

#67

NEW HAMPSHIRE YANKEE

SEABROOK STATION

1991 GRADED EXERCISE

(91-03-020EX)

MAY 22, 1991

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NEW HAMPSHIRE YANKEE

SEABROOK STATION

1991 GRADED EXERCISE

1.0 PLANNING ELEMENTS

5/11/91

1991 GRADED EXERCISE
PLANNING ELEMENTS

DATE AND TIME

May 22, 1991

Time not announced

ASSIGNED PLAYERS

NHY Emergency Response Organization

- A. Control Room/Simulator
 - 1. Shift Superintendent
 - 2. Unit Shift Supervisor
 - 3. Supervisory Control Room Operator
 - 4. Control Room Operator
- B. TSC Staff per Procedure ER 3.1
- C. OSC Staff per Procedure ER 3.2
- D. EOF Staff per Procedure ER 3.3
- E. Joint Telephone Information Center (JTIC) Staff per Procedure ER 3.5
- F. Media Center Staff per Procedure ER 3.5
- G. Seabrook News Service Staff (initially, if required)
- H. Inprocessing Center (limited involvement)
- I. YAEC TSC Response Staff (3)
- J. YAEC Engineering Support Center Staff per TAG 12

State of New Hampshire: (limited involvement)

State EOC: NHOEM Director
EOC Media Liaison
Public Information Staff (1)
Communications Officer
EOC Operations Officer
EOC Operations Controller
Support Staff (3)

Incident Field Office: EOF Liaison
IFO Communicator
IFO Controller
IFO Technical Assistant
Support Staff (2)

Media Center: NHOEM Representatives

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PLANNING ELEMENTS

NHY Offsite Response Organization: (limited involvement)

EOC: NHY Offsite Response Director
Radiological Health Advisor
Public Information Advisor
Public Information Admin Staff (1)
Technical Advisor
NHY Offsite Response EOC Con. 1st

Media Center: Public Information Coordinator

State of Maine: (limited involvement)

Incident Field Office: MEMA Representative

ADDITIONAL DRILL CREDIT

No additional drill credit will be taken for this exercise.

1991 GRADED EXERCISE
PLANNING ELEMENTS

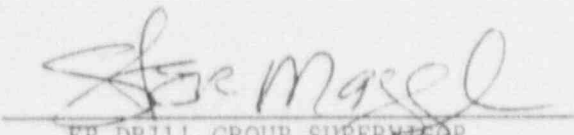
SCENARIO PACKAGE PREPARATION

PREPARED BY:


EP SCENARIO SUPERVISOR

DATE:

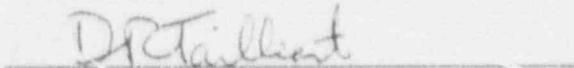
3/11/91


EP DRILL GROUP SUPERVISOR

DATE:

3/11/91

APPROVED BY:


EMERGENCY PREPAREDNESS MANAGER

DATE:

3/11/91

NEW HAMPSHIRE YANKEE

SEABROOK STATION

1991 GRADED EXERCISE

2.0 EXERCISE OBJECTIVES AND GUIDELINES

3/11/91

1991 GRADED EXERCISE
ERO OBJECTIVES AND EXTENT OF PLAY

Objective I.1: Demonstrate the ability to initially recognize station conditions and parameter trends as emergency initiating conditions requiring activation of the station radiological emergency plan, and to develop potential solutions for placing the unit in a safe, stable condition. Accident detection and assessment should include recognition of post-accident sampling capability.

Extent of Play

The Seabrook Station Emergency Response Organization (ERO) will demonstrate this objective. Initial activation will start in the Control Room. Control Room activities will be conducted from the Station Simulator located in the Seabrook Training Center.

All Seabrook Station emergency response facilities will be manned in a timely fashion and perform prescribed functions in accordance with station procedures as appropriate to the development of the exercise scenario. Except as noted under each of the following objectives, no pre-staging will be allowed.

The TSC will demonstrate the ability to analyze station conditions and parameter trends, and develop potential solutions for placing the station in a safe, stable condition. The Yankee Atomic Electric Company (YAEC) Engineering Support Center (ESC) will assist the TSC with accident assessment and core damage analysis.

Objective I.2: Demonstrate the ability to identify initiating conditions, assess Emergency Action Level (EAL) parameters and correctly classify the emergency.

Extent of Play

The Simulator Control Room staff and the TSC staff shall properly identify, assess and classify emergency conditions in accordance with Procedure ER 1.1.

Objective I.3: Demonstrate the ability to notify both onsite and offsite emergency response organizations of the appropriate emergency classification. Demonstration of this objective shall include a determination of adequate emergency response in the following areas: (a) notification of all categories of station personnel (i.e., emergency responders, non-essential staff, visitors and contractors, etc.); (b) notification of state emergency response organizations within the required time limit; (c) notification of NRC emergency response organization as required; and (d) establishment of a follow-up notification process providing accident status to both State and Federal response organizations throughout the emergency condition.

