02-23-03
XNRC2402	RCS PRES XMTR PT 405 FAILS	02-24-02
XNRC2505	RTD FAILS HOT LEG A TT 413	02-25-05
XNRC2506	RTD FAILS COLD LEG A TT 414	02-25-06
XNRC2601	RTD FAILS HOT LEG B TT 420A	02-26-01
XNRC2606	RTD FAILS COLD LEG B TT 424	02-26-06
XNRC2805	RTD FAILS HOT LEG D TT 443	02-28-05
X:CV0201	LOSS OF LTDN IN BORATE MODE	03-02-01
X:CV0601	LTDN VLV PCV-135 FAILS CLOSE	03-06-01

ADDENDUM 12

FOUR YEAR SIMULATOR PERFORMANCE TEST SCHEDULE
(Continued)

MNEMONIC	DESCRIPTION	TRIPLE CODE
X:CV0902	LOSS OF CHARGING PUMP CCP-1B	03-09-02
XNCV1201	LTDN LINE LEAK OUTSIDE RCB	03-12-01
X:BT1601	BTRS WILL NOT DILUTE	03-16-01
X:MW1901	RX MU CNTRL FAILS IN BORATE	03-19-01
XRCV2202	HI DP SEALWATER INJ FILTER B	03-22-02
XNCV2304	RCP 1B #2 SEAL FAILS	03-23-04
XNCV2308	RCP 1D #2 SEAL FAILS	03-23-08
X:CC0201	LOSS OF CCW PUMP 1A-FT-4512	04-02-01
XNCC0302	LOSS CCW TO RCP 1B THERM BAR	04-03-02
X:CC0402	LOSS CCW TO RHR HEAT EXCH 1B	04-04-02
XNCC0701	CCW/ECW HX TUBE LEAK	04-07-01
X:EC0903	ECW PUMP 1C FAILS ON O/L	04-09-03
X:EC0906	TRIP ESSENTIAL CHILLER 11C	04-09-06
X:RH1101	RHR PMP RELIEF PSV-3851 FO	04-11-01
XNRH1202	TUBE LEAK IN RHR HX 1B	04-12-02
X:SI1401	LOSS OF LHSI PUMP 1A ON O/L	04-14-01
X:SI1503	ACCUM DISCH VLV F/OP 039C	04-15-03
X:CS1603	LOSS OF CNTMT SPR PUMP 1C	04-16-03
XNSI1801	LEAK PAST SI ACCU 1A CHK VLV	04-18-01
XNMS0201	STM BKR IN CONTAINMENT LOOP A	05-02-01
XNSG0301	STEAM GEN TUBE LEAK - SG 1A	05-03-01
X:MS0401	MN STM SFTY VLV PSV 7410 FO	05-04-01
XNMS0501	MS SAFETY PSV 7410 SEAT LEAK	05-05-01
X:MS0601	MSIV FAILS CLOSED SG A	05-06-01
X:MS0701	MSIV FAIL TO OPERATE MS 7414	05-07-01
X:MS0801	MSIV SHUTS DURING TEST SG A	05-08-01
X:MS0901	GLAND SEAL REGULATOR PV-6150 F/O	05-09-01
X:MS1103	NO STM FLO SIG TO FWCS SG C	05-11-03
X:SG1203	NO SG LVL SIG TO FWCS SG 1C	05-12-03
X:PD1302	BNK 2 STM DMPS FAIL TO CLOSE	05-13-02
XNMS1501	NO RHT STM FRM MSR CNTRL SYS	05-15-01
X:TU0101	TURB TRIP FROM AST 20-1,20-2	06-01-01
X:TU0303	MN TURBINE THROTTLE VLV FO C	06-03-03
X:TU0403	MAIN TURB GOVERNOR VLV 3 FO	06-04-03
X:TU0503	MN TURBINE GOVERNOR VLV FC 3	06-05-03
XNTU0901	MN TURB LUBE OIL TEMP HI	06-09-01
X:EH1401	EHC AUTO MODE FAILURE	06-14-01
XRPD1801	TREF SIG TO STM DUMPS FAIL	06-18-01
XRTU1904	MN TURB VIBRATION HI BRNG 4	06-19-04
XRTU1908	MN TURB VIBRATION HI BRNG 8	06-19-08
XRTU2001	MN TURB ECCENTRICITY HI	06-20-01
XNCD0201	CONDENSER AIR IN LEAKAGE	07-02-01

ADDENDUM 12

FOUR YEAR SIMULATOR PERFORMANCE TEST SCHEDULE
(Continued)

MNEMONIC	DESCRIPTION	TRIPLE CODE
X:CD0403	LOSS OF MAIN FW PUMP - 13	07-04-03
X:AF0201	AUX FW PUMP NO 14 OVERSPEEDS	08-02-01
X:AF0401	LOSS OF STEAM AUX FW PUMP	08-04-01
X:AF0504	AFW X-CONN VLV FY-7518 FAILS	08-05-04
XNFW0901	LOSS OF PUMP CONTROL - MFP11	08-09-01
X:PF1002	FAIL AUTO SPEED CNTRL MFP-12	08-10-02
X:FW1203	TURB OVERSPEED TRIP MFP-13	08-12-03
X:FW1204	STARTUP FP OVERLOAD TRIP	08-12-04
X:PG1401	AUTO FW CNTRL SYS FAILS SG-A	08-14-01
X:FW1501	LOSS OF FEED FLOW SIG SG-A	08-15-01
X:FW1601	MN FW REG VLV F/C FCV-551	08-16-01
X:FW1701	MN FW REG VLV STUCK FCV-551	08-17-01
XNFW1801	MN FW REG VLV LEAKS FCV-551	08-18-01
XNFW1901	FW REG BYP VLV STUCK FV-7151	08-19-01
X:FW2001	MFP RECIRC VLV F/O FV-7104	08-20-01
X:CD2302	LOSS OF CONDENSATE PUMP 12	08-23-02
XNCD2501	HI CONDUCTIVITY COND/FW SYS	08-25-01
X:FW2802	LOSS OF LP HTR DRAIN PMP-12	08-28-02
X:HV0103	LOSS OF CRDM COOLING FAN 11C	09-01-03
X:HV0204	LOSS OF CNTMT FAN CLR 12A	09-02-04
XRRM0401	RADIO ACTIV REL OF LIQ WASTE	09-04-01
X:RM0801	LOSS OF PWR TO RIT-8012	09-08-01
X:HV1103	SMOKE IN CTRL RM ESF ACT	09-11-03
X:EA0102	LOSS OF EMERGENCY DG 12	10-01-02
X:EA0203	EMERGENCY DG 13 FAIL TO LOAD	10-02-03
X:EA0502	LOSS OF DP-1202	10-05-02
X:EA0701	LOSS OF UNIT AUX TRANSFORMER	10-07-01
X:EA0903	LOSS OF 13.8KV STBY BUS 1H	10-09-03
X:EA1101	LOSS OF 4.16KV ESF BUS E1A	10-11-01
X:EA1202	LOSS OF 480V ESF MCC E1A2	10-12-02
X:EA1206	LOSS OF 480V ESF MCC E1B3	10-12-06
X:EA1301	LOSS OF 138KV EMERGENCY XFMR	10-13-01
X:EA1503	LOSS OF NON 1E DC PNL PL125E	10-15-03
X:GE1602	LOSS OF GEN SEAL OIL REG 264	10-16-02
X:AC0202	LOSS OF ACW CLSD LP PMP 12	11-02-02
X:CM0701	LOSS OF PLANT COMPUTER	11-07-01
X:AN0802	PANEL 2 ANNUNCIATOR FAILURE	11-08-02
X:AN0806	PANEL 6 ANNUNCIATOR FAILURE	11-08-06
XIAN0902	CRYWOLF LAMP 1M002-B1	11-09-02
XIAN0906	CRYWOLF LAMP 1M002-F1	11-09-06
XIAN0910	CRYWOLF LAMP 1M002-D2	11-09-10
XIAN0914	CRYWOLF LAMP 1M002-B3	11-09-14
XIAN0918	CRYWOLF LAMP 1M002-F3	11-09-18

ADDENDUM 12

FOUR YEAR SIMULATOR PERFORMANCE TEST SCHEDULE
(Continued)

MNEMONIC	DESCRIPTION	TRIPLE CODE
XIAN0922	CRYWOLF LAMP 1M002-D4	11-09-22
XIAN0926	CRYWOLF LAMP 1M002-B5	11-09-26
XIAN0930	CRYWOLF LAMP 1M002-F5	11-09-30
XIAN0934	CRYWOLF LAMP 1M002-D6	11-09-34
XIAN0938	CRYWOLF LAMP 1M002-B7	11-09-38
XIAN0942	CRYWOLF LAMP 1M002-F7	11-09-42
XIAN0946	CRYWOLF LAMP 1M002-D8	11-09-46
XIAN0950	CRYWOLF LAMP 2M002-B1	11-09-50
XIAN0954	CRYWOLF LAMP 2M002-F1	11-09-54
XIAN0958	CRYWOLF LAMP 2M002-D2	11-09-58
XIAN0962	CRYWOLF LAMP 2M002-B3	11-09-62
XIAN0966	CRYWOLF LAMP 2M002-F3	11-09-66
XIAN0970	CRYWOLF LAMP 2M002-D4	11-09-70
XIAN0974	CRYWOLF LAMP 2M002-B5	11-09-74
XIAN0978	CRYWOLF LAMP 2M002-F5	11-09-78
XIAN0982	CRYWOLF LAMP 2M002-D6	11-09-82
XIAN0986	CRYWOLF LAMP 2M002-B7	11-09-86
XIAN0990	CRYWOLF LAMP 2M002-F7	11-09-90
XIAN0994	CRYWOLF LAMP 2M002-D8	11-09-94
XIAN1002	CRYWOLF LAMP 2M003-B1	11-10-02
XIAN1006	CRYWOLF LAMP 2M003-F1	11-10-06
XIAN1010	CRYWOLF LAMP 2M003-D2	11-10-10
XIAN1014	CRYWOLF LAMP 2M003-B3	11-10-14
XIAN1018	CRYWOLF LAMP 2M003-F3	11-10-18
XIAN1022	CRYWOLF LAMP 2M003-D4	11-10-22
XIAN1026	CRYWOLF LAMP 2M003-B5	11-10-26
XIAN1030	CRYWOLF LAMP 2M003-F5	11-10-30
XIAN1034	CRYWOLF LAMP 2M003-D6	11-10-34
XIAN1038	CRYWOLF LAMP 2M003-B7	11-10-38
XIAN1042	CRYWOLF LAMP 2M003-F7	11-10-42
XIAN1046	CRYWOLF LAMP 2M003-D8	11-10-46
XIAN1050	CRYWOLF LAMP 2M004-B1	11-10-50
XIAN1054	CRYWOLF LAMP 2M004-F1	11-10-54
XIAN1058	CRYWOLF LAMP 2M004-D2	11-10-58
XIAN1062	CRYWOLF LAMP 2M004-B3	11-10-62
XIAN1066	CRYWOLF LAMP 2M004-F3	11-10-66
XIAN1070	CRYWOLF LAMP 2M004-D4	11-10-70
XIAN1074	CRYWOLF LAMP 2M004-B5	11-10-74
XIAN1078	CRYWOLF LAMP 2M004-F5	11-10-78
XIAN1082	CRYWOLF LAMP 2M004-D6	11-10-82
XIAN1086	CRYWOLF LAMP 2M004-B7	11-10-86
XIAN1090	CRYWOLF LAMP 2M004-F7	11-10-90
XIAN1094	CRYWOLF LAMP 2M004-D8	11-10-94

ADDENDUM 12

FOUR YEAR SIMULATOR PERFORMANCE TEST SCHEDULE
(Continued)

MNEMONIC	DESCRIPTION	TRIPLE CODE
XIAN1102	CRYWOLF LAMP 3M002-B1	11-11-02
XIAN1106	CRYWOLF LAMP 3M002-F1	11-11-06
XIAN1110	CRYWOLF LAMP 3M002-D2	11-11-10
XIAN1114	CRYWOLF LAMP 3M002-B3	11-11-14
XIAN1118	CRYWOLF LAMP 3M002-F3	11-11-18
XIAN1122	CRYWOLF LAMP 3M002-D4	11-11-22
XIAN1126	CRYWOLF LAMP 3M002-B5	11-11-26
XIAN1130	CRYWOLF LAMP 3M002-F5	11-11-30
XIAN1134	CRYWOLF LAMP 3M002-D6	11-11-34
XIAN1138	CRYWOLF LAMP 3M002-B7	11-11-38
XIAN1142	CRYWOLF LAMP 3M002-F7	11-11-42
XIAN1146	CRYWOLF LAMP 3M002-D8	11-11-46
XIAN1150	CRYWOLF LAMP 3M003-B1	11-11-50
XIAN1154	CRYWOLF LAMP 3M003-F1	11-11-54
XIAN1158	CRYWOLF LAMP 3M003-D2	11-11-58
XIAN1162	CRYWOLF LAMP 3M003-B3	11-11-62
XIAN1166	CRYWOLF LAMP 3M003-F3	11-11-66
XIAN1170	CRYWOLF LAMP 3M003-D4	11-11-70
XIAN1174	CRYWOLF LAMP 3M003-B5	11-11-74
XIAN1178	CRYWOLF LAMP 3M003-F5	11-11-78
XIAN1182	CRYWOLF LAMP 3M003-D6	11-11-82
XIAN1186	CRYWOLF LAMP 3M003-B7	11-11-86
XIAN1190	CRYWOLF LAMP 3M003-F7	11-11-90
XIAN1194	CRYWOLF LAMP 3M003-D8	11-11-94
XIAN1202	CRYWOLF LAMP 4M007-B1	11-12-02
XIAN1206	CRYWOLF LAMP 4M007-F1	11-12-06
XIAN1210	CRYWOLF LAMP 4M007-D2	11-12-10
XIAN1214	CRYWOLF LAMP 4M007-B3	11-12-14
XIAN1218	CRYWOLF LAMP 4M007-F3	11-12-18
XIAN1222	CRYWOLF LAMP 4M007-D4	11-12-22
XIAN1226	CRYWOLF LAMP 4M007-B5	11-12-26
XIAN1230	CRYWOLF LAMP 4M007-F5	11-12-30
XIAN1234	CRYWOLF LAMP 4M007-D6	11-12-34
XIAN1238	CRYWOLF LAMP 4M007-B7	11-12-38
XIAN1242	CRYWOLF LAMP 4M007-F7	11-12-42
XIAN1246	CRYWOLF LAMP 4M007-D8	11-12-46
XIAN1250	CRYWOLF LAMP 4M008-B1	11-12-50
XIAN1254	CRYWOLF LAMP 4M008-F1	11-12-54
XIAN1258	CRYWOLF LAMP 4M008-D2	11-12-58
XIAN1262	CRYWOLF LAMP 4M008-B3	11-12-62
XIAN1266	CRYWOLF LAMP 4M008-F3	11-12-66
XIAN1270	CRYWOLF LAMP 4M008-D4	11-12-70
XIAN1274	CRYWOLF LAMP 4M008-B5	11-12-74

ADDENDUM 12

FOUR YEAR SIMULATOR PERFORMANCE TEST SCHEDULE
(Continued)

MNEMONIC	DESCRIPTION	TRIPLE CODE
XIAN1278	CRYWOLF LAMP 4M008-F5	11-12-78
XIAN1282	CRYWOLF LAMP 4M008-D6	11-12-82
XIAN1286	CRYWOLF LAMP 4M008-B7	11-12-86
XIAN1290	CRYWOLF LAMP 4M008-F7	11-12-90
XIAN1294	CRYWOLF LAMP 4M008-D8	11-12-94
XIAN1302	CRYWOLF LAMP 5M002-B1	11-13-02
XIAN1306	CRYWOLF LAMP 5M002-F1	11-13-06
XIAN1310	CRYWOLF LAMP 5M002-D2	11-13-10
XIAN1314	CRYWOLF LAMP 5M002-B3	11-13-14
XIAN1318	CRYWOLF LAMP 5M002-F3	11-13-18
XIAN1322	CRYWOLF LAMP 5M002-D4	11-13-22
XIAN1326	CRYWOLF LAMP 5M002-B5	11-13-26
XIAN1330	CRYWOLF LAMP 5M002-F5	11-13-30
XIAN1334	CRYWOLF LAMP 5M002-D6	11-13-34
XIAN1338	CRYWOLF LAMP 5M002-B7	11-13-38
XIAN1342	CRYWOLF LAMP 5M002-F7	11-13-42
XIAN1346	CRYWOLF LAMP 5M002-D8	11-13-46
XIAN1350	CRYWOLF LAMP 5M003-B1	11-13-50
XIAN1354	CRYWOLF LAMP 5M003-F1	11-13-54
XIAN1358	CRYWOLF LAMP 5M003-D2	11-13-58
XIAN1362	CRYWOLF LAMP 5M003-B3	11-13-62
XIAN1402	CRYWOLF LAMP 5M003-F3	11-14-02
XIAN1406	CRYWOLF LAMP 5M003-D4	11-14-06
XIAN1410	CRYWOLF LAMP 5M003-B5	11-14-10
XIAN1414	CRYWOLF LAMP 5M003-F5	11-14-14
XIAN1418	CRYWOLF LAMP 5M003-D6	11-14-18
XIAN1422	CRYWOLF LAMP 5M003-B7	11-14-22
XIAN1426	CRYWOLF LAMP 5M003-F7	11-14-26
XIAN1430	CRYWOLF LAMP 5M003-D8	11-14-30
XIAN1434	CRYWOLF LAMP 5M004-B1	11-14-34
XIAN1438	CRYWOLF LAMP 5M004-F1	11-14-38
XIAN1442	CRYWOLF LAMP 5M004-D2	11-14-42
XIAN1446	CRYWOLF LAMP 5M004-B3	11-14-46
XIAN1450	CRYWOLF LAMP 5M004-F3	11-14-50
XIAN1454	CRYWOLF LAMP 5M004-D4	11-14-54
XIAN1458	CRYWOLF LAMP 5M004-B5	11-14-58
XIAN1462	CRYWOLF LAMP 5M004-F5	11-14-62
XIAN1502	CRYWOLF LAMP 5M004-D6	11-15-02
XIAN1506	CRYWOLF LAMP 5M004-B7	11-15-06
XIAN1510	CRYWOLF LAMP 5M004-F7	11-15-10
DELETE**	CRYWOLF LAMP 5M004-D8	11-15-14
XIAN1518	CRYWOLF LAMP 6M003-B1	11-15-18
XIAN1522	CRYWOLF LAMP 6M003-F1	11-15-22