1991 GRADED EXERCISE
ERO OBJECTIVES AND EXTENT OF PLAY

Extent of Play

The Control Room, Technical Support Center, Guard Island and Emergency Operations Facility staffs will demonstrate this objective by notifying onsite, offsite, NRC and YAEC personnel and in accordance with appropriate procedures.

A controller will be assigned to the Station Control Room to support exercise use of the simulator. Actions initiated by the Exercise Shift Superintendent in the Simulator will be relayed by a Simulator Controller to the Control Room Controller. The Control Room Controller will duplicate the actions associated with notifications (e.g., forms completion) and direct all notifications through the Control Room Communicator.

Information for initial State and NRC notifications will be determined and recorded by the Exercise Shift Superintendent in the Simulator Control Room. Upon receipt of completed notification forms, a Simulator Controller will contact a Control Room Controller and relay the form content.

The Nuclear Alert System (NAS) Group Call number will not be used at the EOF.

Upon notification, Massachusetts State Police will be requested to accept the exercise-related calls, but not to disseminate the information to other agencies.

NRC Region 1 will be contacted following the initial classification and again once the exercise has terminated. These contacts will serve to test the ENS link in the TSC. The Emergency Operations Manager will make both notifications indicating that they are exercise-related contacts. A Control Cell Controller will be assigned to simulate the NRC for all other exercise-related ENS contacts. A control cell number will be issued to appropriate players.

The Health Physics Network (HPN) phone will be simulated from the control cell. A control cell number will be issued to appropriate players.

During the exercise, a controller will report to the EOF to establish an NRC response presence. Subsequent NRC notifications will be coordinated through this individual once positioned.

Objective I.4: Demonstrate that adequate primary means of communication exist for all elements of emergency response ensuring the station's ability to gather, assess, coordinate, and disseminate information regarding station emergency conditions and emergency response activities. A review of all data acquisition systems supporting the emergency response process shall be considered in conjunction with this objective.

1991 GRADED EXERCISE
ERO OBJECTIVES AND EXTENT OF PLAY

Extent of Play

The NAS, ENS and HPN lines will be tested as well as all facility phone communications (e.g., microwave, commercial and ringdown circuits). The station Gai-Tronics system will be used to issue plant announcements. The Security, Operations and Maintenance, and Radiological Monitoring radio frequencies will be used to support emergency response efforts.

A controller data link between the Simulator Control Room, TSC and EOF will be maintained for the purpose of providing selected Main Plant Computer System (MPCS) and Safety Parameter Display System (SPDS) data. Selected MPCS logger trend sheets and operational data will be issued every 15 minutes provided the actual MPCS logger trend feature is accessed.

Radiological data generated by the simulator will not be used. Controllers in the simulator and OSC will issue selected Radiation Data Management System (RDMS) data upon request.

The Security and FINIS computer systems will be accessed as needed by appropriate response personnel.

Objective I.5: Demonstrate the ability to formulate protective measures for onsite emergency response personnel. Demonstration of this objective shall include a determination of adequate emergency response in the following areas: (a) implementation of radiological access/egress measures at each response center/location; (b) implementation of an exposure control program; (c) use of protective clothing and respirator equipment; (d) the decision-making aspects of authorizing emergency workers to receive doses in excess of 10CFR20 limits, if applicable; (e) establishment of a radiological monitoring/sampling program; and (f) establishment of a contamination control program.

Extent of Play

The TSC will monitor and authorize protective actions for site access and exposure control. Security will implement access control measures. The OSC will implement appropriate actions associated with protective equipment requirements, health physics-related access control, KI administration and exposure control. Offsite personnel protective measures will be controlled from the EOF.

Onsite emergency response personnel shall don appropriate protective clothing. The ability to properly utilize respiratory protection equipment will be demonstrated for inplant teams when such equipment use is warranted.

1991 GRADED EXERCISE
ERO OBJECTIVES AND EXTENT OF PLAY

Response personnel exposures will be monitored through issuance of personal dosimetry and facility habitability checks. Actual personnel exposure summary reports will be available to facilitate dose planning. Due to some personnel exposure histories, dose extension authorizations may be warranted.

The TSC may direct the OSC to dispatch one Onsite Monitoring Team for the purpose of monitoring and sampling. The team may gather sample material and route those samples to the OSC for analysis. Depending upon player decisions, some actions may require controller intervention in order to initiate the selected activities.

Objective I.6: Demonstrate the ability to perform assessments of onsite/offsite actual or potential radiological conditions supporting the formulation of PARs and to communicate the PARs to appropriate offsite officials.