ADDENDUM 12

FOUR YEAR SIMULATOR PERFORMANCE TEST SCHEDULE
(Continued)

MNEMONIC	DESCRIPTION	TRIPLE CODE
XIAN1526	CRYWOLF LAMP 6M003-D2	11-15-26
XIAN1530	CRYWOLF LAMP 6M003-B3	11-15-30
XIAN1534	CRYWOLF LAMP 6M003-F3	11-15-34
XIAN1538	CRYWOLF LAMP 6M003-D4	11-15-38
XIAN1542	CRYWOLF LAMP 6M003-B5	11-15-42
XIAN1546	CRYWOLF LAMP 6M003-F5	11-15-46
XIAN1550	CRYWOLF LAMP 6M003-D6	11-15-50
XIAN1554	CRYWOLF LAMP 6M003-B7	11-15-54
XIAN1558	CRYWOLF LAMP 6M003-F7	11-15-58
XIAN1562	CRYWOLF LAMP 6M003-D8	11-15-62
XIAN1566	CRYWOLF LAMP 6M004-B1	11-15-66
XIAN1570	CRYWOLF LAMP 6M004-F1	11-15-70
XIAN1574	CRYWOLF LAMP 6M004-D2	11-15-74
XIAN1578	CRYWOLF LAMP 6M004-B3	11-15-78
XIAN1582	CRYWOLF LAMP 6M004-F3	11-15-82
XIAN1586	CRYWOLF LAMP 6M004-D4	11-15-86
XIAN1590	CRYWOLF LAMP 6M004-B5	11-15-90
XIAN1594	CRYWOLF LAMP 6M004-F5	11-15-94
XIAN1602	CRYWOLF LAMP 6M004-D6	11-16-02
XIAN1606	CRYWOLF LAMP 6M004-B7	11-16-06
XIAN1610	CRYWOLF LAMP 6M004-F7	11-16-10
XIAN1614	CRYWOLF LAMP 6M004-D8	11-16-14
XIAN1618	CRYWOLF LAMP 6M005-B1	11-16-18
XIAN1622	CRYWOLF LAMP 6M005-F1	11-16-22
XIAN1626	CRYWOLF LAMP 6M005-D2	11-16-26
XIAN1630	CRYWOLF LAMP 6M005-B3	11-16-30
XIAN1634	CRYWOLF LAMP 6M005-F3	11-16-34
XIAN1638	CRYWOLF LAMP 6M005-D4	11-16-38
XIAN1642	CRYWOLF LAMP 7M001-B1	11-16-42
XIAN1646	CRYWOLF LAMP 7M001-F1	11-16-46
XIAN1650	CRYWOLF LAMP 7M001-D2	11-16-50
XIAN1654	CRYWOLF LAMP 7M001-B3	11-16-54
XIAN1658	CRYWOLF LAMP 7M001-F3	11-16-58
XIAN1662	CRYWOLF LAMP 7M001-D4	11-16-62
XIAN1666	CRYWOLF LAMP 7M001-B5	11-16-66
XIAN1670	CRYWOLF LAMP 7M001-F5	11-16-70
XIAN1674	CRYWOLF LAMP 7M001-D6	11-16-74
XIAN1678	CRYWOLF LAMP 7M001-B7	11-16-78
XIAN1682	CRYWOLF LAMP 7M001-F7	11-16-82
XIAN1686	CRYWOLF LAMP 7M001-D8	11-16-86
XIAN1690	CRYWOLF LAMP 7M003-B1	11-16-90
XIAN1694	CRYWOLF LAMP 7M003-F1	11-16-94
XIAN1702	CRYWOLF LAMP 7M003-D2	11-17-02

ADDENDUM 12

FOUR YEAR SIMULATOR PERFORMANCE TEST SCHEDULE
(Continued)

MNEMONIC	DESCRIPTION	TRIPLE CODE
XIAN1706	CRYWOLF LAMP 7M003-B3	11-17-06
XIAN1710	CRYWOLF LAMP 7M003-F3	11-17-10
XIAN1714	CRYWOLF LAMP 7M003-D4	11-17-14
XIAN1718	CRYWOLF LAMP 7M003-B5	11-17-18
XIAN1722	CRYWOLF LAMP 7M003-F5	11-17-22
XIAN1726	CRYWOLF LAMP 7M003-D6	11-17-26
XIAN1730	CRYWOLF LAMP 7M003-B7	11-17-30
XIAN1734	CRYWOLF LAMP 7M003-F7	11-17-34
XIAN1738	CRYWOLF LAMP 7M003-D8	11-17-38
XIAN1742	CRYWOLF LAMP 8M003-B1	11-17-42
XIAN1746	CRYWOLF LAMP 8M003-F1	11-17-46
XIAN1750	CRYWOLF LAMP 8M003-D2	11-17-50
XIAN1754	CRYWOLF LAMP 8M003-B3	11-17-54
XIAN1758	CRYWOLF LAMP 8M003-F3	11-17-58
XIAN1762	CRYWOLF LAMP 8M003-D4	11-17-62
XIAN1766	CRYWOLF LAMP 8M003-B5	11-17-66
XIAN1770	CRYWOLF LAMP 8M003-F5	11-17-70
XIAN1774	CRYWOLF LAMP 8M003-D6	11-17-74
XIAN1778	CRYWOLF LAMP 8M003-B7	11-17-78
XIAN1782	CRYWOLF LAMP 8M003-F7	11-17-82
XIAN1786	CRYWOLF LAMP 8M003-D8	11-17-86
XIAN1790	CRYWOLF LAMP 9M001-B1	11 17-90
XIAN1794	CRYWOLF LAMP 9M001-F1	11-17-94
XIAN1802	CRYWOLF LAMP 9M001-D2	11-18-02
XIAN1806	CRYWOLF LAMP 9M001-B3	11-18-06
XIAN1810	CRYWOLF LAMP 9M001-F3	11-18-10
XIAN1814	CRYWOLF LAMP 9M001-D4	11-18-14
XIAN1818	CRYWOLF LAMP 9M001-B5	11-18-18
XIAN1822	CRYWOLF LAMP 9M001-F5	11-18-22
XIAN1826	CRYWOLF LAMP 9M001-D6	11-18-26
XIAN1830	CRYWOLF LAMP 9M001-B7	11-18-30
XIAN1834	CRYWOLF LAMP 9M001-F7	11-18-34
XIAN1838	CRYWOLF LAMP 9M001-D8	11-18-38
XIAN1842	CRYWOLF LAMP 10M001-B1	11-18-42
XIAN1846	CRYWOLF LAMP 10M001-F1	11-18-46
XIAN1850	CRYWOLF LAMP 10M001-D2	11-18-50
XIAN1854	CRYWOLF LAMP 10M001-B3	11-18-54
XIAN1858	CRYWOLF LAMP 10M001-F3	11-18-58
XIAN1862	CRYWOLF LAMP 10M001-D4	11-18-62
XIAN1866	CRYWOLF LAMP 10M001-B5	11-18-66
XIAN1870	CRYWOLF LAMP 10M001-F5	11-18-70
XIAN1874	CRYWOLF LAMP 10M001-D6	11-18-74
XIAN1878	CRYWOLF LAMP 10M001-B7	11-18-78

ADDENDUM 12

FOUR YEAR SIMULATOR PERFORMANCE TEST SCHEDULE
(Continued)

MNEMONIC	DESCRIPTION	TRIPLE CODE
XIAN1882	CRYWOLF LAMP 10M001-F7	11-18-82
XIAN1886	CRYWOLF LAMP 10M001-D8	11-18-86
XIAN1890	CRYWOLF LAMP 10M002-B1	11-18-90
XIAN1894	CRYWOLF LAMP 10M002-F1	11-18-94
XIAN1902	CRYWOLF LAMP 10M002-D2	11-19-02
XIAN1906	CRYWOLF LAMP 10M002-B3	11-19-06
XIAN1910	CRYWOLF LAMP 10M002-F3	11-19-10
XIAN1914	CRYWOLF LAMP 10M002-D4	11-19-14
XIAN1918	CRYWOLF LAMP 10M002-B5	11-19-18
XIAN1922	CRYWOLF LAMP 10M002-F5	11-19-22
XIAN1926	CRYWOLF LAMP 10M002-D6	11-19-26
XIAN1930	CRYWOLF LAMP 10M002-B7	11-19-30
XIAN1934	CRYWOLF LAMP 10M002-F7	11-19-34
XIAN1938	CRYWOLF LAMP 10M002-D8	11-19-38
XIAN1942	CRYWOLF LAMP 21M001-B1	11-19-42
XIAN1946	CRYWOLF LAMP 21M001-F1	11-19-46
XIAN1950	CRYWOLF LAMP 21M001-D2	11-19-50
XIAN1954	CRYWOLF LAMP 21M001-B3	11-19-54
XIAN1958	CRYWOLF LAMP 21M001-F3	11-19-58
XIAN1962	CRYWOLF LAMP 21M001-D4	11-19-62
XIAN1966	CRYWOLF LAMP 21M001-B5	11-19-66
XIAN1970	CRYWOLF LAMP 21M001-F5	11-19-70
XIAN1974	CRYWOLF LAMP 21M001-D6	11-19-74
XIAN1978	CRYWOLF LAMP 21M001-B7	11-19-78
XIAN1982	CRYWOLF LAMP 21M001-F7	11-19-82
XIAN1986	CRYWOLF LAMP 21M001-D8	11-19-86
XIAN1990	CRYWOLF LAMP 22M001-B1	11-19-90
XIAN1994	CRYWOLF LAMP 22M001-F1	11-19-94
XIAN2002	CRYWOLF LAMP 22M001-D2	11-20-02
XIAN2006	CRYWOLF LAMP 22M001-B3	11-20-06
XIAN2010	CRYWOLF LAMP 22M001-F3	11-20-10
XIAN2014	CRYWOLF LAMP 22M001-D4	11-20-14
XIAN2018	CRYWOLF LAMP 22M001-B5	11-20-18
XIAN2022	CRYWOLF LAMP 22M001-F5	11-20-22
XIAN2026	CRYWOLF LAMP 22M001-D6	11-20-26
XIAN2030	CRYWOLF LAMP 22M001-B7	11-20-30
XIAN2034	CRYWOLF LAMP 22M001-F7	11-20-34
XIAN2038	CRYWOLF LAMP 22M001-D8	11-20-38
XIAN2042	CRYWOLF LAMP 22M002-B1	11-20-42
XIAN2046	CRYWOLF LAMP 22M002-F1	11-20-46
XIAN2050	CRYWOLF LAMP 22M002-D2	11-20-50
XIAN2054	CRYWOLF LAMP 22M002-B3	11-20-54
XIAN2058	CRYWOLF LAMP 22M002-F3	11-20-58

ADDENDUM 12

FOUR YEAR SIMULATOR PERFORMANCE TEST SCHEDULE
(Continued)

MNEMONIC	DESCRIPTION	TRIPLE CODE
XIAN2062	CRYWOLF LAMP 22M002-D4	11-20-62
XIAN2066	CRYWOLF LAMP 22M002-B5	11-20-66
XIAN2070	CRYWOLF LAMP 22M002-F5	11-20-70
XIAN2074	CRYWOLF LAMP 22M002-D6	11-20-74
XIAN2078	CRYWOLF LAMP 22M002-B7	11-20-78
XIAN2082	CRYWOLF LAMP 22M002-F7	11-20-82
XIAN2086	CRYWOLF LAMP 22M002-D8	11-20-86
XIAN2090	CRYWOLF LAMP 22M003-B1	11-20-90
XIAN2094	CRYWOLF LAMP 22M003-F1	11-20-94
XIAN2102	CRYWOLF LAMP 22M003-D2	11-21-02
XIAN2106	CRYWOLF LAMP 22M003-B3	11-21-06
XIAN2110	CRYWOLF LAMP 22M003-F3	11-21-10
XIAN2114	CRYWOLF LAMP 22M003-D4	11-21-14
XIAN2118	CRYWOLF LAMP 22M003-B5	11-21-18
XIAN2122	CRYWOLF LAMP 22M003-F5	11-21-22
XIAN2126	CRYWOLF LAMP 22M003-D6	11-21-26
XIAN2130	CRYWOLF LAMP 22M003-B7	11-21-30
XIAN2134	CRYWOLF LAMP 22M003-F7	11-21-34
XIAN2138	CRYWOLF LAMP 22M003-D8	11-21-38

ADDENDUM 12

FOUR YEAR SIMULATOR PERFORMANCE TEST SCHEDULE
(Continued)

MALFUNCTIONS TO BE TESTED DURING 1992

MNEMONIC	DESCRIPTION	TRIPLE CODE
X:RX0102	MAN MODE CONT ROD WITHDRWL	01-01-02
X:RX0302	GRP-1, CB-D FAILS TO MOVE	01-03-02
X:RX0502	ROD B2 FAIL TO MOVE W/BNK C	01-05-02
X:RX0506	ROD F10 FAIL TO MOVE W/BNK C	01-05-06
X:RX0510	ROD M12 FAIL TO MOVE W/BNK D	01-05-10
XRRX0601	IMPROPER OVLP CB A TO CB B	01-06-01
X:RX0702	DROP ROD E3 OF SD C	01-07-02
X:RX0706	DROP ROD K6 OF CB C	01-07-06
X:RX0801	DROP GRP 1 RODS CB C	01-08-01
X:RX0901	RODS FAIL TO MOVE IN AUTO	01-09-01
X:RX1102	ROD EJECTION M4 CB D GRP 2	01-11-02
X:RX1201	FAILURE OF AUTO RX TRIP SGNL	01-12-01
X:RX1204	FAILURE OF AUTO PH A ISOL	01-12-04
X:RX1208	RX TRIP BKR S FAILS TO OPEN	01-12-08
X:RX1401	FAIL DRPI CHANNEL M2	01-14-01
X:RX1405	FAIL DRPI CHANNEL L13	01-14-05
X:RX1409	FAIL DRPI CHANNEL E11	01-14-09
X:RX1413	FAIL DRPI CHANNEL P8	01-14-13
X:RX1601	FAIL ROD BLOCK C1	01-16-01
X:RX1701	RODS MOVE AT MIN SPEED -AUTO	01-17-01
X:RX1903	RX TRIP BKR P4 BYP OPEN TR S	01-19-03
R:RX2003	ROD E3 STUCK ON RX TRIP	01-20-03
X:RX2006	ROD H6 STUCK ON RX TRIP	01-20-06
X:RP2101	LOW FLOW RX TRIP LP 1 CH 1	01-21-01
X:RP2102	LOW FLOW RX TRIP LP 2 CH 1	01-21-02
X:RP2105	LOW FLOW RX TRIP LP 1 CH 2	01-21-05
X:RP2205	OP/DT RUNBACK CHNL 1	01-22-05
X:RP2207	OP/DT RUNBACK CHNL 3	01-22-07
X:RP2209	OT/DT RX TRIP CHNL 1	01-22-09
X:RP2213	OT/DT RUNBACK CHNL 1	01-22-13
X:RX2301	LO T AVG LOOP 1 B/S	01-23-01
X:RX2305	LO-LO T AVG LOOP 1 B/S	01-23-05
X:RP2401	SPRAY ACT TEST BYP CH 1 B/S	01-24-01
X:RP2405	CTMT PRESS HI-1 CH 2 B/S	01-24-05
X:RP2406	CTMT PRESS HI-1 CH 3 B/S	01-24-06
X:RP2410	CTMT PRESS HI-3 CH 3 B/S	01-24-10
X:RP2503	PZR PRESS LO RX TRIP CH 3	01-25-03
X:RP2507	PZR PRESS LO SI CH 3	01-25-07
X:RP2511	PZR PRESS HI RX TRIP CH 3	01-25-11
X:RP2515	PZR PRESS BLOCK CH 3	01-25-15

ADDENDUM 12

FOUR YEAR SIMULATOR PERFORMANCE TEST SCHEDULE
(Continued)

MNEMONIC	DESCRIPTION	TRIPLE CODE
X:RP2519	PZR LEVEL HI RX TRIP CH 4	01-25-19
X:RP2604	RCP 1D U/V RX TRIP CH-4 B/S	01-26-04
X:RP2608	RCP 1D U/F RX TRIP CH-4 B/S	01-26-08
X:NI2704	SR TRIP/BYP CH 2 B/S	01-27-04
X:NI2708	IR TRIP/BYP CH 2 B/S	01-27-08
X:NI2802	POWER RANGE P-8 CH 2 B/S	01-28-02
X:NI2806	POWER RANGE P-9 CH 2 B/S	01-28-06
X:NI2810	POWER RANGE P7/P10 CH 2 B/S	01-28-10
X:NI2902	PR OVRPWR ROD STOP BYP CH 2	01-29-02
X:NI2906	POWER RANGE LO CH 2 B/S	01-29-06
X:NI2910	POWER RANGE HI CH 2 B/S	01-29-10
X:NI2914	POWER RANGE RATE CH 2 B/S	01-29-14
XNNI3002	SR CHNL 32 FAILS HI	01-30-02
XRNI3202	SOURCE RANGE CH 32 SLUGGISH	01-32-02
X:NI3501	IR CH 35 UNDER COMPENSATED	01-35-01
X:NI3701	IR CH 35 FAILS LOW	01-37-01
X:NI3803	LOSS OF PWR TO PR CH 43	01-38-03
X:RC0103	RCS COLD LEG RUPTURE LOOP 1C	02-01-03
XNRC0303	RCS LEAK, FLOW XMTR LOOP C	02-03-03
X:RC0701	SHEARED RCP SHAFT - RCP 1A	02-07-01
X:RC0801	LOCKED RCP ROTOR - RCP 1A	02-08-01
X:RC0901	RCP 1A TRIPS ON UNDER FREQ	02-09-01
X:RC1001	RCP 1A TRIP ON UNDER VOLTAGE	02-10-01
XNRC1201	PZR STEAM SPACE RUPTURE	02-12-01
XNRC1402	PZR SAFETY VLV LEAK PSV 3451	02-14-02
XRPZ1601	PZR SPRAY VLV FO PCV-655B	02-16-01
XRPL1801	PZR LVL CONTROL MALFUNCTION	02-18-01
XNRC1904	PT 458 FAILS TO ANY POSITION	02-19-04
XNRC2001	LT 465 PZR LVL XMTR FAILS	02-20-01
X:PL2201	PZR HTRS FAIL TO COME ON	02-22-01
X:RC2304	PZR HTR GP D FAIL TO COME ON	02-23-04
XNRC2403	RCS PRES XMTR PT 406 FAILS	02-24-03
XNRC2701	RTD FAILS HOT LEG C TT 430A	02-27-01
XNRC2706	RTD FAILS COLD LEG C TT 434	02-27-06
XNRC2806	RTD FAILS COLD LEG D TT 444	02-28-06
XNCV0301	TUBE LEAK LTDN HEAT EXCHANGE	03-03-01
X:CV0602	LTDN VLV PCV-135 FAILS OPEN	03-06-02
X:CV0903	LOSS OF CHARGING PUMP PD-1A	03-09-03
XNCV1301	LP LTDN LINE LEAK AT FE-132	03-13-01
X:CV1701	TRIP BORIC ACID XFER PUMP 1A	03-17-01
X:CV2001	RCS DILUTION-UNBORATED DEMIN	03-20-01
XNCV2301	RCP 1A #1 SEAL FAILS	03-23-01
XNCV2305	RCP 1C #1 SEAL FAILS	03-23-05

ADDENDUM 12

FOUR YEAR SIMULATOR PERFORMANCE TEST SCHEDULE
(Continued)

MNEMONIC	DESCRIPTION	TRIPLE CODE
X:CC0101	LOSS CCW PUMP 1A THERMAL O/L	04-01-01
X:CC0202	LOSS OF CCW PUMP 1B-FT-4517	04-02-02
XNCC0303	LOSS CCW TO RCP 1C THERM BAR	04-03-03
X:CC0403	LOSS CCW TO [illegible]R HEAT EXCH 1C	04-04-03
XNEC0801	LOSS OF ECW [illegible]AIN	04-08-01
X:EC0907	TRIP ESSENTI[illegible] CHILLER 12A	04-09-07
X:RH1001	LOSS OF RHR PU[illegible]P 1A ON O/L	04-10-01
X:RH1102	RHR PMP RELIEF PSV-3852 FO	04-11-02
X:SI1301	LOSS OF HHSI PUMP 1A ON O/L	04-13-01
X:SI1402	LOSS OF LHSI PUMP 1B ON O/L	04-14-02
X:CS1602	LOSS OF CMT SPR PUMP 1B	04-16-02
XNSI1701	N2 LOSS ACCU 1A VIA PSV-3981	04-17-01
XNSI1802	LEAK PAST SI ACCU 1B CHK VLV	04-18-02
XNMS0202	STM BKR IN CONTAINMENT LOOP B	05-02-02
XNSG0302	STEAM GEN TUBE LEAK - SG 1B	05-03-02
X:MS0402	MN STM SFTY VLV PSV 7420 FO	05-04-02
XNMS0502	MS SAFETY PSV 7420 SEAT LEAK	05-05-02
X:MS0602	MSIV FAILS CLOSED SG B	05-06-02
X:MS0702	MSIV FAIL TO OPERATE MS 7424	05-07-02
X:MS0802	MSIV SHUTS DURING TEST SG B	05-08-02
X:MS1001	NO GS SPLY FROM MS PV61[illegible]0 FC	05-10-01
X:MS1104	NO STM FLO SIG TO FWCS SG D	05-11-04
X:SG1204	NO SG LVL SIG TO FWCS SG 1D	05-12-04
X:PD1303	BNK 3 STM DMPS FAIL TO CLOSE	05-13-03
X:TU0201	NO TUR TRP ON AUTO TRP SIG	06-02-01
X:TU0304	MN TURBINE THROTTLE VLV FO D	06-03-04
X:TU0404	MAIN TURB GOVERNOR VLV 4 FO	06-04-04
X:TU0504	MN TURBINE GOVERNOR VLV FC 4	06-05-04
X:TU1001	AC BRNG OIL PUMP WON'T START	06-10-01
X:EH1501	EHC HYDRAULIC LINE FAILURE	06-15-01
XRTU1901	MN TURB VIBRATION HI BRNG 1	06-19-01
XRTU1905	MN TURB VIBRATION HI BRNG 5	06-19-05
XRTU1909	MN TURB VIBRATION HI BRNG 9	06-19-09
X:CD0101	LOSS OF COND VACUUM PUMP 11	07-01-01
XNCD0301	MAIN CONDENSER TUBE LEAK	07-03-01
X:CD0501	HOTWELL LEVEL XMTR FAILS-HGH	07-05-01
X:AF0301	LOSS OF AUX FW PUMP NO 11	08-03-01
X:AF0501	AFW X-CONN VLV FY-7515 FAILS	08-05-01
XNFW0601	MN FW LINE RUPTURE IN CONTMT	08-06-01
XNFW0902	LOSS OF PUMP CONTROL - MFP12	08-09-02
X:PF1003	FAIL AUTO SPEED CNTRL MFP-13	08-10-03
X:FW1301	LUBE OIL PRES LOW MFP-11	08-13-01
X:PG1402	AUTO FW CNTRL SYS FAILS SG-B	08-14-02

ADDENDUM 12

FOUR YEAR SIMULATOR PERFORMANCE TEST SCHEDULE
(Continued)

MNEMONIC	DESCRIPTION	TRIPLE CODE
X:FW1502	LOSS OF FEED FLOW SIG SG-B	08-15-02
X:FW1602	MN FW REG VLV F/C FCV-552	08-16-02
X:FW1702	MN FW REG VLV STUCK FCV-552	08-17-02
XNFW1802	MN FW REG VLV LEAKS FCV-552	08-18-02
XNFW1902	FW REG BYP VLV STUCK FV-7152	08-19-02
X:FW2002	MFP RECIRC VLV F/O FV-7109	08-20-02
X:CD2303	LOSS OF CONDENSATE PUMP 13	08-23-03
X:CD2701	POLISH DEMIN BYP CD-132 F/C	08-27-01
X:FW2901	TRIP ALL FW BOOSTER PUMPS	08-29-01
X:HV0201	LOSS OF CNTMT FAN CLR 11A	09-02-01
X:HV0205	LOSS OF CNTMT FAN CLR 12B	09-02-05
XRRM0501	RADIO ACTIV REL OF GAS WASTE	09-05-01
X:RM0901	INCR RAD LEVEL RIT-8012	09-09-01
X:EA0103	LOSS OF EMERGENCY DG 13	10-01-03
X:EA0301	LOSS OF MAIN GEN EXCITER	10-03-01
X:EA0503	LOSS OF DP-1203	10-05-03
X:EA0801	LOSS OF GRID (345KV&138KV)	10-08-01
X:EA0904	LOSS OF 13.8KV AUX BUS 1J	10-09-04
X:EA1102	LOSS OF 4.16KV ESF BUS E1B	10-11-02
X:EA1203	LOSS OF 480V ESF MCC E1A3	10-12-03
X:EA1207	LOSS OF 480V ESF MCC E1C1	10-12-07
X:EA1401	LOSS OF ALL AC POWER	10-14-01
X:EA1504	LOSS OF NON 1E DC PNL PL125F	10-15-04
X:AC0101	LOSS OF ACW OPEN LOOP PMP 11	11-01-01
X:AC0102	LOSS OF ACW OPEN LOOP PMP 12	11-01-02
X:AC0203	LOSS OF ACW CLSD LP PMP 13	11-02-03
XNAR0501	LOSS OF STATION AIR	11-05-01
X:AN0803	PANEL 3 ANNUNCIATOR FAILURE	11-08-03
X:AN0807	PANEL 7,8,9 ANNUNCIATOR FAILURE	11-08-07
XIAN0903	CRYWOLF LAMP 1M002-C1	11-09-03
XIAN0907	CRYWOLF LAMP 1M002-A2	11-09-07
XIAN0911	CRYWOLF LAMP 1M002-E2	11-09-11
XIAN0915	CRYWOLF LAMP 1M002-C3	11-09-15
XIAN0919	CRYWOLF LAMP 1M002-A4	11-09-19
XIAN0923	CRYWOLF LAMP 1M002-E4	11-09-23
XIAN0927	CRYWOLF LAMP 1M002-C5	11-09-27
XIAN0931	CRYWOLF LAMP 1M002-A6	11-09-31
XIAN0935	CRYWOLF LAMP 1M002-E6	11-09-35
XIAN0939	CRYWOLF LAMP 1M002-C7	11-09-39
XIAN0943	CRYWOLF LAMP 1M002-A8	11-09-43
XIAN0947	CRYWOLF LAMP 1M002-E8	11-09-47
XIAN0951	CRYWOLF LAMP 2M002-C1	11-09-51
XIAN0955	CRYWOLF LAMP 2M002-A2	11-09-55

ADDENDUM 12

FOUR YEAR SIMULATOR PERFORMANCE TEST SCHEDULE
(Continued)

MNEMONIC	DESCRIPTION	TRIPLE CODE
XIAN0959	CRYWOLF LAMP 2M002-E2	11-09-59
XIAN0963	CRYWOLF LAMP 2M002-C3	11-09-63
XIAN0967	CRYWOLF LAMP 2M002-A4	11-09-67
XIAN0971	CRYWOLF LAMP 2M002-E4	11-09-71
XIAN0975	CRYWOLF LAMP 2M002-C5	11-09-75
XIAN0979	CRYWOLF LAMP 2M002-A6	11-09-79
XIAN0983	CRYWOLF LAMP 2M002-E6	11-09-83
XIAN0987	CRYWOLF LAMP 2M002-C7	11-09-87
XIAN0991	CRYWOLF LAMP 2M002-A8	11-09-91
XIAN0995	CRYWOLF LAMP 2M002-E8	11-09-95
XIAN1003	CRYWOLF LAMP 2M003-C1	11-10-03
XIAN1007	CRYWOLF LAMP 2M003-A2	11-10-07
XIAN1011	CRYWOLF LAMP 2M003-E2	11-10-11
XIAN1015	CRYWOLF LAMP 2M003-C3	11-10-15
XIAN1019	CRYWOLF LAMP 2M003-A4	11-10-19
XIAN1023	CRYWOLF LAMP [illegible]03-E4	11-10-23
XIAN1027	CRYWOLF LAMP 2M003-C5	11-10-27
XIAN1031	CRYWOLF LAMP 2M003-A6	11-10-31
XIAN1035	CRYWOLF LAMP 2M003-E6	11-10-35
XIAN1039	CRYWOLF LAMP 2M003-C7	11-10-39
XIAN1043	CRYWOLF LAMP 2M003-A8	11-10-43
XIAN1047	CRYWOLF LAMP 2M003-E8	11-10-47
XIAN1051	CRYWOLF LAMP 2M004-C1	11-10-51
XIAN1055	CRYWOLF LAMP 2M004-A2	11-10-55
XIAN1059	CRYWOLF LAMP 2M004-E2	11-10-59
XIAN1063	CRYWOLF LAMP 2M004-C3	11-10-63
XIAN1067	CRYWOLF LAMP 2M004-A4	11-10-67
XIAN1071	CRYWOLF LAMP 2M004-E4	11-10-71
XIAN1075	CRYWOLF LAMP 2M004-C5	11-10-75
XIAN1079	CRYWOLF LAMP 2M004-A6	11-10-79
XIAN1083	CRYWOLF LAMP 2M004-E6	11-10-83
XIAN1087	CRYWOLF LAMP 2M004-C7	11-10-87
XIAN1091	CRYWOLF LAMP 2M004-A8	11-10-91
XIAN1095	CRYWOLF LAMP 2M004-E8	11-10-95
XIAN1103	CRYWOLF LAMP 3M002-C1	11-11-03
XIAN1107	CRYWOLF LAMP 3M002-A2	11-11-07
XIAN1111	CRYWOLF LAMP 3M002-E2	11-11-11
XIAN1115	CRYWOLF LAMP 3M002-C3	11-11-15
XIAN1119	CRYWOLF LAMP 3M002-A4	11-11-19
XIAN1123	CRYWOLF LAMP 3M002-E4	11-11-23
XIAN1127	CRYWOLF LAMP 3M002-C5	11-11-27
XIAN1131	CRYWOLF LAMP 3M002-A6	11-11-31
XIAN1135	CRYWOLF LAMP 3M002-E6	11-11-35

ADDENDUM 12

FOUR YEAR SIMULATOR PERFORMANCE TEST SCHEDULE
(Continued)

MNEMONIC	DESCRIPTION	TRIPLE CODE
XIAN1139	CRYWOLF LAMP 3M002-C7	11-11-39
XIAN1143	CRYWOLF LAMP 3M002-A8	11-11-43
XIAN1147	CRYWOLF LAMP 3M002-E8	11-11-47
XIAN1151	CRYWOLF LAMP 3M003-C1	11-11-51
XIAN1155	CRYWOLF LAMP 3M003-A2	11-11-55
XIAN1159	CRYWOLF LAMP 3M003-E2	11-11-59
XIAN1163	CRYWOLF LAMP 3M003-C3	11-11-63
XIAN1167	CRYWOLF LAMP 3M003-A4	11-11-67
XIAN1171	CRYWOLF LAMP 3M003-E4	11-11-71
XIAN1175	CRYWOLF LAMP 3M003-C5	11-11-75
XIAN1179	CRYWOLF LAMP 3M003-A6	11-11-79
XIAN1183	CRYWOLF LAMP 3M003-E6	11-11-83
XIAN1187	CRYWOLF LAMP 3M003-C7	11-11-87
XIAN1191	CRYWOLF LAMP 3M003-A8	11-11-91
XIAN1195	CRYWOLF LAMP 3M003-E8	11-11-95
XIAN1203	CRYWOLF LAMP 4M007-C1	11-12-03
XIAN1207	CRYWOLF LAMP 4M007-A2	11-12-07
XIAN1211	CRYWOLF LAMP 4M007-E2	11-12-11
XIAN1215	CRYWOLF LAMP 4M007-C3	11-12-15
XIAN1219	CRYWOLF LAMP 4M007-A4	11-12-19
XIAN1223	CRYWOLF LAMP 4M007-E4	11-12-23
XIAN1227	CRYWOLF LAMP 4M007-C5	11-12-27
XIAN1231	CRYWOLF LAMP 4M007-A6	11-12-31
XIAN1235	CRYWOLF LAMP 4M007-E6	11-12-35
XIAN1239	CRYWOLF LAMP 4M007-C7	11-12-39
XIAN1243	CRYWOLF LAMP 4M007-A8	11-12-43
XIAN1247	CRYWOLF LAMP 4M007-E8	11-12-47
XIAN1251	CRYWOLF LAMP 4M008-C1	11-12-51
XIAN1255	CRYWOLF LAMP 4M008-A2	11-12-55
XIAN1259	CRYWOLF LAMP 4M008-E2	11-12-59
XIAN1263	CRYWOLF LAMP 4M008-C3	11-12-63
XIAN1267	CRYWOLF LAMP 4M008-A4	11-12-67
XIAN1271	CRYWOLF LAMP 4M008-E4	11-12-71
XIAN1275	CRYWOLF LAMP 4M008-C5	11-12-75
XIAN1279	CRYWOLF LAMP 4M008-A6	11-12-79
XIAN1283	CRYWOLF LAMP 4M008-E6	11-12-83
XIAN1287	CRYWOLF LAMP 4M008-C7	11-12-87
XIAN1291	CRYWOLF LAMP 4M008-A8	11-12-91
XIAN1295	CRYWOLF LAMP 4M008-E8	11-12-95
XIAN1303	CRYWOLF LAMP 5M002-C1	11-13-03
XIAN1307	CRYWOLF LAMP 5M002-A2	11-13-07
XIAN1311	CRYWOLF LAMP 5M002-E2	11-13-11
XIAN1315	CRYWOLF LAMP 5M002-C3	11-13-15

ADDENDUM 12

FOUR YEAR SIMULATOR PERFORMANCE TEST SCHEDULE
(Continued)