Extent of Play

As discussed in NRC Inspection Manual Procedure 82302, Review of Exercise Objectives and Scenarios for Power Reactors, and Information Notice 87-54, Emergency Response Exercises, this off-year exercise will not proceed to a severe core damage situation. The selected events of a Steam Generator Tube Rupture (SGTR) and, later, a coincident loss of offsite power are intended to provide an opportunity for more realistic emergency response training.

The selected initiating event, i.e. a SGTR will occur in the absence of any fuel damage. Following the reactor trip, the Atmospheric Steam Dump Valve (ASDV) on the affected main steam line will partially open for brief periods until the steam line pressure drops below the ASDV setpoint (approximately 45 minutes). Given that the ASDV is not stuck open and that a main steam line monitor high radiation alarm does not exist, an offsite dose projection will not be required and therefore may not be performed by the ERO.

The Control Room will make the initial PAR determination based on pre-determined criteria which will not include dose assessment. Depending upon player responses to scenario conditions, the TSC may demonstrate dose assessment capabilities prior to EOF activation. The TSC and the Control Room will monitor plant conditions to support the formulation of PARs and will transfer the responsibility to the EOF upon activation. The EOF may demonstrate dose assessment for actual or postulated conditions.

The EOF may evaluate radiological conditions using METPAC dose projections and WSI forecast conditions to determine appropriate PARs. Selected reactor coolant and/or field sample analysis data will be available to support discussions with offsite authorities.

1991 GRADED EXERCISE
ERO OBJECTIVES AND EXTENT OF PLAY

Objective I.7: Demonstrate the ability to mobilize the station emergency response organization supporting the activation of station emergency response facilities in a timely manner and to ensure that adequate manpower is available to support 24 hour coverage. A review of all support organization interfaces shall be considered in conjunction with this objective.

Extent of Play

Facility staffing levels and activation times will be reviewed against appropriate activation goals. The onsite Assembly Area will support these actions. In the interest of minimizing the impact to normal station operation, additional responders will be called out from their normal work locations, i.e., they will not be required to report to the Assembly Area.

There will not be an actual shift turnover; however, formulation of a 24 hour ERO shift roster will be demonstrated.

Objective I.8: Demonstrate adequate shift response and the ability to transfer appropriate emergency command functions as the emergency response organization mobilizes in response to an escalating emergency condition.

Extent of Play

The Short Term Emergency Director and Site Emergency Director will demonstrate onsite command and control from the Control Room and TSC, respectively. The Response Manager will demonstrate overall command and control of emergency response efforts from the EOF.

The Control Room will transfer the following functions to the TSC:

- a. notification of offsite authorities,
- b. formulation and transmittal of PARs,
- c. emergency classification,
- d. notification of the NRC,
- e. authorization of exposures in excess of 10CFR20 limits for onsite personnel, and
- f. authorization of press releases.

The TSC will transfer the following functions to the EOF:

- a. notification of offsite authorities,
- b. formulation and transmittal of PARs, and
- c. authorization of press releases.

Objective II.1: Demonstrate the ability of the station emergency response organization to activate the plan and implement its procedures during off normal work hours (6:00 pm to 4:00 am).

1991 GRADED EXERCISE
ERO OBJECTIVES AND EXTENT OF PLAY

Extent of Play

This objective will not be demonstrated.

Objective II.2: Demonstrate the ability to coordinate preparation, review and release of public information; and to provide timely and accurate information to the media and general public.

Extent of Play

The Control Room and/or TSC will demonstrate the review and approval of press releases, if any, which are prepared prior to EOF activation. The EOF will demonstrate preparation, review, and approval of press releases and their subsequent transmittal to the Media Center.

The Media Center will demonstrate the ability to coordinate preparation, review and release of public information following its activation. Members of the local media will be invited to participate in press briefings.

Contact with the general public or news media shall be kept at a minimum. No individual is authorized to provide press briefings except official NHY public information personnel.

Objective II.3: Demonstrate the ability of the station to implement a fire control program during an emergency response, including establishment of offsite support agency interfaces (i.e., local fire, police, etc.).

Extent of Play

This objective will not be demonstrated.

Objective II.4: Demonstrate the adequacy of onsite first aid facilities, equipment, procedures and personnel for handling contaminated, injured or exposed individuals.

Extent of Play

This objective will not be demonstrated.

Objective II.5: Demonstrate the adequacy of offsite medical support, both hospital and ambulance, facilities, equipment, procedures and personnel for handling contaminated, injured or exposed individuals.

Extent of Play

This objective will not be demonstrated.

1991 GRADED EXERCISE
ERO OBJECTIVES AND EXTENT OF PLAY

Objective II.6: Demonstrate activation of the station's support plans (e.g., Yankee Atomic Electric Company [YAEC], Institute for Nuclear Power Operations [INPO], existing industry support agreements, etc.).

Extent of Play

YAEC Technical Administrative Guideline (TAG) 12 will be implemented.