MNEMONIC	DESCRIPTION	TRIPLE CODE
XIAN1319	CRYWOLF LAMP 5M002-A4	11-13-19
XIAN1323	CRYWOLF LAMP 5M002-E4	11-13-23
XIAN1327	CRYWOLF LAMP 5M002-C5	11-13-27
XIAN1331	CRYWOLF LAMP 5M002-A6	11-13-31
XIAN1335	CRYWOLF LAMP 5M002-E6	11-13-35
XIAN1339	CRYWOLF LAMP 5M002-C7	11-13-39
XIAN1343	CRYWOLF LAMP 5M002-A8	11-13-43
XIAN1347	CRYWOLF LAMP 5M002-E8	11-13-47
XIAN1351	CRYWOLF LAMP 5M003-C1	11-13-51
XIAN1355	CRYWOLF LAMP 5M003-A2	11-13-55
XIAN1359	CRYWOLF LAMP 5M003-E2	11-13-59
XIAN1363	CRYWOLF LAMP 5M003-C3	11-13-63
XIAN1403	CRYWOLF LAMP 5M003-A4	11-14-03
XIAN1407	CRYWOLF LAMP 5M003-E4	11-14-07
XIAN1411	CRYWOLF LAMP 5M003-C5	11-14-11
XIAN1415	CRYWOLF LAMP 5M003-A6	11-14-15
XIAN1419	CRYWOLF LAMP 5M003-E6	11-14-19
XIAN1423	CRYWOLF LAMP 5M003-C7	11-14-23
XIAN1427	CRYWOLF LAMP 5M003-A8	11-14-27
XIAN1431	CRYWOLF LAMP 5M003-E8	11-14-31
XIAN1435	CRYWOLF LAMP 5M004-C1	11-14-35
XIAN1439	CRYWOLF LAMP 5M004-A2	11-14-39
XIAN1443	CRYWOLF LAMP 5M004-E2	11-14-43
XIAN1447	CRYWOLF LAMP 5M004-C3	11-14-47
XIAN1451	CRYWOLF LAMP 5M004-A4	11-14-51
XIAN1455	CRYWOLF LAMP 5M004-E4	11-14-55
XIAN1459	CRYWOLF LAMP 5M004-C5	11-14-59
XIAN1463	CRYWOLF LAMP 5M004-A6	11-14-63
XIAN1503	CRYWOLF LAMP 5M004-E6	11-15-03
XIAN1507	CRYWOLF LAMP 5M004-C7	11-15-07
DELETE**	CRYWOLF LAMP 5M004-A8	11-15-11
DELETE**	CRYWOLF LAMP 5M004-E8	11-15-15
XIAN1519	CRYWOLF LAMP 6M003-C1	11-15-19
XIAN1523	CRYWOLF LAMP 6M003-A2	11-15-23
XIAN1527	CRYWOLF LAMP 6M003-E2	11-15-27
XIAN1531	CRYWOLF LAMP 6M003-C3	11-15-31
XIAN1535	CRYWOLF LAMP 6M003-A4	11-15-35
XIAN1539	CRYWOLF LAMP 6M003-E4	11-15-39
XIAN1543	CRYWOLF LAMP 6M003-C5	11-15-43
XIAN1547	CRYWOLF LAMP 6M003-A6	11-15-47
XIAN1551	CRYWOLF LAMP 6M003-E6	11-15-51
XIAN1555	CRYWOLF LAMP 6M003-C7	11-15-55
XIAN1559	CRYWOLF LAMP 6M003-A8	11-15-59

ADDENDUM 12

FOUR YEAR SIMULATOR PERFORMANCE TEST SCHEDULE
(Continued)

MNEMONIC	DESCRIPTION	TRIPLE CODE
XIAN1563	CRYWOLF LAMP 6M003-E8	11-15-63
XIAN1567	CRYWOLF LAMP 6M004-C1	11-15-67
XIAN1571	CRYWOLF LAMP 6M004-A2	11-15-71
XIAN1575	CRYWOLF LAMP 6M004-E2	11-15-75
XIAN1579	CRYWOLF LAMP 6M004-C3	11-15-79
XIAN1583	CRYWOLF LAMP 6M004-A4	11-15-83
XIAN1587	CRYWOLF LAMP 6M004-E4	11-15-87
XIAN1591	CRYWOLF LAMP 6M004-C5	11-15-91
XIAN1595	CRYWOLF LAMP 6M004-A6	11-15-95
XIAN1603	CRYWOLF LAMP 6M004-E6	11-16-03
XIAN1607	CRYWOLF LAMP 6M004-C7	11-16-07
XIAN1611	CRYWOLF LAMP 6M004-A8	11-16-11
XIAN1615	CRYWOLF LAMP 6M004-E8	11-16-15
XIAN1619	CRYWOLF LAMP 6M005-C1	11-16-19
XIAN1623	CRYWOLF LAMP 6M005-A2	11-16-23
XIAN1627	CRYWOLF LAMP 6M005-E2	11-16-27
XIAN1631	CRYWOLF LAMP 6M005-C3	11-16-31
XIAN1635	CRYWOLF LAMP 6M005-A4	11-16-35
XIAN1639	CRYWOLF LAMP 6M005-E4	11-16-39
XIAN1643	CRYWOLF LAMP 7M001-C1	11-16-43
XIAN1647	CRYWOLF LAMP 7M001-A2	11-16-47
XIAN1651	CRYWOLF LAMP 7M001-E2	11-16-51
XIAN1655	CRYWOLF LAMP 7M001-C3	11-16-55
XIAN1659	CRYWOLF LAMP 7M001-A4	11-16-59
XIAN1663	CRYWOLF LAMP 7M001-E4	11-16-63
XIAN1667	CRYWOLF LAMP 7M001-C5	11-16-67
XIAN1671	CRYWOLF LAMP 7M001-A6	11-16-71
XIAN1675	CRYWOLF LAMP 7M001-E6	11-16-75
XIAN1679	CRYWOLF LAMP 7M001-C7	11-16-79
XIAN1683	CRYWOLF LAMP 7M001-A8	11-16-83
XIAN1687	CRYWOLF LAMP 7M001-E8	11-16-87
XIAN1691	CRYWOLF LAMP 7M003-C1	11-16-91
XIAN1695	CRYWOLF LAMP 7M003-A2	11-16-95
XIAN1703	CRYWOLF LAMP 7M003-E2	11-17-03
XIAN1707	CRYWOLF LAMP 7M003-C3	11-17-07
XIAN1711	CRYWOLF LAMP 7M003-A4	11-17-11
XIAN1715	CRYWOLF LAMP 7M003-E4	11-17-15
XIAN1719	CRYWOLF LAMP 7M003-C5	11-17-19
XIAN1723	CRYWOLF LAMP 7M003-A6	11-17-23
XIAN1727	CRYWOLF LAMP 7M003-E6	11-17-27
XIAN1731	CRYWOLF LAMP 7M003-C7	11-17-31
XIAN1735	CRYWOLF LAMP 7M003-A8	11-17-35
XIAN1739	CRYWOLF LAMP 7M003-E8	11-17-39

ADDENDUM 12

FOUR YEAR SIMULATOR PERFORMANCE TEST SCHEDULE
(Continued)

MNEMONIC	DESCRIPTION	TRIPLE CODE
XIAN1743	CRYWOLF LAMP 8M003-C1	11-17-43
XIAN1747	CRYWOLF LAMP 8M003-A2	11-17-47
XIAN1751	CRYWOLF LAMP 8M003-E2	11-17-51
XIAN1755	CRYWOLF LAMP 8M003-C3	11-17-55
XIAN1759	CRYWOLF LAMP 8M003-A4	11-17-59
XIAN1763	CRYWOLF LAMP 8M003-E4	11-17-63
XIAN1767	CRYWOLF LAMP 8M003-C5	11-17-67
XIAN1771	CRYWOLF LAMP 8M003-A6	11-17-71
XIAN1775	CRYWOLF LAMP 8M003-E6	11-17-75
XIAN1779	CRYWOLF LAMP 8M003-C7	11-17-79
XIAN1783	CRYWOLF LAMP 8M003-A8	11-17-83
XIAN1787	CRYWOLF LAMP 8M003-E8	11-17-87
XIAN1791	CRYWOLF LAMP 9M001-C1	11-17-91
XIAN1795	CRYWOLF LAMP 9M001-A2	11-17-95
XIAN1803	CRYWOLF LAMP 9M001-E2	11-18-03
XIAN1807	CRYWOLF LAMP 9M001-C3	11-18-07
XIAN1811	CRYWOLF LAMP 9M001-A4	11-18-11
XIAN1815	CRYWOLF LAMP 9M001-E4	11-18-15
XIAN1819	CRYWOLF LAMP 9M001-C5	11-18-19
XIAN1823	CRYWOLF LAMP 9M001-A6	11-18-23
XIAN1827	CRYWOLF LAMP 9M001-E6	11-18-27
XIAN1831	CRYWOLF LAMP 9M001-C7	11-18-31
XIAN1835	CRYWOLF LAMP 9M001-A8	11-18-35
XIAN1839	CRYWOLF LAMP 9M001-E8	11-18-39
XIAN1843	CRYWOLF LAMP 10M001-C1	11-18-43
XIAN1847	CRYWOLF LAMP 10M001-A2	11-18-47
XIAN1851	CRYWOLF LAMP 10M001-E2	11-18-51
XIAN1855	CRYWOLF LAMP 10M001-C3	11-18-55
XIAN1859	CRYWOLF LAMP 10M001-A4	11-18-59
XIAN1863	CRYWOLF LAMP 10M001-E4	11-18-63
XIAN1867	CRYWOLF LAMP 10M001-C5	11-18-67
XIAN1871	CRYWOLF LAMP 10M001-A6	11-18-71
XIAN1875	CRYWOLF LAMP 10M001-E6	11-18-75
XIAN1879	CRYWOLF LAMP 10M001-C7	11-18-79
XIAN1883	CRYWOLF LAMP 10M001-A8	11-18-83
XIAN1887	CRYWOLF LAMP 10M001-E8	11-18-87
XIAN1891	CRYWOLF LAMP 10M002-C1	11-18-91
XIAN1895	CRYWOLF LAMP 10M002-A2	11-18-95
XIAN1903	CRYWOLF LAMP 10M002-E2	11-19-03
XIAN1907	CRYWOLF LAMP 10M002-C3	11-19-07
XIAN1911	CRYWOLF LAMP 10M002-A4	11-19-11
XIAN1915	CRYWOLF LAMP 10M002-E4	11-19-15
XIAN1919	CRYWOLF LAMP 10M002-C5	11-19-19

ADDENDUM 12

FOUR YEAR SIMULATOR PERFORMANCE TEST SCHEDULE
(Continued)

MNEMONIC	DESCRIPTION	TRIPLE CODE
XIAN1923	CRYWOLF LAMP 10M002-A6	11-19-23
XIAN1927	CRYWOLF LAMP 10M002-E6	11-19-27
XIAN1931	CRYWOLF LAMP 10M002-C7	11-19-31
XIAN1935	CRYWOLF LAMP 10M002-A8	11-19-35
XIAN1939	CRYWOLF LAMP 10M002-E8	11-19-39
XIAN1943	CRYWOLF LAMP 21M001-C1	11-19-43
XIAN1947	CRYWOLF LAMP 21M001-A2	11-19-47
XIAN1951	CRYWOLF LAMP 21M001-E2	11-19-51
XIAN1955	CRYWOLF LAMP 21M001-C3	11-19-55
XIAN1959	CRYWOLF LAMP 21M001-A4	11-19-59
XIAN1963	CRYWOLF LAMP 21M001-E4	11-19-63
XIAN1967	CRYWOLF LAMP 21M001-C5	11-19-67
XIAN1971	CRYWOLF LAMP 21M001-A6	11-19-71
XIAN1975	CRYWOLF LAMP 21M001-E6	11-19-75
XIAN1979	CRYWOLF LAMP 21M001-C7	11-19-79
XIAN1983	CRYWOLF LAMP 21M001-A8	11-19-83
XIAN1987	CRYWOLF LAMP 21M001-E8	11-19-87
XIAN1991	CRYWOLF LAMP 22M001-C1	11-19-91
XIAN1995	CRYWOLF LAMP 22M001-A2	11-19-95
XIAN2003	CRYWOLF LAMP 22M001-E2	11-20-03
XIAN2007	CRYWOLF LAMP 22M001-C3	11-20-07
XIAN2011	CRYWOLF LAMP 22M001-A4	11-20-11
XIAN2015	CRYWOLF LAMP 22M001-E4	11-20-15
XIAN2019	CRYWOLF LAMP 22M001-C5	11-20-19
XIAN2023	CRYWOLF LAMP 22M001-A6	11-20-23
XIAN2027	CRYWOLF LAMP 22M001-E6	11-20-27
XIAN2031	CRYWOLF LAMP 22M001-C7	11-20-31
XIAN2035	CRYWOLF LAMP 22M001-A8	11-20-35
XIAN2039	CRYWOLF LAMP 22M001-E8	11-20-39
XIAN2043	CRYWOLF LAMP 22M002-C1	11-20-43
XIAN2047	CRYWOLF LAMP 22M002-A2	11-20-47
XIAN2051	CRYWOLF LAMP 22M002-E2	11-20-51
XIAN2055	CRYWOLF LAMP 22M002-C3	11-20-55
XIAN2059	CRYWOLF LAMP 22M002-A4	11-20-59
XIAN2063	CRYWOLF LAMP 22M002-E4	11-20-63
XIAN2067	CRYWOLF LAMP 22M002-C5	11-20-67
XIAN2071	CRYWOLF LAMP 22M002-A6	11-20-71
XIAN2075	CRYWOLF LAMP 22M002-E6	11-20-75
XIAN2079	CRYWOLF LAMP 22M002-C7	11-20-79
XIAN2083	CRYWOLF LAMP 22M002-A8	11-20-83
XIAN2087	CRYWOLF LAMP 22M002-E8	11-20-87
XIAN2091	CRYWOLF LAMP 22M003-C1	11-20-91
XIAN2095	CRYWOLF LAMP 22M003-A2	11-20-95

ADDENDUM 12

FOUR YEAR SIMULATOR PERFORMANCE TEST SCHEDULE
(Continued)

MNEMONIC	DESCRIPTION	TRIPLE CODE
XIAN2103	CRYWOLF LAMP 22M003-E2	11-21-03
XIAN2107	CRYWOLF LAMP 22M003-C3	11-21-07
XIAN2111	CRYWOLF LAMP 22M003-A4	11-21-11
XIAN2115	CRYWOLF LAMP 22M003-E4	11-21-15
XIAN2119	CRYWOLF LAMP 22M003-C5	11-21-19
XIAN2123	CRYWOLF LAMP 22M003-A6	11-21-23
XIAN2127	CRYWOLF LAMP 22M003-E6	11-21-27
XIAN2131	CRYWOLF LAMP 22M003-C7	11-21-31
XIAN2135	CRYWOLF LAMP 22M003-A8	11-21-35
XIAN2139	CRYWOLF LAMP 22M003-E8	11-21-39

ADDENDUM 12

FOUR YEAR SIMULATOR PERFORMANCE TEST SCHEDULE
(Continued)

MALFUNCTIONS TO BE TESTED DURING 1993

MNEMONIC	DESCRIPTION	TRIPLE CODE
X:RX0201	AUTO MODE CONT ROD INSERTION	01-02-01
X:RX0401	GRP-2, CB-C FAILS TO MOVE	01-04-01
X:RX0503	ROD H14 FAIL TO MOVE W/BNK C	01-05-03
X:RX0507	ROD K10 FAIL TO MOVE W/BNK C	01-05-07
X:RX0511	ROD D12 FAIL TO MOVE W/BNK D	01-05-11
XRRX0602	IMPROPER OVLP CB B TO CB C	01-06-02
X:RX0703	DROP ROD K2 OF CB B	01-07-03
X:RX0707	DROP ROD M12 OF CB D	01-07-07
X:RX0802	DROP GRP 2 RODS CB C	01-08-02
X:RX0902	RODS FAIL TO MOVE IN MANUAL	01-09-02
X:RX1103	ROD EJECTION H8 CB D GRP 2	01-11-03
X:RX1202	ATWS - NO TRIP ON TRIP SIGNA	01-12-02
X:RX1205	FAILURE OF AUTO PH B ISOL	01-12-05
X:RX1402	FAIL DRPI CHANNEL B12	01-14-02
X:RX1406	FAIL DRPI CHANNEL N11	01-14-06
X:RX1410	FAIL DRPI CHANNEL B10	01-14-10
X:RX1414	FAIL DRPI CHANNEL H8	01-14-14
X:RX1602	FAIL ROD BLOCK C2	01-16-02
X:RX1702	RODS MOVE AT MAX SPEED -AUTO	01-17-02
X:RX1904	RX TRIP BKR P4 BKR OPEN TR S	01-19-04
X:RX2005	ROD D8 STUCK ON RX TRIP	01-20-05
X:RX2007	ROD F2 STUCK ON RX TRIP	01-20-07
X:RX2008	ROD P8 STUCK ON RX TRIP	01-20-08
X:RP2104	LOW FLOW RX TRIP LP 4 CH 1	01-21-04
X:RP2107	LOW FLOW RX TRIP LP 3 CH 2	01-21-07
X:RP2201	OP/DT RX TRIP CHNL 1	01-22-01
X:RP2202	OP/DT RX TRIP CHNL 2	01-22-02
X:RP2204	OP/DT RX TRIP CHNL 4	01-22-04
X:RP2210	OT/DT RX TRIP CHNL 2	01-22-10
X:RP2214	OT/DT RUNBACK CHNL 2	01-22-14
X:RX2302	LO T AVG LOOP 2 B/S	01-23-02
X:RX2306	LO-LO T AVG LOOP 2 B/S	01-23-06
X:RP2402	SPRAY ACT TEST BYP CH 2 B/S	01-24-02
X:RP2407	CTMT PRESS HI-1 CH 4 B/S	01-24-07
X:RP2411	CTMT PRESS HI-3 CH 4 B/S	01-24-11
X:RP2504	PZR PRESS LO RX TRIP CH 4	01-25-04
X:RP2508	PZR PRESS LO SI CH 4	01-25-08
X:RP2512	PZR PRESS HI RX TRIP CH 4	01-25-12
X:RP2516	PZR LEVEL HI RX TRIP CH 1	01-25-16
X:RP2601	RCP 1A U/V RX TRIP CH-1 B/S	01-26-01

ADDENDUM 12

FOUR YEAR SIMULATOR PERFORMANCE TEST SCHEDULE
(Continued)

MNEMONIC	DESCRIPTION	TRIPLE CODE
X:RP2605	RCP 1A U/F RX TRIP CH-1 B/S	01-26-05
X:NI2701	SOURCE RANGE HI CH 1 B/S	01-27-01
X:NI2705	INTERM RANGE HI CH 1 B/S	01-27-05
X:NI2709	INTERM RANGE P6 CH 1 B/S	01-27-09
X:NI2803	POWER RANGE P-8 CH 3 B/S	01-28-03
X:NI2807	POWER RANGE P-9 CH 3 B/S	01-28-07
X:NI2811	POWER RANGE P7/P10 CH 3 B/S	01-28-11
X:NI2903	PR OVRPWR ROD STOP BYP CH 3	01-29-03
X:NI2907	POWER RANGE LO CH 3 B/S	01-29-07
X:NI2911	POWER RANGE HI CH 3 B/S	01-29-11
X:NI2915	POWER RANGE RATE CH 3 B/S	01-29-15
X:NI3101	SR CHNL 31 FAILS LOW	01-31-01
X:RP3301	IR INPUT TO SR BLOCK FAILS	01-33-01
X:NI3502	IR CH 36 UNDER COMPENSATED	01-35-02
X:NI3702	IR CH 36 FAILS LOW	01-37-02
X:NI3804	LOSS OF PWR TO PR CH 44	01-38-04
X:RC0104	RCS COLD LEG RUPTURE LOOP 1D	02-01-04
XNRC0304	RCS LEAK, FLOW XMTR LOOP D	02-03-04
X:RC0702	SHEARED RCP SHAFT - RCP 1B	02-07-02
X:RC0802	LOCKED RCP ROTOR - RCP 1B	02-08-02
X:RC0902	RCP 1B TRIPS ON UNDER FREQ	02-09-02
X:RC1002	RCP 1B TRIP ON UNDER VOLTAGE	02-10-02
XNRC1301	PZR PORV LEAK PCV-655	02-13-01
XNRC1403	PZR SAFETY VLV LEAK PSV 3452	02-14-03
XRPZ1602	PZR SPRAY VLV FO PCV-655C	02-16-02
XNRC1901	PT 455 FAILS TO ANY POSITION	02-19-01
XNRC2002	LT 466 PZR LVL XMTR FAILS	02-20-02
X:RC2301	PZR HTR GP A FAIL TO COME ON	02-23-01
X:RC2305	PZR HTR GP E FAIL TO COME ON	02-23-05
XNRC2501	RTD FAILS HOT LEG A TT 410A	02-25-01
XNRC2602	RTD FAILS COLD LEG B TT 420B	02-26-02
XNRC2702	RTD FAILS COLD LEG C TT 430B	02-27-02
XNRC2801	RTD FAILS HOT LEG D TT 440A	02-28-01
XNRC3001	FAILED FUEL ASSEMBLY	02-30-01
X:CV0401	TCV-143 DIVERTS TO VCT	03-04-01
X:CV0701	HI DP ACROSS RC FILTER	03-07-01
XNCV1001	CHARGING LINE LEAK IN RCB	03-10-01
X:BT1401	BTRS FAILS WILL NOT BORATE	03-14-01
X:CV1702	TRIP BORIC ACID XFER PUMP 1B	03-17-02
X:CV2101	RCS DILUTN BATCH INTEG FAILS	03-21-01
XNCV2302	RCP 1A #2 SEAL FAILS	03-23-02
XNCV2306	RCP 1C #2 SEAL FAILS	03-23-06
X:CC0102	LOSS CCW PUMP 1B THERMAL O/L	04-01-02

ADDENDUM 12

FOUR YEAR SIMULATOR PERFORMANCE TEST SCHEDULE
(Continued)

MNEMONIC	DESCRIPTION	TRIPLE CODE
X:CC0203	LOSS OF CCW PUMP 1C-FT-4522	04-02-03
XNCC0304	LOSS CCW TO RCP 1D THERM BAR	04-03-04
X:CC0501	LOSS CCW TO CHARGING PUMPS	04-05-01
X:EC0901	ECW PUMP 1A FAILS ON O/L	04-09-01
X:EC0904	TRIP ESSENTIAL CHILLER 11A	04-09-04
X:EC0908	TRIP ESSENTIAL CHILLER 12B	04-09-08
X:RH1002	LOSS OF RHR PUMP 1B ON O/L	04-10-02
X:RH1103	RHR PMP RELIEF PSV-3853 FO	04-11-03
X:SI1302	LOSS OF HHSI PUMP 1B ON O/L	04-13-02
X:SI1403	LOSS OF LHSI PUMP 1C ON O/L	04-14-03
X:SI1501	ACCUM DISCH VLV F/OP 039A	04-15-01
XNSI1702	N2 LOSS ACCU 1B VIA PSV-3980	04-17-02
XNSI1803	LEAK PAST SI ACCU 1C CHK VLV	04-18-03
XNMS0203	STM LKR IN CONTAINMENT LOOP C	05-02-03
XNSG0303	STEAM GEN TUBE LEAK - SG 1C	05-03-03
X:MS0403	MN STM SFTY VLV PSV 7430 FO	05-04-03
XNMS0503	MS SAFETY PSV 7430 SEAT LEAK	05-05-03
X:MS0603	MSIV FAILS CLOSED SG C	05-06-03
X:MS0703	MSIV FAIL TO OPERATE MS 7434	05-07-03
X:MS0803	MSIV SHUTS DURING TEST SG C	05-08-03
X:MS1101	NO STM FLO SIG TO FWCS SG A	05-11-01
X:SG1201	NO SG LVL SIG TO FWCS SG 1A	05-12-01
X:PD1301	BNK 1 STM DMPS FAIL TO CLOSE	05-13-01
XNMS1401	STM HDR PR XMTR PT-557 FAILS	05-14-01
X:TU0301	MN TURBINE THROTTLE VLV FO A	06-03-01
X:TU0401	MAIN TURB GOVERNOR VLV 1 FO	06-04-01
X:TU0501	MN TURBINE GOVERNOR VLV FC 1	06-05-01
X:TU0701	LOSS OF MN TURB OIL PMP	06-07-01
X:TU1201	MN TURB THRUST BRNG FAILS	06-12-01
XNTU1601	1ST STG PR XMTR PT-506 FAILS	06-16-01
XRTU1902	MN TURB VIBRATION HI BRNG 2	06-19-02
XRTU1906	MN TURB VIBRATION HI BRNG 6	06-19-06
XRTU1910	MN TURB VIBRATION HI BRNG 10	06-19-10
X:CD0102	LOSS OF COND VACUUM PUMP 12	07-01-02
X:CD0401	LOSS OF MAIN FW PUMP - 11	07-04-01
X:CD0502	HOTWELL LEVEL XMTR FAILS-LOW	07-05-02
X:AF0302	LOSS OF AUX FW PUMP NO 12	08-03-02
X:AF0502	AFW X-CONN VLV FY-7516 FAILS	08-05-02
XNFW0701	MN FW RUPTURE OUTSIDE CONTMT	08-07-01
XNFW0903	LOSS OF PUMP CONTROL - MFP13	08-09-03
X:FW1201	TURB OVERSPEED TRIP MFP-11	08-12-01
X:FW1302	LUBE OIL PRES LOW MFP-12	08-13-02
X:PG1403	AUTO FW CNTRL SYS FAILS SG-C	08-14-03

ADDENDUM 12

FOUR YEAR SIMULATOR PERFORMANCE TEST SCHEDULE
(Continued)

MNEMONIC	DESCRIPTION	TRIPLE CODE
X:FW1503	LOSS OF FEED FLOW SIG SG-C	08-15-03
X:FW1603	MN FW REG VLV F/C FCV-553	08-16-03
X:FW1703	MN FW REG VLV STUCK FCV-553	08-17-03
XNFW1803	MN FW REG VLV LEAKS FCV-553	08-18-03
XNFW1903	FW REG BYP VLV STUCK FV-7153	08-19-03
X:FW2003	MFP RECIRC VLV F/O FV-7114	08-20-03
XNCD2401	LEAK IN COND HDR TO HTR-14A	08-24-01
X:CD2702	POLISH DEMIN BYP CD-132 F/O	08-27-02
X:HV0101	LOSS OF CRDM COOLING FAN 11A	09-01-01
X:HV0202	LOSS OF CNTMT FAN CLR 11B	09-02-02
X:HV0206	LOSS OF CNTMT FAN CLR 12C	09-02-06
X:RM0601	CNTMT GAS/PART RAD ALARM	09-06-01
X:RM1001	INCR RAD LVL IN PRI SAMPL RM	09-10-01
X:HV1101	HIGH TOXIC GAS ESF ACT	09-11-01
X:EA0201	EMERGENCY DG 11 FAIL TO LOAD	10-02-01
X:EA0401	AUTO VOLTAGE REG FAILS	10-04-01
X:EA0504	LOSS OF DP-1204	10-05-04
X:EA0901	LOSS OF 13.8KV STBY BUS 1F	10-09-01
X:EA1001	LOSS OF 4.16KV BUS 1D1	10-10-01
X:EA1103	LOSS OF 4.16KV ESF BUS E1C	10-11-03
X:EA1204	LOSS OF 480V ESF MCC E1B1	10-12-04
X:EA1208	LOSS OF 480V ESF MCC E1C2	10-12-08
X:EA1501	LOSS OF NON 1E DC PNL PL125A	10-15-01
X:AC0103	LOSS OF ACW OPEN LOOP PMP 13	11-01-03
XNCT0301	INCR IN CONTAINMENT PRESSURE	11-03-01
XNAR0401	LOSS OF INSTRUMENT AIR	11-04-01
X:AN0804	PANEL 4 ANNUNCIATOR FAILURE	11-08-04
X:AN0808	PANEL 10 ANNUNCIATOR FAILURE	11-08-08
X:AN0810	PANEL 22 ANNUNCIATOR FAILURE	11-08-10
XIAN0904	CRYWOLF LAMP 1M002-D1	11-09-04
XIAN0908	CRYWOLF LAMP 1M002-B2	11-09-08
XIAN0912	CRYWOLF LAMP 1M002-F2	11-09-1[illegible]
XIAN0916	CRYWOLF LAMP 1M002-D3	11-09-[illegible]
XIAN0920	CRYWOLF LAMP 1M002-B4	11-09-20
XIAN0924	CRYWOLF LAMP 1M002-F4	11-09-24
XIAN0928	CRYWOLF LAMP 1M002-D5	11-09-28
XIAN0932	CRYWOLF LAMP 1M002-B6	11-09-32
XIAN0936	CRYWOLF LAMP 1M002-F6	11-09-36
XIAN0940	CRYWOLF LAMP 1M002-D7	11-09-40
XIAN0944	CRYWOLF LAMP 1M002-B8	11-09-44
XIAN0948	CRYWOLF LAMP 1M002-F8	11-09-48
XIAN0952	CRYWOLF LAMP 2M002-D1	11-09-52
XIAN0956	CRYWOLF LAMP 2M002-B2	11-09-56

ADDENDUM 12

FOUR YEAR SIMULATOR PERFORMANCE TEST SCHEDULE
(Continued)

MNEMONIC	DESCRIPTION	TRIPLE CODE
XIAN0960	CRYWOLF LAMP 2M002-F2	11-09-60
XIAN0964	CRYWOLF LAMP 2M002-D3	11-09-64
XIAN0968	CRYWOLF LAMP 2M002-B4	11-09-68
XIAN0972	CRYWOLF LAMP 2M002-F4	11-09-72
XIAN0976	CRYWOLF LAMP 2M002-D5	11-09-76
XIAN0980	CRYWOLF LAMP 2M002-B6	11-09-80
XIAN0984	CRYWOLF LAMP 2M002-F6	11-09-84
XIAN0988	CRYWOLF LAMP 2M002-D7	11-09-88
XIAN0992	CRYWOLF LAMP 2M002-B8	11-09-92
XIAN0996	CRYWOLF LAMP 2M002-F8	11-09-96
XIAN1004	CRYWOLF LAMP 2M003-D1	11-10-04
XIAN1008	CRYWOLF LAMP 2M003-B2	11-10-08
XIAN1012	CRYWOLF LAMP 2M003-F2	11-10-12
XIAN1016	CRYWOLF LAMP 2M003-D3	11-10-16
XIAN1020	CRYWOLF LAMP 2M003-B4	11-10-20
XIAN1024	CRYWOLF LAMP 2M003-F4	11-10-24
XIAN1028	CRYWOLF LAMP 2M003-D5	11-10-28
XIAN1032	CRYWOLF LAMP 2M003-B6	11-10-32
XIAN1036	CRYWOLF LAMP 2M003-F6	11-10-36
XIAN1040	CRYWOLF LAMP 2M003-D7	11-10-40
XIAN1044	CRYWOLF LAMP 2M003-B8	11-10-44
XIAN1048	CRYWOLF LAMP 2M003-F8	11-10-48
XIAN1052	CRYWOLF LAMP 2M004-D1	11-10-52
XIAN1056	CRYWOLF LAMP 2M004-B2	11-10-56
XIAN1060	CRYWOLF LAMP 2M004-F2	11-10-60
XIAN1064	CRYWOLF LAMP 2M004-D3	11-10-64
XIAN1068	CRYWOLF LAMP 2M004-B4	11-10-68
XIAN1072	CRYWOLF LAMP 2M004-F4	11-10-72
XIAN1076	CRYWOLF LAMP 2M004-D5	11-10-76
XIAN1080	CRYWOLF LAMP 2M004-B6	11-10-80
XIAN1084	CRYWOLF LAMP 2M004-F6	11-10-84
XIAN1088	CRYWOLF LAMP 2M004-D7	11-10-88
XIAN1092	CRYWOLF LAMP 2M004-B8	11-10-92
XIAN1096	CRYWOLF LAMP 2M004-F8	11-10-96
XIAN1104	CRYWOLF LAMP 3M002-D1	11-11-04
XIAN1108	CRYWOLF LAMP 3M002-B2	11-11-08
XIAN1112	CRYWOLF LAMP 3M002-F2	11-11-12
XIAN1116	CRYWOLF LAMP 3M002-D3	11-11-16
XIAN1120	CRYWOLF LAMP 3M002-B4	11-11-20
XIAN1124	CRYWOLF LAMP 3M002-F4	11-11-24
XIAN1128	CRYWOLF LAMP 3M002-D5	11-11-28
XIAN1132	CRYWOLF LAMP 3M002-B6	11-11-32
XIAN1136	CRYWOLF LAMP 3M002-F6	11-11-36

ADDENDUM 12

FOUR YEAR SIMULATOR PERFORMANCE TEST SCHEDULE
(Continued)

MNEMONIC	DESCRIPTION	TRIPLE CODE
XIAN1140	CRYWOLF LAMP 3M002-D7	11-11-40
XIAN1144	CRYWOLF LAMP 3M002-B8	11-11-44
XIAN1148	CRYWOLF LAMP 3M002-F8	11-11-48
XIAN1152	CRYWOLF LAMP 3M003-D1	11-11-52
XIAN1156	CRYWOLF LAMP 3M003-B2	11-11-56
XIAN1160	CRYWOLF LAMP 3M003-F2	11-11-60
XIAN1164	CRYWOLF LAMP 3M003-D3	11-11-64
XIAN1168	CRYWOLF LAMP 3M003-B4	11-11-68
XIAN1172	CRYWOLF LAMP 3M003-F4	11-11-72
XIAN1176	CRYWOLF LAMP 3M003-D5	11-11-76
XIAN1180	CRYWOLF LAMP 3M003-B6	11-11-80
XIAN1184	CRYWOLF LAMP 3M003-F6	11-11-84
XIAN1188	CRYWOLF LAMP 3M003-D7	11-11-88
XIAN1192	CRYWOLF LAMP 3M003-B8	11-11-92
XIAN1196	CRYWOLF LAMP 3M003-F8	11-11-96
XIAN1204	CRYWOLF LAMP 4M007-D1	11-12-04
XIAN1208	CRYWOLF LAMP 4M007-B2	11-12-08
XIAN1212	CRYWOLF LAMP 4M007-F2	11-12-12
XIAN1216	CRYWOLF LAMP 4M007-D3	11-12-16
XIAN1220	CRYWOLF LAMP 4M007-B4	11-12-20
XIAN1224	CRYWOLF LAMP 4M007-F4	11-12-24
XIAN1228	CRYWOLF LAMP 4M007-D5	11-12-28
XIAN1232	CRYWOLF LAMP 4M007-B6	11-12-32
XIAN1236	CRYWOLF LAMP 4M007-F6	11-12-36
XIAN1240	CRYWOLF LAMP 4M007-D7	11-12-40
XIAN1244	CRYWOLF LAMP 4M007-B8	11-12-44
XIAN1248	CRYWOLF LAMP 4M007-F8	11-12-48
XIAN1252	CRYWOLF LAMP 4M008-D1	11-12-52
XIAN1256	CRYWOLF LAMP 4M008-B2	11-12-56
XIAN1260	CRYWOLF LAMP 4M008-F2	11-12-60
XIAN1264	CRYWOLF LAMP 4M008-D3	11-12-64
XIAN1268	CRYWOLF LAMP 4M008-B4	11-12-68
XIAN1272	CRYWOLF LAMP 4M008-F4	11-12-72
XIAN1276	CRYWOLF LAMP 4M008-D5	11-12-76
XIAN1280	CRYWOLF LAMP 4M008-B6	11-12-80
XIAN1284	CRYWOLF LAMP 4M008-F6	11-12-84
XIAN1288	CRYWOLF LAMP 4M008-D7	11-12-88
XIAN1292	CRYWOLF LAMP 4M008-B8	11-12-92
XIAN1296	CRYWOLF LAMP 4M008-F8	11-12-96
XIAN1304	CRYWOLF LAMP 5M002-D1	11-13-04
XIAN1308	CRYWOLF LAMP 5M002-B2	11-13-08
XIAN1312	CRYWOLF LAMP 5M002-F2	11-13-12
XIAN1316	CRYWOLF LAMP 5M002-D3	11-13-16