The INPO Nuclear Network System will be used and notification made to the INPO emergency response center.

Notification of the New England Power Exchange (NEPEX) and the Joint Owners will be performed.

American Nuclear Insurers, Westinghouse and vendor contacts will be simulated and made to the Control Cell. Control Cell numbers will be provided to appropriate players.

Objective II.7: Demonstrate use of station security in providing prompt access for emergency response equipment and support.

Extent of Play

This objective will not be demonstrated.

Objective II.8: Demonstrate that adequate backup means of communication exist for all elements of emergency response ensuring the station's ability to gather, assess, coordinate, and disseminate information regarding station emergency conditions and emergency response activities. Data transfer processes shall be reviewed in conjunction with this objective.

Extent of Play

This objective will not be demonstrated.

Objective II.9: Demonstrate the ability to establish an effective rumor control program.

Extent of Play

This function will be established and demonstrated at the Joint Telephone Information Center (JTIC). The Seabrook Station Rumor Control Assistants will be periodically contacted by a controller to determine their responses to various questions related to the accident.

| Updates for information lines at the JTIC will be prepared in accordance with
| appropriate procedures; however, actual recording will be simulated.

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ERO OBJECTIVES AND EXTENT OF PLAY

Objective II.10: Demonstrate use of emergency power where it is not considered a part of station safety systems.

Extent of Play

This objective will not be demonstrated.

Objective II.11: Demonstrate evacuation of primary station emergency response centers and relocation to backup facilities.

Extent of Play

This objective will not be demonstrated.

Objective II.12: Demonstrate the ability to implement team deployment for post-plume radiological surveys and ingestion exposure pathway sampling or to gather sufficient information to support PAC determination associated with this exposure pathway. A review of sample retrieval and transport process, sample analysis processes, and laboratory capabilities shall be considered in conjunction with this objective.

Extent of Play

This objective will not be demonstrated.

Objective II.13: Demonstrate the ability to mobilize and direct field monitoring teams to include a review of their sampling techniques for all sample media.

Extent of Play

At least three (3) Offsite Monitoring Teams will be dispatched from the EOF for the purpose of monitoring and sampling. Offsite Monitoring Teams will not be required to demonstrate protective clothing or respiratory protection use. The EOF will establish appropriate contamination control measures for team access and egress.

The EOF will establish a field sample analysis program. Appropriate personnel will be provided with samples to process while the Field Monitoring Teams are conducting their surveys.

1991 GRADED EXERCISE
ERO OBJECTIVES AND EXTENT OF PLAY

Objective II.14: Demonstrate the ability of station emergency personnel to determine the magnitude and impact of particular release conditions. A review of source term calculation methodologies for conditions where monitor systems are both operable and inoperable, the total integrated dose methodology used to evaluate accident status, and field sample correlations for both gaseous and liquid sampling processes shall be included in conjunction with this objective.

Extent of Play

This objective will not be demonstrated.

Objective II.15: Demonstrate the ability of the station staff to obtain post-accident coolant samples, both initially and throughout the emergency, and analyze the samples in accordance with NUREG 0737.

Extent of Play

This objective will not be demonstrated.

Objective II.16: Demonstrate the authorization and issuance of potassium iodide.

Extent of Play

Emergency responders will evaluate KI usage in accordance with appropriate procedures and, if required to support selected response actions, authorize and implement distribution actions as required.

Objective II.17: Demonstrate initial accountability and assembly within 30 minutes of the emergency declaration and provide for continuous accountability thereafter.

Extent of Play

This objective will be partially demonstrated.

Actual station accountability will not be conducted since an actual station evacuation of backup responder and non-essential personnel will not take place. Security personnel at Guard Island will "talk-through" the accountability process discussing each stage and required actions.

Each onsite facility will be responsible for monitoring its personnel accountability after initial activation.

1991 GRADED EXERCISE
ERO OBJECTIVES AND EXTENT OF PLAY

Objective II.18: Demonstrate the ability of the station to develop recovery/reentry plans for returning the station to normal conditions.

Extent of Play

This objective will not be demonstrated.

1991 GRADED EXERCISE
NHV ORO EXTENT OF PLAY

All NHV ORO personnel participating in the exercise will act as controllers to provide for the appropriate interfaces with the NHV Emergency Response Organization. These controllers will be directed to report to their facilities at a pre-designated time appropriate to the scenario timeline.

Reception Center and Staging Area actions will be simulated.

1991 GRADED EXERCISE
STATE OF NEW HAMPSHIRE EXTENT OF PLAY

All NH personnel participating in the exercise will act as controllers to provide for the appropriate interfaces with the NHY Emergency Response Organization.

Participating NH staff will be directed to report to their facility at a pre-designated time appropriate to the scenario timeline. Local communities will not be involved and their communications will be directed to Control Cell contacts. No Host Community, Reception Center/Monitoring Decontamination Facility or Staging Area activities will be expected. Each of the aforementioned facility functions will be simulated through Control Cell contacts, as needed.