ADDENDUM 12

FOUR YEAR SIMULATOR PERFORMANCE TEST SCHEDULE
(Continued)

MNEMONIC	DESCRIPTION	TRIPLE CODE
XIAN1320	CRYWOLF LAMP 5M002-B4	11-13-20
XIAN1324	CRYWOLF LAMP 5M002-F4	11-13-24
XIAN1328	CRYWOLF LAMP 5M002-D5	11-13-28
XIAN1332	CRYWOLF LAMP 5M002-B6	11-13-32
XIAN1336	CRYWOLF LAMP 5M002-F6	11-13-36
XIAN1340	CRYWOLF LAMP 5M002-D7	11-13-40
XIAN1344	CRYWOLF LAMP 5M002-B8	11-13-44
XIAN1348	CRYWOLF LAMP 5M002-F8	11-13-48
XIAN1352	CRYWOLF LAMP 5M003-D1	11-13-52
XIAN1356	CRYWOLF LAMP 5M003-B2	11-13-56
XIAN1360	CRYWOLF LAMP 5M003-F2	11-13-60
XIAN1364	CRYWOLF LAMP 5M003-D3	11-13-64
XIAN1404	CRYWOLF LAMP 5M003-B4	11-14-04
XIAN1408	CRYWOLF LAMP 5M003-F4	11-14-08
XIAN1412	CRYWOLF LAMP 5M003-D5	11-14-12
XIAN1416	CRYWOLF LAMP 5M003-B6	11-14-16
XIAN1420	CRYWOLF LAMP 5M003-F6	11-14-20
XIAN1424	CRYWOLF LAMP 5M003-D7	11-14-24
XIAN1428	CRYWOLF LAMP 5M003-B8	11-14-28
XIAN1432	CRYWOLF LAMP 5M003-F8	11-14-32
XIAN1436	CRYWOLF LAMP 5M004-D1	11-14-36
XIAN1440	CRYWOLF LAMP 5M004-B2	11-14-40
XIAN1444	CRYWOLF LAMP 5M004-F2	11-14-44
XIAN1448	CRYWOLF LAMP 5M004-D3	11-14-48
XIAN1452	CRYWOLF LAMP 5M004-B4	11-14-52
XIAN1456	CRYWOLF LAMP 5M004-F4	11-14-56
XIAN1460	CRYWOLF LAMP 5M004-D5	11-14-60
XIAN1464	CRYWOLF LAMP 5M004-B6	11-14-64
XIAN1504	CRYWOLF LAMP 5M004-F6	11-15-04
XIAN1508	CRYWOLF LAMP 5M004-D7	11-15-08
DELETE**	CRYWOLF LAMP 5M004-B8	11-15-12
DELETE**	CRYWOLF LAMP 5M004-F8	11-15-16
XIAN1520	CRYWOLF LAMP 6M003-D1	11-15-20
XIAN1524	CRYWOLF LAMP 6M003-B2	11-15-24
XIAN1528	CRYWOLF LAMP 6M003-F2	11-15-28
XIAN1532	CRYWOLF LAMP 6M003-D3	11-15-32
XIAN1536	CRYWOLF LAMP 6M003-B4	11-15-36
XIAN1540	CRYWOLF LAMP 6M003-F4	11-15-40
XIAN1544	CRYWOLF LAMP 6M003-D5	11-15-44
XIAN1548	CRYWOLF LAMP 6M003-B6	11-15-48
XIAN1552	CRYWOLF LAMP 6M003-F6	11-15-52
XIAN1556	CRYWOLF LAMP 6M003-D7	11-15-56
XIAN1560	CRYWOLF LAMP 6M003-B8	11-15-60

ADDENDUM 12

FOUR YEAR SIMULATOR PERFORMANCE TEST SCHEDULE
(Continued)

MNEMONIC	DESCRIPTION	TRIPLE CODE
XIAN1564	CRYWOLF LAMP 6M003-F8	11-15-64
XIAN1568	CRYWOLF LAMP 6M004-D1	11-15-68
XIAN1572	CRYWOLF LAMP 6M004-B2	11-15-72
XIAN1576	CRYWOLF LAMP 6M004-F2	11-15-76
XIAN1580	CRYWOLF LAMP 6M004-D3	11-15-80
XIAN1584	CRYWOLF LAMP 6M004-B4	11-15-84
XIAN1588	CRYWOLF LAMP 6M004-F4	11-15-88
XIAN1592	CRYWOLF LAMP 6M004-D5	11-15-92
XIAN1596	CRYWOLF LAMP 6M004-B6	11-15-96
XIAN1604	CRYWOLF LAMP 6M004-F6	11-16-04
XIAN1608	CRYWOLF LAMP 6M004-D7	11-16-08
XIAN1612	CRYWOLF LAMP 6M004-B8	11-16-12
XIAN1616	CRYWOLF LAMP 6M004-F8	11-16-16
XIAN1620	CRYWOLF LAMP 6M005-D1	11-16-20
XIAN1624	CRYWOLF LAMP 6M005-B2	11-16-24
XIAN1628	CRYWOLF LAMP 6M005-F2	11-16-28
XIAN1632	CRYWOLF LAMP 6M005-D3	11-16-32
XIAN1636	CRYWOLF LAMP 6M005-B4	11-16-36
XIAN1640	CRYWOLF LAMP 6M005-F4	11-16-40
XIAN1644	CRYWOLF LAMP 7M001-D1	11-16-44
XIAN1648	CRYWOLF LAMP 7M001-B2	11-16-48
XIAN1652	CRYWOLF LAMP 7M001-F2	11-16-52
XIAN1656	CRYWOLF LAMP 7M001-D3	11-16-56
XIAN1660	CRYWOLF LAMP 7M001-B4	11-16-60
XIAN1664	CRYWOLF LAMP 7M001-F4	11-16-64
XIAN1668	CRYWOLF LAMP 7M001-D5	11-16-68
XIAN1672	CRYWOLF LAMP 7M001-B6	11-16-72
XIAN1676	CRYWOLF LAMP 7M001-F6	11-16-76
XIAN1680	CRYWOLF LAMP 7M001-D7	11-16-80
XIAN1684	CRYWOLF LAMP 7M001-B8	11-16-84
XIAN1688	CRYWOLF LAMP 7M001-F8	11-16-88
XIAN1692	CRYWOLF LAMP 7M003-D1	11-16-92
XIAN1696	CRYWOLF LAMP 7M003-B2	11-16-96
XIAN1704	CRYWOLF LAMP 7M003-F2	11-17-04
XIAN1708	CRYWOLF LAMP 7M003-D3	11-17-08
XIAN1712	CRYWOLF LAMP 7M003-B4	11-17-12
XIAN1716	CRYWOLF LAMP 7M003-F4	11-17-16
XIAN1720	CRYWOLF LAMP 7M003-D5	11-17-20
XIAN1724	CRYWOLF LAMP 7M003-B6	11-17-24
XIAN1728	CRYWOLF LAMP 7M003-F6	11-17-28
XIAN1732	CRYWOLF LAMP 7M003-D7	11-17-32
XIAN1736	CRYWOLF LAMP 7M003-B8	11-17-36
XIAN1740	CRYWOLF LAMP 7M003-F8	11-17-40

ADDENDUM 12

FOUR YEAR SIMULATOR PERFORMANCE TEST SCHEDULE
(Continued)

MNEMONIC	DESCRIPTION	TRIPLE CODE
XIAN1744	CRYWOLF LAMP 8M003-D1	11-17-44
XIAN1748	CRYWOLF LAMP 8M003-B2	11-17-48
XIAN1752	CRYWOLF LAMP 8M003-F2	11-17-52
XIAN1756	CRYWOLF LAMP 8M003-D3	11-17-56
XIAN1760	CRYWOLF LAMP 8M003-B4	11-17-60
XIAN1764	CRYWOLF LAMP 8M003-F4	11-17-64
XIAN1768	CRYWOLF LAMP 8M003-D5	11-17-68
XIAN1772	CRYWOLF LAMP 8M003-B6	11-17-72
XIAN1776	CRYWOLF LAMP 8M003-F6	11-17-76
XIAN1780	CRYWOLF LAMP 8M003-D7	11-17-80
XIAN1784	CRYWOLF LAMP 8M003-B8	11-17-84
XIAN1788	CRYWOLF LAMP 8M003-F8	11-17-88
XIAN1792	CRYWOLF LAMP 9M001-D1	11-17-92
XIAN1796	CRYWOLF LAMP 9M001-B2	11-17-96
XIAN1804	CRYWOLF LAMP 9M001-F2	11-18-04
XIAN1808	CRYWOLF LAMP 9M001-D3	11-18-08
XIAN1812	CRYWOLF LAMP 9M001-B4	11-18-12
XIAN1816	CRYWOLF LAMP 9M001-F4	11-18-16
XIAN1820	CRYWOLF LAMP 9M001-D5	11-18-20
XIAN1824	CRYWOLF LAMP 9M001-B6	11-18-24
XIAN1828	CRYWOLF LAMP 9M001-F6	11-18-28
XIAN1832	CRYWOLF LAMP 9M001-D7	11-18-32
XIAN1836	CRYWOLF LAMP 9M001-B8	11-18-36
XIAN1840	CRYWOLF LAMP 9M001-F8	11-18-40
XIAN1844	CRYWOLF LAMP 10M001-D1	11-18-44
XIAN1848	CRYWOLF LAMP 10M001-B2	11-18-48
XIAN1852	CRYWOLF LAMP 10M001-F2	11-18-52
XIAN1856	CRYWOLF LAMP 10M001-D3	11-18-56
XIAN1860	CRYWOLF LAMP 10M001-B4	11-18-60
XIAN1864	CRYWOLF LAMP 10M001-F4	11-18-64
XIAN1868	CRYWOLF LAMP 10M001-D5	11-18-68
XIAN1872	CRYWOLF LAMP 10M001-B6	11-18-72
XIAN1876	CRYWOLF LAMP 10M001-F6	11-18-76
XIAN1880	CRYWOLF LAMP 10M001-D7	11-18-80
XIAN1884	CRYWOLF LAMP 10M001-B8	11-18-84
XIAN1888	CRYWOLF LAMP 10M001-F8	11-18-88
XIAN1892	CRYWOLF LAMP 10M002-D1	11-18-92
XIAN1896	CRYWOLF LAMP 10M002-B2	11-18-96
XIAN1904	CRYWOLF LAMP 10M002-F2	11-19-04
XIAN1908	CRYWOLF LAMP 10M002-D3	11-19-08
XIAN1912	CRYWOLF LAMP 10M002-B4	11-19-12
XIAN1916	CRYWOLF LAMP 10M002-F4	11-19-16
XIAN1920	CRYWOLF LAMP 10M002-D5	11-19-20

ADDENDUM 12

FOUR YEAR SIMULATOR PERFORMANCE TEST SCHEDULE
(Continued)

MNEMONIC	DESCRIPTION	TRIPLE CODE
XIAN1924	CRYWOLF LAMP 10M002-B6	11-19-24
XIAN1928	CRYWOLF LAMP 10M002-F6	11-19-28
XIAN1932	CRYWOLF LAMP 10M002-D7	11-19-32
XIAN1936	CRYWOLF LAMP 10M002-B8	11-19-36
XIAN1940	CRYWOLF LAMP 10M002-F8	11-19-40
XIAN1944	CRYWOLF LAMP 21M001-D1	11-19-44
XIAN1948	CRYWOLF LAMP 21M001-B2	11-19-48
XIAN1952	CRYWOLF LAMP 21M001-F2	11-19-52
XIAN1956	CRYWOLF LAMP 21M001-D3	11-19-56
XIAN1960	CRYWOLF LAMP 21M001-B4	11-19-60
XIAN1964	CRYWOLF LAMP 21M001-F4	11-19-64
XIAN1968	CRYWOLF LAMP 21M001-D5	11-19-68
XIAN1972	CRYWOLF LAMP 21M001-B6	11-19-72
XIAN1976	CRYWOLF LAMP 21M001-F6	11-19-76
XIAN1980	CRYWOLF LAMP 21M001-D7	11-19-80
XIAN1984	CRYWOLF LAMP 21M001-B8	11-19-84
XIAN1988	CRYWOLF LAMP 21M001-F8	11-19-88
XIAN1992	CRYWOLF LAMP 22M001-D1	11-19-92
XIAN1996	CRYWOLF LAMP 22M001-B2	11-19-96
XIAN2004	CRYWOLF LAMP 22M001-F2	11-20-04
XIAN2008	CRYWOLF LAMP 22M001-D3	11-20-08
XIAN2012	CRYWOLF LAMP 22M001-B4	11-20-12
XIAN2016	CRYWOLF LAMP 22M001-F4	11-20-16
XIAN2020	CRYWOLF LAMP 22M001-D5	11-20-20
XIAN2024	CRYWOLF LAMP 22M001-B6	11-20-24
XIAN2028	CRYWOLF LAMP 22M001-F6	11-20-28
XIAN2032	CRYWOLF LAMP 22M001-D7	11-20-32
XIAN2036	CRYWOLF LAMP 22M001-B8	11-20-36
XIAN2040	CRYWOLF LAMP 22M001-F8	11-20-40
XIAN2044	CRYWOLF LAMP 22M002-D1	11-20-44
XIAN2048	CRYWOLF LAMP 22M002-B2	11-20-48
XIAN2052	CRYWOLF LAMP 22M002-F2	11-20-52
XIAN2056	CRYWOLF LAMP 22M002-D3	11-20-56
XIAN2060	CRYWOLF LAMP 22M002-B4	11-20-60
XIAN2064	CRYWOLF LAMP 22M002-F4	11-20-64
XIAN2068	CRYWOLF LAMP 22M002-D5	11-20-68
XIAN2072	CRYWOLF LAMP 22M002-B6	11-20-72
XIAN2076	CRYWOLF LAMP 22M002-F6	11-20-76
XIAN2080	CRYWOLF LAMP 22M002-D7	11-20-80
XIAN2084	CRYWOLF LAMP 22M002-B8	11-20-84
XIAN2088	CRYWOLF LAMP 22M002-F8	11-20-88
XIAN2092	CRYWOLF LAMP 22M003-D1	11-20-92
XIAN2096	CRYWOLF LAMP 22M003-B2	11-20-96

ADDENDUM 12

FOUR YEAR SIMULATOR PERFORMANCE TEST SCHEDULE
(Continued)

MNEMONIC	DESCRIPTION	TRIPLE CODE
XIAN2104	CRYWOLF LAMP 22M003-F2	11-21-04
XIAN2108	CRYWOLF LAMP 22M003-D3	11-21-08
XIAN2112	CRYWOLF LAMP 22M003-B4	11-21-12
XIAN2116	CRYWOLF LAMP 22M003-F4	11-21-16
XIAN2120	CRYWOLF LAMP 22M003-D5	11-21-20
XIAN2124	CRYWOLF LAMP 22M003-B6	11-21-24
XIAN2128	CRYWOLF LAMP 22M003-F6	11-21-28
XIAN2132	CRYWOLF LAMP 22M003-D7	11-21-32
XIAN2136	CRYWOLF LAMP 22M003-B8	11-21-36
XIAN2140	CRYWOLF LAMP 22M003-F8	11-21-40

ADDENDUM 12

FOUR YEAR SIMULATOR PERFORMANCE TEST SCHEDULE
(Continued)

MALFUNCTIONS TO BE TESTED DURING 1994

MNEMONIC	DESCRIPTION	TRIPLE CODE
X:RX0202	MAN MODE CONT ROD INSERTION	01-02-02
X:RX0402	GRP-2, CB-D FAILS TO MOVE	01-04-02
X:RX0504	ROD P8 FAIL TO MOVE W/BNK C	01-05-04
X:RX0508	ROD K6 FAIL TO MOVE W/BNK C	01-05-08
X:RX0512	ROD M4 FAIL TO MOVE W/BNK D	01-05-12
XRRX0603	IMPROPER OVLP CB C TO CB D	01-06-03
X:RX0704	DROP ROD P8 OF CB C	01-07-04
X:RX0708	DROP ROD H8 OF CB D	01-07-08
X:RX0803	DROP GRP 1 RODS CB D	01-08-03
XRRX1001	AUTO RC CNTLS TAVG HI OR LO	01-10-01
X:RX1104	ROD EJECTION D4 CB D GRP 1	01-11-04
X:RX1206	FAILURE OF MS ISOL SIGNAL	01-12-06
X:RX1301	DRPI FAILURE DATA A	01-13-01
X:RX1403	FAIL DRPI CHANNEL C7	01-14-03
X:RX1407	FAIL DRPI CHANNEL M8	01-14-07
X:RX1411	FAIL DRPI CHANNEL F14	01-14-11
X:RX1415	FAIL DRPI CHANNEL M12	01-14-15
X:RX1603	FAIL ROD BLOCK C3	01-16-03
X:RX1801	C/BNKS OUT WHEN IN REQUIRED	01-18-01
X:RX1901	RX TRIP BKR P4 BYP OPEN TR R	01-19-01
X:RX2001	ROD D2 STUCK ON RX TRIP	01-20-01
X:RX2004	ROD N11 STUCK ON RX TRIP	01-20-04
X:RX2009	ROD H8 STUCK ON RX TRIP	01-20-09
X:RP2106	LOW FLOW RX TRIP LP 2 CH 2	01-21-06
X:RP2108	LOW FLOW RX TRIP LP 4 CH 2	01-21-08
X:RP2109	LOW FLOW RX TRIP LP 1 CH 3	01-21-09
X:RP2203	OP/DT RX TRIP CHNL 3	01-22-03
X:RP2206	OP/DT RUNBACK CHNL 2	01-22-06
X:RP2211	OT/DT RX TRIP CHNL 3	01-22-11
X:RP2215	OT/DT RUNBACK CHNL 3	01-22-15
X:RX2303	LO T AVG LOOP 3 B/S	01-23-03
X:RX2307	LO-LO T AVG LOOP 3 B/S	01-23-07
X:RP2403	SPRAY ACT TEST BYP CH 3 B/S	01-24-03
X:RP2408	CTMT PRESS HI-3 CH 1 B/S	01-24-08
X:RP2501	PZR PRESS LO RX TRIP CH 1	01-25-01
X:RP2505	PZR PRESS LO SI CH 1	01-25-05
X:RP2509	PZR PRESS HI RX TRIP CH 1	01-25-09
X:RP2513	PZR PRESS BLOCK CH 1	01-25-13
X:RP2517	PZR LEVEL HI RX TRIP CH 2	01-25-17
X:RP2602	RCP 1B U/V RX TRIP CH-2 B/S	01-26-02

ADDENDUM 12

FOUR YEAR SIMULATOR PERFORMANCE TEST SCHEDULE
(Continued)

MNEMONIC	DESCRIPTION	TRIPLE CODE
X:RP2606	RCP 1B U/F RX TRIP CH-2 B/S	01-26-06
X:NI2702	SOURCE RANGE HI CH 2 B/S	01-27-02
X:NI2706	INTERM RANGE HI CH 2 B/S	01-27-06
X:NI2710	INTERM RANGE P6 CH 2 B/S	01-27-10
X:NI2804	POWER RANGE P-8 CH 4 B/S	01-28-04
X:NI2808	POWER RANGE P-9 CH 4 B/S	01-28-08
X:NI2812	POWER RANGE P7/P10 CH 4 B/S	01-28-12
X:NI2904	PR OVRPWR ROD STOP BYP CH 4	01-29-04
X:NI2908	POWER RANGE LO CH 4 B/S	01-29-08
X:NI2912	POWER RANGE HI CH 4 B/S	01-29-12
X:NI2916	POWER RANGE RATE CH 4 B/S	01-29-16
X:NI3102	SR CHNL 32 FAILS LOW	01-31-02
X:NI3401	IR CH 35 OVER COMPENSATED	01-34-01
X:NI3601	IR CH 35 FAILS HIGH	01-36-01
X:NI3801	LOSS OF PWR TO PR CH 41	01-38-01
X:RC0101	RCS COLD LEG RUPTURE LOOP 1A	02-01-01
XNRC0301	RCS LEAK, FLOW XMTR LOOP A	02-03-01
XNRC0401	RCS LEAK, RV HEAD VENT	02-04-01
X:RC0703	SHEARED RCP SHAFT - RCP 1C	02-07-03
X:RC0803	LOCKED RCP ROTOR - RCP 1C	02-08-03
X:RC0903	RCP 1C TRIPS ON UNDER FREQ	02-09-03
X:RC1003	RCP 1C TRIP ON UNDER VOLTAGE	02-10-03
XNRC1302	PZR PORV LEAK PCV-656	02-13-02
X:RC1501	PZR SPRAY VLV FC PCV-655B	02-15-01
X:PZ1701	PZR PRES CONTROL FAIL -30PSI	02-17-01
XNRC1902	PT 456 FAILS TO ANY POSITION	02-19-02
XNRC2003	LT 468 PZR LVL XMTR FAILS	02-20-03
X:RC2302	PZR HTR GP B FAIL TO COME ON	02-23-02
XNRC2401	RCS PRES XMTR PT 407 FAILS	02-24-01
XNRC2502	RTD FAILS COLD LEG A TT 410B	02-25-02
XNRC2605	RTD FAILS HOT LEG B TT 423	02-26-05
XNRC2705	RTD FAILS HOT LEG C TT 433	02-27-05
XNRC2802	RTD FAILS COLD LEG D TT 440B	02-28-02
X:CV0101	LOSS OF LTDN FV-3380 SHUTS	03-01-01
X:CV0501	VCT LVL CONTROL FAILS LT-112	03-05-01
X:CV0901	LOSS OF CHARGING PUMP CCP-1A	03-09-01
XNCV1101	LETDOWN LINE LEAK IN RCB	03-11-01
XNBT1501	IN BORATE MODE NO INCR BORON	03-15-01
X:MW1801	LOSS OF RX MAKEUP CONTROL	03-18-01
XRCV2201	HI DP SEALWATER INJ FILTER A	03-22-01
XNCV2303	RCP 1B #1 SEAL FAILS	03-23-03
XNCV2307	RCP 1D #1 SEAL FAILS	03-23-07
X:CC0103	LOSS CCW PUMP 1C THERMAL O/L	04-01-03

ADDENDUM 12

FOUR YEAR SIMULATOR PERFORMANCE TEST SCHEDULE
(Continued)

MNEMONIC	DESCRIPTION	TRIPLE CODE
XNCC0301	LOSS CCW TO RCP 1A THERM BAR	04-03-01
X:CC0401	LOSS CCW TO RHR HEAT EXCH 1A	04-04-01
X:CC0601	CCW AUTO MU LV 4501 FAILS	04-06-01
X:EC0902	ECW PUMP 1B FAILS ON O/L	04-09-02
X:EC0905	TRIP ESSENTIAL CHILLER 11B	04-09-05
X:EC0909	TRIP ESSENTIAL CHILLER 12C	04-09-09
X:RH1003	LOSS OF RHR PUMP 1C ON O/L	04-10-03
XNRH1201	TUBE LEAK IN RHR HX 1A	04-12-01
X:SI1303	LOSS OF HHSI PUMP 1C ON O/L	04-13-03
X:SI1502	ACCUM DISCH VLV F/OP 039B	04-15-02
X:CS1601	LOSS OF CNTMT SPR PUMP 1A	04-16-01
XNSI1703	N2 LOSS ACCU 1C VIA PSV-3977	04-17-03
XNMS0101	STEAM BREAK OUTSIDE CONTAINM	05-01-01
XNMS0204	STM BKR IN CONTAINMENT LOOP D	05-02-04
XNSG0304	STEAM GEN TUBE LEAK - SG 1D	05-03-04
X:MS0404	MN STM SFTY VLV [illegible] 7440 FO	05-04-04
XNMS0504	MS SAFETY PSV 74[illegible]0 SEAT LEAK	05-05-04
X:MS0604	MSIV FAILS CLOSED SG D	05-06-04
X:MS0704	MSIV FAIL TO OPERATE MS 7444	05-07-04
X:MS0804	MSIV SHUTS DURING TEST SG D	05-08-04
X:MS1102	NO STM FLO SIG TO FWCS SG B	05-11-02
X:SG1202	NO SG LVL SIG TO FWCS SG 1B	05-12-02
X:PD1304	BNK 4 STM DMPS FAIL TO CLOSE	05-13-04
X:PD1601	STM DUMP CNTRL FAILS ON TRIP	05-16-01
X:TU0302	MN TURBINE THROTTLE VLV FO B	06-03-02
X:TU0402	MAIN TURB GOVERNOR VLV 2 FO	06-04-02
X:TU0502	MN TURBINE GOVERNOR VLV FC 2	06-05-02
XNTU0801	MN TURB LUBE OIL PRESS LOW	06-08-01
X:TU1301	TURNING GEAR MOTOR FAILURE	06-13-01
XNTU1602	1ST STG PR XMTR PT-505 FAILS	06-16-02
XRTU1903	MN TURB VIBRATION HI BRNG 3	06-19-03
XRTU1907	MN TURB VIBRATION HI BRNG 7	06-19-07
XRTU1911	MN TURB VIBRATION HI BRNG 11	06-19-11
X:CD0103	LOSS OF COND VACUUM PUMP 13	07-01-03
X:CD0402	LOSS OF MAIN FW PUMP - 12	07-04-02
X:AF0101	AUX FW PUMP NO 14 FAILS	08-01-01
X:AF0303	LOSS OF AUX FW PUMP NO 13	08-03-03
X:AF0503	AFW X-CONN VLV FY-7517 FAILS	08-05-03
XNFW0801	HI PRES FW HTR TUBE LEAK	08-08-01
X:PF1001	FAIL AUTO SPEED CNTRL MFP-11	08-10-01
X:FW1202	TURB OVERSPEED TRIP MFP-12	08-12-02
X:FW1303	LUBE OIL PRES LOW MFP-13	08-13-03
X:PC1404	AUTO FW CNTRL SYS FAILS SG-D	08-14-04

ADDENDUM 12

FOUR YEAR SIMULATOR PERFORMANCE TEST SCHEDULE
(Continued)

MNEMONIC	DESCRIPTION	TRIPLE CODE
X:FW1504	LOSS OF FEED FLOW SIG SG-D	08-15-04
X:FW1604	MN FW REG VLV F/C FCV-554	08-16-04
X:FW1704	MN FW REG VLV STUCK FCV-554	08-17-04
XNFW1804	MN FW REG VLV LEAKS FCV-554	08-18-04
XNFW1904	FW REG BYP VLV STUCK FV-7154	08-19-04
X:CD2301	LOSS OF CONDENSATE PUMP 11	08-23-01
XNCD2402	LEAK IN COND HDR TO HTR-14B	08-24-02
X:FW2801	LOSS OF LP HTR DRAIN PMP-11	08-28-01
X:FW2803	LOSS OF LP HTR DRAIN PMP-13	08-28-03
X:HV0102	LOSS OF CRDM COOLING FAN 11B	09-01-02
X:HV0203	LOSS OF CNTMT FAN CLR 11C	09-02-03
X:HV0301	LOSS OF NORM CNTMT PURGE SUP	09-03-01
X:RM0701	RCB PURGE EXH MNTR PEGS HI	09-07-01
X:HV1102	BOTH TOXIC GAS MONITORS FAIL	09-11-02
X:EA0101	LOSS OF EMERGENCY DG 11	10-01-01
X:EA0202	EMERGENCY DG 12 FAIL TO LOAD	10-02-02
X:EA0501	LOSS OF DP-1201	10-05-01
X:EA0601	MN GEN OUTPUT BKR OPENS	10-06-01
X:EA0902	LOSS OF 13.8KV STBY BUS 1G	10-09-02
X:EA1002	LOSS OF 4.16KV BUS 1D2	10-10-02
X:EA1201	LOSS OF 480V ESF MCC E1A1	10-12-01
X:EA1205	LOSS OF 480V ESF MCC E1B2	10-12-05
X:EA1209	LOSS OF 480V ESF MCC E1C3	10-12-09
X:EA1502	LOSS OF NON 1E DC PNL PL125B	10-15-02
X:GE1601	LOSS OF GEN SEAL OIL REG 256	10-16-01
X:AC0201	LOSS OF ACW CLSD LP PMP 11	11-02-01
X:AN0801	PANEL 1 ANNUNCIATOR FAILURE	11-08-01
X:AN0805	PANEL 5 ANNUNCIATOR FAILURE	11-08-05
X:AN0809	PANEL 21 ANNUNCIATOR FAILURE	11-08-09
XIAN0901	CRYWOLF LAMP 1M002-A1	11-09-01
XIAN0905	CRYWOLF LAMP 1M002-E1	11-09-05
XIAN0909	CRYWOLF LAMP 1M002-C2	11-09-09
XIAN0913	CRYWOLF LAMP 1M002-A3	11-09-13
XIAN0917	CRYWOLF LAMP 1M002-E3	11-09-17
XIAN0921	CRYWOLF LAMP 1M002-C4	11-09-21
XIAN0925	CRYWOLF LAMP 1M002-A5	11-09-25
XIAN0929	CRYWOLF LAMP 1M002-E5	11-09-29
XIAN0933	CRYWOLF LAMP 1M002-C6	11-09-33
XIAN0937	CRYWOLF LAMP 1M002-A7	11-09-37
XIAN0941	CRYWOLF LAMP 1M002-E7	11-09-41
XIAN0945	CRYWOLF LAMP 1M002-C8	11-09-45
XIAN0949	CRYWOLF LAMP 2M002-A1	11-09-49
XIAN0953	CRYWOLF LAMP 2M002-E1	11-09-53

FOUR YEAR SIMULATOR PERFORMANCE TEST SCHEDULE
(Continued)

MNEMONIC	DESCRIPTION	TRIPLE CODE
XIAN0957	CRYWOLF LAMP 2M002-C2	11-09-57
XIAN0961	CRYWOLF LAMP 2M002-A3	11-09-61
XIAN0965	CRYWOLF LAMP 2M002-E3	11-09-65
XIAN0969	CRYWOLF LAMP 2M002-C4	11-09-69
XIAN0973	CRYWOLF LAMP 2M002-A5	11-09-73
XIAN0977	CRYWOLF LAMP 2M002-E5	11-09-77
XIAN0981	CRYWOLF LAMP 2M002-C6	11-09-81
XIAN0985	CRYWOLF LAMP 2M002-A7	11-09-85
XIAN0989	CRYWOLF LAMP 2M002-E7	11-09-89
XIAN0993	CRYWOLF LAMP 2M002-C8	11-09-93
XIAN1001	CRYWOLF LAMP 2M003-A1	11-10-01
XIAN1005	CRYWOLF LAMP 2M003-E1	11-10-05
XIAN1009	CRYWOLF LAMP 2M003-C2	11-10-09
XIAN1013	CRYWOLF LAMP 2M003-A3	11-10-13
XIAN1017	CRYWOLF LAMP 2M003-E3	11-10-17
XIAN1021	CRYWOLF LAMP 2M003-C4	11-10-21
XIAN1025	CRYWOLF LAMP 2M003-A5	11-10-25
XIAN1029	CRYWOLF LAMP 2M003-E5	11-10-29
XIAN1033	CRYWOLF LAMP 2M003-C6	11-10-33
XIAN1037	CRYWOLF LAMP 2M003-A7	11-10-37
XIAN1041	CRYWOLF LAMP 2M003-E7	11-10-41
XIAN1045	CRYWOLF LAMP 2M003-C8	11-10-45
XIAN1049	CRYWOLF LAMP 2M004-A1	11-10-49
XIAN1053	CRYWOLF LAMP 2M004-E1	11-10-53
XIAN1057	CRYWOLF LAMP 2M004-C2	11-10-57
XIAN1061	CRYWOLF LAMP 2M004-A3	11-10-61
XIAN1065	CRYWOLF LAMP 2M004-E3	11-10-65
XIAN1069	CRYWOLF LAMP 2M004-C4	11-10-69
XIAN1073	CRYWOLF LAMP 2M004-A5	11-10-73
XIAN1077	CRYWOLF LAMP 2M004-E5	11-10-77
XIAN1081	CRYWOLF LAMP 2M004-C6	11-10-81
XIAN1085	CRYWOLF LAMP 2M004-A7	11-10-85
XIAN1089	CRYWOLF LAMP 2M004-E7	11-10-89
XIAN1093	CRYWOLF LAMP 2M004-C8	11-10-93
XIAN1101	CRYWOLF LAMP 3M002-A1	11-11-01
XIAN1105	CRYWOLF LAMP 3M002-E1	11-11-05
XIAN1109	CRYWOLF LAMP 3M002-C2	11-11-09
XIAN1113	CRYWOLF LAMP 3M002-A3	11-11-13
XIAN1117	CRYWOLF LAMP 3M002-E3	11-11-17
XIAN1121	CRYWOLF LAMP 3M002-C4	11-11-21
XIAN1125	CRYWOLF LAMP 3M002-A5	11-11-25
XIAN1129	CRYWOLF LAMP 3M002-E5	11-11-29
XIAN1133	CRYWOLF LAMP 3M002-C6	11-11-33

ADDENDUM 12

FOUR YEAR SIMULATOR PERFORMANCE TEST SCHEDULE
(Continued)