NEW HAMPSHIRE YANKEE

SEABROOK STATION

1991 GRADED EXERCISE

3.0 CONTROLLER INSTRUCTIONS

3/11/91

GENERAL REQUIREMENTS AND GUIDANCE

1. Controllers should become familiar with the scenario, appropriate implementing procedures, exercise documentation requirements and any special conditions prior to the exercise.
2. Controllers should be at their assigned locations as follows:

Simulator: 0600
All other facilities: 0730
3. Prior to the exercise start time, all communications will be tested to ensure satisfactory communications between the Exercise Manager, the Facility Lead Controllers, and the Control Cell.
4. All controllers will comply with instructions from the Exercise Manager and the Facility Lead Controllers.
5. The Exercise Manager is the only individual who may authorize scenario modifications as the need arises.
6. Controllers should synchronize their watches as directed by the Exercise Manager to ensure that messages and time-related information are delivered on time. The governing clock is the actual Main Plant Computer System time display.
7. Each Facility Lead Controller will ensure that players and controllers sign an attendance sheet prior to leaving the facility. A master copy is provided as an attachment to this section; please make additional required copies.
8. Controllers will be issued appropriate messages and data controlling the progress of the exercise scenario.
9. Unless otherwise instructed by the Exercise Manager or Facility Lead Controllers, all messages and data should be issued at their designated times and/or as described in the scenario package. All controllers should review their message and mini-scenario implementation responsibilities delineated in Sections 5 and 6, respectively. Those controllers assigned Main Plant Computer System (MPCS) simulation responsibilities in the Simulator, TSC and EOF should refer to Section 7.0 for a master copy of each MPCS simulation form. Additional copies should be made before the start of the exercise.
10. Unless authorized by the Exercise Manager or Facility Lead Controller, Controllers may not discuss the proper use of scenario data or expected responses with players.

11. Contingency Messages - These messages are designated by the letter "c". Contingency messages will be used if a participant fails to take a major expected action. The Controller will give the contingency message to the designated participant and explain in as much detail as necessary what actions the participant is expected to perform. Contingency messages are used to keep the drill on schedule. If there is a necessity to use a contingency message, the situation should be discussed with the Facility Lead Controller prior to issuance.
12. Controllers should ensure that contact between participants and observers (visitors) is minimized. This may include the establishment of visitor areas in the emergency response facilities. Additionally, the OSC Lead Controller should clearly identify the OSC "play" area within the Health Physics Access Control Point.
13. Some exercise players may insist that certain parts of the scenario are unrealistic. Facility Lead Controllers will clarify any questions that may arise during the exercise.
14. Any inquiries originating from the general public or news media as a result of exercise activities should be immediately passed to the Exercise Manager who will notify the appropriate public information personnel.
15. Each controller should take detailed notes regarding the progress of the exercise and the responses of the players. These notes should be recorded on EPDE Form B, Drill/Exercise Controller Log. A master copy is provided as an attachment to this section; please make additional required copies. Controllers should refrain from including unsupported opinions or conjecture in drill notes.
16. Exercise participants and controllers will comply with all Federal, State and local laws. More specifically, traffic laws, such as speed limits, will be observed.
17. Exercise participants and visitors will avoid endangering public or private property, members of the general public, or the environment. It is the responsibility of all players, controllers and evaluators to correct any unsafe conditions that arise during the exercise.
18. Controllers, evaluators, observers and visitors will be required to wear appropriate identification badges. These badges will be provided either prior to the exercise, or upon entry to a facility.

EXERCISE SUSPENSION AND TERMINATION POLICY

1. The exercise may be terminated under any of the following conditions:
 - a. All objectives are demonstrated to the satisfaction of all drill evaluation groups present (e.g., NRC, FEMA and NHY);
 - b. An actual plant emergency develops that terminates onsite play;

- c. An actual offsite emergency (including weather emergencies) develops which adversely impacts response organizations; and/or
 - d. Available time has expired.
- 2. A joint decision by the following personnel is required to authorize the temporary suspension or termination of the exercise:
 - a. Exercise Manager;
 - b. RAC Chairperson (FEMA); and
 - c. NRC Lead Evaluator.
- 3. Any of the following personnel can authorize temporary suspension or termination of the onsite portion of the exercise:
 - a. On-duty Shift Superintendent;
 - b. Station Manager;
 - c. NHY Executive Management; or
 - d. NRC Lead Evaluator.

If the exercise is suspended and/or terminated, then the Exercise Manager should negotiate continued offsite play. A Control Cell simulating onsite organizations, supported by the onsite controller organization, may be required.