MNEMONIC	DESCRIPTION	TRIPLE CODE
XIAN1137	CRYWOLF LAMP 3M002-A7	11-11-37
XIAN1141	CRYWOLF LAMP 3M002-E7	11-11-41
XIAN1145	CRYWOLF LAMP 3M002-C8	11-11-45
XIAN1149	CRYWOLF LAMP 3M003-A1	11-11-49
XIAN1153	CRYWOLF LAMP 3M003-E1	11-11-53
XIAN1157	CRYWOLF LAMP 3M003-C2	11-11-57
XIAN1161	CRYWOLF LAMP 3M003-A3	11-11-61
XIAN1165	CRYWOLF LAMP 3M003-E3	11-11-65
XIAN1169	CRYWOLF LAMP 3M003-C4	11-11-69
XIAN1173	CRYWOLF LAMP 3M003-A5	11-11-73
XIAN1177	CRYWOLF LAMP 3M003-E5	11-11-77
XIAN1181	CRYWOLF LAMP 3M003-C6	11-11-81
XIAN1185	CRYWOLF LAMP 3M003-A7	11-11-85
XIAN1189	CRYWOLF LAMP 3M003-E7	11-11-89
XIAN1193	CRYWOLF LAMP 3M003-C8	11-11-93
XIAN1201	CRYWOLF LAMP 4M007-A1	11-12-01
XIAN1205	CRYWOLF LAMP 4M007-E1	11-12-05
XIAN1209	CRYWOLF LAMP 4M007-C2	11-12-09
XIAN1213	CRYWOLF LAMP 4M007-A3	11-12-13
XIAN1217	CRYWOLF LAMP 4M007-E3	11-12-17
XIAN1221	CRYWOLF LAMP 4M007-C4	11-12-21
XIAN1225	CRYWOLF LAMP 4M007-A5	11-12-25
XIAN1229	CRYWOLF LAMP 4M007-E5	11-12-29
XIAN1233	CRYWOLF LAMP 4M007-C6	11-12-33
XIAN1237	CRYWOLF LAMP 4M007-A7	11-12-37
XIAN1241	CRYWOLF LAMP 4M007-E7	11-12-41
XIAN1245	CRYWOLF LAMP 4M007-C8	11-12-45
XIAN1249	CRYWOLF LAMP 4M008-A1	11-12-49
XIAN1253	CRYWOLF LAMP 4M008-E1	11-12-53
XIAN1257	CRYWOLF LAMP 4M008-C2	11-12-57
XIAN1261	CRYWOLF LAMP 4M008-A3	11-12-61
XIAN1265	CRYWOLF LAMP 4M008-E3	11-12-65
XIAN1269	CRYWOLF LAMP 4M008-C4	11-12-69
XIAN1273	CRYWOLF LAMP 4M008-A5	11-12-73
XIAN1277	CRYWOLF LAMP 4M008-E5	11-12-77
XIAN1281	CRYWOLF LAMP 4M008-C6	11-12-81
XIAN1285	CRYWOLF LAMP 4M008-A7	11-12-85
XIAN1289	CRYWOLF LAMP 4M008-E7	11-12-89
XIAN1293	CRYWOLF LAMP 4M008-C8	11-12-93
XIAN1301	CRYWOLF LAMP 5M002-A1	11-13-01
XIAN1305	CRYWOLF LAMP 5M002-E1	11-13-05
XIAN1309	CRYWOLF LAMP 5M002-C2	11-13-09
XIAN1313	CRYWOLF LAMP 5M002-A3	11-13-13

ADDENDUM 12

FOUR YEAR SIMULATOR PERFORMANCE TEST SCHEDULE
(Continued)

MNEMONIC	DESCRIPTION	TRIPLE CODE
XIAN1317	CRYWOLF LAMP 5M002-E3	11-13-17
XIAN1321	CRYWOLF LAMP 5M002-C4	11-13-21
XIAN1325	CRYWOLF LAMP 5M002-A5	11-13-25
XIAN1329	CRYWOLF LAMP 5M002-E5	11-13-29
XIAN1333	CRYWOLF LAMP 5M002-C6	11-13-33
XIAN1337	CRYWOLF LAMP 5M002-A7	11-13-37
XIAN1341	CRYWOLF LAMP 5M002-E7	11-13-41
XIAN1345	CRYWOLF LAMP 5M002-C8	11-13-45
XIAN1349	CRYWOLF LAMP 5M003-A1	11-13-49
XIAN1353	CRYWOLF LAMP 5M003-E1	11-13-53
XIAN1357	CRYWOLF LAMP 5M003-C2	11-13-57
XIAN1361	CRYWOLF LAMP 5M003-A3	11-13-61
XIAN1401	CRYWOLF LAMP 5M003-E3	11-14-01
XIAN1405	CRYWOLF LAMP 5M003-C4	11-14-05
XIAN1409	CRYWOLF LAMP 5M003-A5	11-14-09
XIAN1413	CRYWOLF LAMP 5M003-E5	11-14-13
XIAN1417	CRYWOLF LAMP 5M003-C6	11-14-17
XIAN1421	CRYWOLF LAMP 5M003-A7	11-14-21
XIAN1425	CRYWOLF LAMP 5M003-E7	11-14-25
XIAN1429	CRYWOLF LAMP 5M003-C8	11-14-29
XIAN1433	CRYWOLF LAMP 5M004-A1	11-14-33
XIAN1437	CRYWOLF LAMP 5M004-E1	11-14-37
XIAN1441	CRYWOLF LAMP 5M004-C2	11-14-41
XIAN1445	CRYWOLF LAMP 5M004-A3	11-14-45
XIAN1449	CRYWOLF LAMP 5M004-E3	11-14-49
XIAN1453	CRYWOLF LAMP 5M004-C4	11-14-53
XIAN1457	CRYWOLF LAMP 5M004-A5	11-14-57
XIAN1461	CRYWOLF LAMP 5M004-E5	11-14-61
XIAN1501	CRYWOLF LAMP 5M004-C6	11-15-01
XIAN1505	CRYWOLF LAMP 5M004-A7	11-15-05
XIAN1509	CRYWOLF LAMP 5M004-E7	11-15-09
DELETE**	CRYWOLF LAMP 5M004-C8	11-15-13
XIAN1517	CRYWOLF LAMP 6M003-A1	11-15-17
XIAN1521	CRYWOLF LAMP 6M003-E1	11-15-21
XIAN1525	CRYWOLF LAMP 6M003-C2	11-15-25
XIAN1529	CRYWOLF LAMP 6M003-A3	11-15-29
XIAN1533	CRYWOLF LAMP 6M003-E3	11-15-33
XIAN1537	CRYWOLF LAMP 6M003-C4	11-15-37
XIAN1541	CRYWOLF LAMP 6M003-A5	11-15-41
XIAN1545	CRYWOLF LAMP 6M003-E5	11-15-45
XIAN1549	CRYWOLF LAMP 6M003-C6	11-15-49
XIAN1553	CRYWOLF LAMP 6M003-A7	11-15-53
XIAN1557	CRYWOLF LAMP 6M003-E7	11-15-57

ADDENDUM 12

FOUR YEAR SIMULATOR PERFORMANCE TEST SCHEDULE
(Continued)

MNEMONIC	DESCRIPTION	TRIPLE CODE
XIAN1561	CRYWOLF LAMP 6M003-C8	11-15-61
XIAN1565	CRYWOLF LAMP 6M004-A1	11-15-65
XIAN1569	CRYWOLF LAMP 6M004-E1	11-15-69
XIAN1573	CRYWOLF LAMP 6M004-C2	11-15-73
XIAN1577	CRYWOLF LAMP 6M004-A3	11-15-77
XIAN1581	CRYWOLF LAMP 6M004-E3	11-15-81
XIAN1585	CRYWOLF LAMP 6M004-C4	11-15-85
XIAN1589	CRYWOLF LAMP 6M004-A5	11-15-89
XIAN1593	CRYWOLF LAMP 6M004-E5	11-15-93
XIAN1601	CRYWOLF LAMP 6M004-C6	11-16-01
XIAN1605	CRYWOLF LAMP 6M004-A7	11-16-05
XIAN1609	CRYWOLF LAMP 6M004-E7	11-16-09
XIAN1613	CRYWOLF LAMP 6M004-C8	11-16-13
XIAN1617	CRYWOLF LAMP 6M005-A1	11-16-17
XIAN1621	CRYWOLF LAMP 6M005-E1	11-16-21
XIAN1625	CRYWOLF LAMP 6M005-C2	11-16-25
XIAN1629	CRYWOLF LAMP 6M005-A3	11-16-29
XIAN1633	CRYWOLF LAMP 6M005-E3	11-16-33
XIAN1637	CRYWOLF LAMP 6M005-C4	11-16-37
XIAN1641	CRYWOLF LAMP 7M001-A1	11-16-41
XIAN1645	CRYWOLF LAMP 7M001-E1	11-16-45
XIAN1649	CRYWOLF LAMP 7M001-C2	11-16-49
XIAN1653	CRYWOLF LAMP 7M001-A3	11-16-53
XIAN1657	CRYWOLF LAMP 7M001-E3	11-16-57
XIAN1661	CRYWOLF LAMP 7M001-C4	11-16-61
XIAN1665	CRYWOLF LAMP 7M001-A5	11-16-65
XIAN1669	CRYWOLF LAMP 7M001-E5	11-16-69
XIAN1673	CRYWOLF LAMP 7M001-C6	11-16-73
XIAN1677	CRYWOLF LAMP 7M001-A7	11-16-77
XIAN1681	CRYWOLF LAMP 7M001-E7	11-16-81
XIAN1685	CRYWOLF LAMP 7M001-C8	11-16-85
XIAN1689	CRYWOLF LAMP 7M003-A1	11-16-89
XIAN1693	CRYWOLF LAMP 7M003-E1	11-16-93
XIAN1701	CRYWOLF LAMP 7M003-C2	11-17-01
XIAN1705	CRYWOLF LAMP 7M003-A3	11-17-05
XIAN1709	CRYWOLF LAMP 7M003-E3	11-17-09
XIAN1713	CRYWOLF LAMP 7M003-C4	11-17-13
XIAN1717	CRYWOLF LAMP 7M003-A5	11-17-17
XIAN1721	CRYWOLF LAMP 7M003-E5	11-17-21
XIAN1725	CRYWOLF LAMP 7M003-C6	11-17-25
XIAN1729	CRYWOLF LAMP 7M003-A7	11-17-29
XIAN1733	CRYWOLF LAMP 7M003-E7	11-17-33
XIAN1737	CRYWOLF LA 7M003-C8	11-17-37

ADDENDUM 12

FOUR YEAR SIMULATOR PERFORMANCE TEST SCHEDULE
(Continued)

MNEMONIC	DESCRIPTION	TRIPLE CODE
XIAN1741	CRYWOLF LAMP 8M003-A1	11-17-41
XIAN1745	CRYWOLF LAMP 8M003-E1	11-17-45
XIAN1749	CRYWOLF LAMP 8M003-C2	11-17-49
XIAN1753	CRYWOLF LAMP 8M003-A3	11-17-53
XIAN1757	CRYWOLF LAMP 8M003-E3	11-17-57
XIAN1761	CRYWOLF LAMP 8M003-C4	11-17-61
XIAN1765	CRYWOLF LAMP 8M003-A5	11-17-65
XIAN1769	CRYWOLF LAMP 8M003-E5	11-17-69
XIAN1773	CRYWOLF LAMP 8M003-C6	11-17-73
XIAN1777	CRYWOLF LAMP 8M003-A7	11-17-77
XIAN1781	CRYWOLF LAMP 8M003-E7	11-17-81
XIAN1785	CRYWOLF LAMP 8M003-C8	11-17-85
XIAN1789	CRYWOLF LAMP 9M001-A1	11-17-89
XIAN1793	CRYWOLF LAMP 9M001-E1	11-17-93
XIAN1801	CRYWOLF LAMP 9M001-C2	11-18-01
XIAN1805	CRYWOLF LAMP 9M001-A3	11-18-05
XIAN1809	CRYWOLF LAMP 9M001-E3	11-18-09
XIAN1813	CRYWOLF LAMP 9M001-C4	11-18-13
XIAN1817	CRYWOLF LAMP 9M001-A5	11-18-17
XIAN1821	CRYWOLF LAMP 9M001-E5	11-18-21
XIAN1825	CRYWOLF LAMP 9M001-C6	11-18-25
XIAN1829	CRYWOLF LAMP 9M001-A7	11-18-29
XIAN1833	CRYWOLF LAMP 9M001-E7	11-18-33
XIAN1837	CRYWOLF LAMP 9M001-C8	11-18-37
XIAN1841	CRYWOLF LAMP 10M001-A1	11-18-41
XIAN1845	CRYWOLF LAMP 10M001-E1	11-18-45
XIAN1849	CRYWOLF LAMP 10M001-C2	11-18-49
XIAN1853	CRYWOLF LAMP 10M001-A3	11-18-53
XIAN1857	CRYWOLF LAMP 10M001-E3	11-18-57
XIAN1861	CRYWOLF LAMP 10M001-C4	11-18-61
XIAN1865	CRYWOLF LAMP 10M001-A5	11-18-65
XIAN1869	CRYWOLF LAMP 10M001-E5	11-18-69
XIAN1873	CRYWOLF LAMP 10M001-C6	11-18-73
XIAN1877	CRYWOLF LAMP 10M001-A7	11-18-77
XIAN1881	CRYWOLF LAMP 10M001-E7	11-18-81
XIAN1885	CRYWOLF LAMP 10M001-C8	11-18-85
XIAN1889	CRYWOLF LAMP 10M002-A1	11-18-89
XIAN1893	CRYWOLF LAMP 10M002-E1	11-18-93
XIAN1901	CRYWOLF LAMP 10M002-C2	11-19-01
XIAN1905	CRYWOLF LAMP 10M002-A3	11-19-05
XIAN1909	CRYWOLF LAMP 10M002-E3	11-19-09
XIAN1913	CRYWOLF LAMP 10M002-C4	11-19-13
XIAN1917	CRYWOLF LAMP 10M002-A5	11-19-17

ADDENDUM 12

FOUR YEAR SIMULATOR PERFORMANCE TEST SCHEDULE
(Continued)

MNEMONIC	DESCRIPTION	TRIPLE CODE
XIAN1921	CRYWOLF LAMP 10M002-E5	11-19-21
XIAN1925	CRYWOLF LAMP 10M002-C6	11-19-25
XIAN1929	CRYWOLF LAMP 10M002-A7	11-19-29
XIAN1933	CRYWOLF LAMP 10M002-E7	11-19-33
XIAN1937	CRYWOLF LAMP 10M002-C8	11-19-37
XIAN1941	CRYWOLF LAMP 21M001-A1	11-19-41
XIAN1945	CRYWOLF LAMP 21M001-E1	11-19-45
XIAN1949	CRYWOLF LAMP 21M001-C2	11-19-49
XIAN1953	CRYWOLF LAMP 21M001-A3	11-19-53
XIAN1957	CRYWOLF LAMP 21M001-E3	11-19-57
XIAN1961	CRYWOLF LAMP 21M001-C4	11-19-61
XIAN1965	CRYWOLF LAMP 21M001-A5	11-19-65
XIAN1969	CRYWOLF LAMP 21M001-E5	11-19-69
XIAN1973	CRYWOLF LAMP 21M001-C6	11-19-73
XIAN1977	CRYWOLF LAMP 21M001-A7	11-19-77
XIAN1981	CRYWOLF LAMP 21M001-E7	11-19-81
XIAN1985	CRYWOLF LAMP 21M001-C8	11-19-85
XIAN1989	CRYWOLF LAMP 22M001-A1	11-19-89
XIAN1993	CRYWOLF LAMP 22M001-E1	11-19-93
XIAN2001	CRYWOLF LAMP 22M001-C2	11-20-01
XIAN2005	CRYWOLF LAMP 22M001-A3	11-20-05
XIAN2009	CRYWOLF LAMP 22M001-E3	11-20-09
XIAN2013	CRYWOLF LAMP 22M001-C4	11-20-13
XIAN2017	CRYWOLF LAMP 22M001-A5	11-20-17
XIAN2021	CRYWOLF LAMP 22M001-E5	[illegible]-20-21
XIAN2025	CRYWOLF LAMP 22M001-C6	[illegible]-20-25
XIAN2029	CRYWOLF LAMP 22M001-A7	11-20-29
XIAN2033	CRYWOLF LAMP 22M001-E7	11-20-33
XIAN2037	CRYWOLF LAMP 22M001-C8	11-20-37
XIAN2041	CRYWOLF LAMP 22M00[illegible]1	11-20-41
XIAN2045	CRYWOLF LAMP 22M[illegible]1	11-20-45
XIAN2049	CRYWOLF LAMP [illegible]2-C2	11-20-49
XIAN2053	CRYWOLF LAMP 22M002-A3	11-20-53
XIAN2057	CRYWOLF LAMP 22M002-E3	11-20-57
XIAN2061	CRYWOLF LAMP 22M002-C4	11-20-61
XIAN2065	CRYWOLF LAMP 22M002-A5	11-20-65
XIAN2069	CRYWOLF LAMP 22M002-E5	11-20-69
XIAN2073	CRYWOLF LAMP 22M002-C6	11-20-73
XIAN2077	CRYWOLF LAMP 22M002-A7	11-20-77
XIAN2081	CRYWOLF LAMP 22M002-E7	11-20-81
XIAN2085	CRYWOLF LAMP 22M002-C8	11-20-85
XIAN2089	CRYWOLF LAMP 22M003-A1	11-20-89
XIAN2093	CRYWOLF LAMP 22M003-E1	11-20-93

ADDENDUM 12

FOUR YEAR SIMULATOR PERFORMANCE TEST SCHEDULE
(Continued)

MNEMONIC	DESCRIPTION	TRIPLE CODE
XIAN2101	CRYWOLF LAMP 22M003-C2	11-21-01
XIAN2105	CRYWOLF LAMP 22M003-A3	11-21-05
XIAN2109	CRYWOLF LAMP 22M003-E3	11-21-09
XIAN2113	CRYWOLF LAMP 22M003-C4	11-21-13
XIAN2117	CRYWOLF LAMP 22M003-A5	11-21-17
XIAN2121	CRYWOLF LAMP 22M003-E5	11-21-21
XIAN2125	CRYWOLF LAMP 22M003-C6	11-21-25
XIAN2129	CRYWOLF LAMP 22M003-A7	11-21-29
XIAN2133	CRYWOLF LAMP 22M003-E7	11-21-33
XIAN2137	CRYWOLF LAMP 22M003-C8	11-21-37