- 4. Any of the following personnel can authorize temporary suspension or termination of an offsite portion of the exercise:
 - a. A participating Emergency Management Director;
 - b. FEMA RAC Chairman; and
 - c. a participating State Governor.

If the exercise is suspended and/or terminated, then the Exercise Manager should negotiate continued onsite play. A Control Cell simulating offsite organizations, supported by the offsite controller organization, may be required.

SUBSEQUENT EXERCISE ACTIVITIES

Following termination of the exercise, players will be directed to restore facilities to their original state of readiness. Controllers should use this time to summarize major concerns and provide these to the Facility Lead Controller. Facility Lead Controllers will then lead a critique of drill activities at their assigned emergency response facility. This critique should last a maximum of 30 minutes and attempt to disposition as many player and controller comments as possible, but avoid commitments that are beyond the authority of the controller organization.

Facility Lead Controllers should collect all player-generated documents, Drill/Exercise Controller Logs (EPDE Form B) and attendance sheets for their facility. They should make and retain copies of the controller logs and selected player documentation, and provide all original material to the Exercise Manager prior to close of business on May 22, 1991.

Following the exercise, each Facility Lead Controller shall prepare a written report of activities at his or her assigned facility. This report should be based on the retained copies of controller logs and player-generated documents, and consist of the following sections:

a. Executive Summary

This section identifies major issues and basic outcome of the exercise.

b. Objectives Evaluation and Analysis

This section should list each objective number and a statement concerning it's demonstration, i.e., demonstrated, not demonstrated, demonstrated with issue, not observed or not applicable. Additionally, a brief summary of exercise actions supporting the finding should be included.

c. Valid Player and Controller Comments

All summary facility reports should be provided to the Exercise Manager by the close of business on May 29, 1991.

CONTROL CELL

For this exercise, the Control Cell will exist in two locations as follows:

1. NRC ENS and HPN - Located in Massachusetts State Government Room of the NHY ORO EOC at Newington Station.
2. All Others - Workstation in the Specialty Training Department.

Controllers assigned to these functions should refer to Mini-Scenario 6.1.2 for further information. The telephone extensions for each position are provided in the following ERO Controller Telephone Directory.

1991 GRADED EXERCISE
ERO CONTROLLER ORGANIZATION

Control Room Simulator

Command and Control
Operations
MPCS Simulation
RDMS Simulation
Simulator Operator

D. L. Young
J. W. Hill
A. M. Chesno
S. T. Westin
M. P. Boyle

Technical Support Center

Command and Control
Accident Assessment
Radiological Assessment
MPCS Simulation

L. A. Walsh
P. V. Gurney
J. J. Rafalowski
J. E. Veilleux

Operational Support Center

Command and Control
RDMS Simulation
Emergency Repair Team
Emergency Repair Team
Emergency Repair Team
Emergency Repair Team
PASS Team
Chemistry Hot Lab

G. M. Keyes
P. A. Morse
M. G. Ortega
G. A. Lavigne
D. G. Wallace
D. J. Pachulski
TBD
R. W. Campion

Inprocessing Center

Command and Control

T. Rigney

Guard Island

Command and Control

S. J. Kulback

Emergency Operations Facility

Command and Control
Accident Assessment
Radiological Assessment
Support Functions
ECCC Function
MPCS Simulation
Field Teams

P. D. Casey
K. L. Kiper
J. A. MacDonald
R. G. Lizotte
B. A. Dubois
C. J. Howard
D. C. Perelman
W. G. Ingram
E. J. Carley

Media Center

Command and Control
Media Relations/Briefings

MR/RC Caller

S. H. Perkins-Grew
L. W. Rau
S. M. Baldacci
J. T. Felix
W. T. Quinn
D. A. Provost
G. Jasinski

Joint Telephone Information Center

Command and Control

P. B. Upson

Control Cell

NRC ENS and HPN
All others

R. L. Krohn
R. S. Wolfe

1991 GRADED EXERCISE
ORO/NH CONTROLLER ORGANIZATION

OFFSITE RESPONSE ORGANIZATION

Emergency Operations Center

ORO Lead	S. Mazzola
Offsite Response Director	S. Ellis
Radiological Health	M. Strum
Technical Advisor	J. Haseltine
Public Information Advisor	S. Labo
Administrative Staff	R. Reffit
Public Information Coordinator (Media Center)	N. Cullerot

NEW HAMPSHIRE RESPONSE ORGANIZATION

State Emergency Operations Center

NH Director	G. Iverson
Media Liaison	J. Gifford
Public Information Staff	C. Foley
Communications Officer	D. Maydwell
Operations Officer	M. Herrick
Operations Controller	H. Gaskill
EOC Lead	K. VonWald

Incident Field Office (Newington)

Assistant IFO Controller	J. Beadouin
EOF Liaison	R. Jefferies
Communicator	D. Wihby
IFO Controller	R. Pariseau
Technical Assitsant	M. Poirier
IFO Lead	J. Enock
DPHS Representative	J. Baer

NOTE: Each of the Controllers listed will act to simulate various players in the ORO and NH emergency response organizations.

1991 GRADED EXERCISE
SUGGESTED ERO CONTROLLER READING

Control Room Simulator

Command and Control	SSREP and NPER
Operations	ER 1.1 - 1.5, 3.1 and 3.2
MPCS Simulation	None
RDMS Simulation	None
Simulator Operator	None

Technical Support Center

Command and Control	ER 1.1 and 3.1
Accident Assessment	ER 3.1
Radiological Assessment	ER 3.1, 5.4 and 5.7
MPCS Simulation	None

Operational Support Center

Command and Control	ER 3.2 and 4.3
RDMS Simulation	None
Emergency Repair Team	ER 3.2
PASS Team	ER 3.2
Chemistry Hot Lab	ER 3.2

Inprocessing Center

Command and Control	ER 3.6
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Guard Island

Command and Control	ER 2.1 and 4.1, and GD1332.00
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Emergency Operations Facility

Command and Control	ER 3.3
Accident Assessment	ER 3.3
Radiological Assessment	ER 3.3, 5.2 and 5.4
Support Functions	ER 3.3
ECCC Function	ER 3.3
MPCS Simulation	None
Field Teams	ER 3.3 and ER 5.2

Media Center

Command and Control	ER 3.4 and 3.5
Media Relations/Briefings	ER 3.5
MR/RC Caller	ER 3.5

Joint Telephone Information Center

Command and Control

ER 3.5

Control Cell

NRC ENS and HPN

ER 2.0, 3.1 and 3.3

All others

ER 3.3

1991 GRADED EXERCISE
SUGGESTED ORO/NH CONTROLLER READING

OFFSITE RESPONSE ORGANIZATION
Emergency Operations Center

ORO Lead
Offsite Response Director
Radiological Health

Technical Advisor
Public Information Advisor

Administrative Staff
Public Information Coordinator (Media Center)

SPMC Plan and Procedures
SPMC Plan and Procedures
SPMC sect. 2.0 and 3.0, IP
1.2, 2.2-2.5
IP 1.7
SPMC Plan sect. 2.0 and 3.0,
IP 2.12
None
SPMC Plan sect. 2.0 and 3.0,
IP 2.12

NEW HAMPSHIRE RESPONSE ORGANIZATION
State Emergency Operations Center

NH Director

Media Liaison
Public Information Staff
Communications Officer
Operations Officer

NHRERP Vol. 1; 1.2, 1.3, 2.2,
2.4, 2.5, 2.6, 2.7, 2.9,
Vol. 5: 1.4, 5.6 Vol. 6: 1
Vol. 7: 7
Vol. 1: 1.3, 2.3 Vol. 5: 19, 20
None
None
Vol. 1: 1.2, 1.3,
Vol. 5: 3, 7, 8, 9, 27 Vol. 6: 14,
15 Vol. 7: 1, -12, 15, 16
Vol. 1: 1.2, 1.3,
Vol. 5: 3, 7, 8, 9, 27 Vol. 6: 14,
15 Vol. 7: 1, -12, 15, 16
NHRERP Plan and Procedures

Operations Controller

EOC Lead

Incident Field Office (Newington)

Assistant IFO Controller
EOF Liaison

None
Vol. 1: 1.2, 1.3, 2.4, 2.5,
2.6, 2.9 Vol. 5: 10-13, 16
Vol. 7: 4, 9.2, 10.6, 11.4
None
None
None
Vol. 1: 1.2, 1.3, 2.4, 2.5,
2.6, 2.9 Vol. 5: 10-13, 16
Vol. 7: 4, 9.2, 10.6, 11.4
Vol. 1: 1.3, 2.5, 2.7, 2.9
Vol. 5: 10, 11 Vol. 6: 4, 5

Communicator
IFO Controller
Technical Assistant
IFO Lead

DPHS Representative

1991 GRADED EXERCISE
ERO CONTROLLER TELEPHONE DIRECTORY

SIMULATOR CONTROL ROOM

David Young - Drill Manager	x 2994
Ann Marie Chesno - MPCS Simulation	x 2993

CONTROL ROOM

Larry Walsh	x 4086
Telecopier	x 4087

TSC

Larry Walsh	x 3964
Joe Veilleux - MPCS Simulation	x 3960
Telecopier	x 4090

OSC

Max Keyes	x 3965
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INPROCESSING CENTER

Tom Rigney	x 3875
------------	--------

GUARD ISLAND

Steve Kulbach	x 4008
---------------	--------

EOF

Pat Casey	x 4197 or 433-1440
Chris Howard - MPCS Simulation	x 4198
Ray Krohn - NRC ENS/HPN Control Cell	433-1505 and 1506, respectively 433-1486 telecopier

MEDIA CENTER

Sue Perkins-Grew	433-0443
------------------	----------

JTIC

Pete Upson	433-5715
------------	----------

CONTROL CELL

Russ Wolfe - All Except NRC ENS/HPN	x 3266 x 2705 telecopier
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1991 GRADED EXERCISE
ERO PLAYER TELEPHONE DIRECTORY

1. American Nuclear Insurers - (603) 474-9521 x 3266
2. American Nuclear Society - (603) 474-9521 x 3266
3. INPO (except Nuclear Network) - (603) 474-9521 x 3266
4. NRC Emergency Notification System (ENS) - (603) 433-1505

All exercise event-related NRC communications should be made to the above Control Cell number using a standard station phone.

5. NRC Health Physics Network (HPN) - (603) 433-1506
6. PSNH Control Center - (603) 474-9521 x 3266

Contacts related to emergency declaration should be made to the actual PSNH Control Center. Contacts related to specific information requests concerning scenario events should be directed to the above number.

7. Westinghouse - (603) 474-9521 x 3266
8. Other Vendor Contacts - (603) 474-9521 x 3266
9. Simulator Control Room

Shift Superintendent - (603) 474-9521 x 2608
Unit Shift Supervisor - (603) 474-9521 x 2992
SCRO (3 way link to TSC/OSC) - (603) 474-9521 x 2991

DRILL/EXERCISE CONTROLLER LOG

Page _____ of _____

Controller's Name: _____ Drill/Exercise Date: _____

Location of Observation:

Drill/Exercise Title: _____

Time Drill Commenced: _____ Time Drill Terminated: _____

Observations should include the proper and effective use of procedures, equipment and personnel. Comments concerning drill performance should document: the time of observation, personnel or equipment involved, procedures involved, and the impact that the condition had on the ability of the player organization to meet its objectives.

DRILL/EXERCISE CONTROLLER LOG
(Continuation Sheet)

Page _____ of _____

[illegible]

Signature: _____ Title: _____

VISITOR OBSERVATION RULES

1. The visitor should request, in writing, access to a facility at least one week prior to the exercise. Access requests for NHY ERO and ORO facilities should be directed to the NHY Emergency Preparedness Department. Requests to visit New Hampshire, Massachusetts or Maine facilities should be addressed to the director of the respective State emergency management agency.
2. The visitor is the responsibility of an assigned escort while on the premises. The visitor shall comply with these instructions and any direction from the escort or Facility Lead Controller.
3. Visitors must comply with security requirements at the facility during the exercise, including sign-in and sign-out requirements. Violation or infraction of security requirements, or any other visitor rules, may result in the visitor's expulsion from the facility.
4. Visitors will be required to wear proper identification badges at all times.
5. Unless approved in writing in advance, no photography or taping of exercise events by visitors will be permitted. Note taking is acceptable. Visitors may not take any exercise-related documentation (or copies thereof).
6. Visitors may not question, interrupt or disturb participants during the course of the exercise. Visitors should not block hallways or use any equipment (including telephones) without permission. This requirement is best summarized as "Stay out of the way".
7. The number of visitors to a facility may be limited, or in some cases visitation will be prohibited, due to facility size or other constraints.
8. Visitors will not be allowed to travel in any exercise-related vehicle or other transportation device used during the exercise.
9. The Exercise Manager has final authority regarding visitor access, conduct and expulsion.

NEW HAMPSHIRE YANKEE

SEABROOK STATION

1991 GRADED EXERCISE

4.0 SEQUENCE OF EVENTS

3/11/91

NEW HAMPSHIRE YANKEE

SEABROOK STATION

1991 GRADED EXERCISE

4.1 DETAILED SCENARIO DESCRIPTION

3/11/91

REAL
TIME

ELAPSED
TIME

DETAILED SCENARIO DESCRIPTION

MESSAGE
NUMBER

A. Initial Station Conditions

The exercise date is assumed to be May 22, 1991.

Onsite personnel are limited to the normal weekday complement. The station is operating at 100 percent power with rod control in the "automatic" mode. The station has been at or above 90 percent power for 180 days and is near the end of cycle 1 core life. All plant parameters are normal and stable except as noted below.

Startup Feedwater Pump P-113 was tagged out at 0630 for replacement of the pre-lube oil pump. Work on the pump has not yet commenced. Refer to Mini-Scenario 6.1.1 for further information.

Residual Heat Removal (RHR) Pump P-8A is tagged out for replacement of the impeller lock nut. This work commenced at 0330 on May 20 and is expected to be completed by 1500 this afternoon. Refer to Mini-Scenario 6.1.6 for further information.

In order to allow station management players adequate time to assimilate and discuss this information, a mock, exercise-related Station Manager meeting will be conducted on May 21, 1991. This meeting will follow the normal Station Manager meeting and will be led by selected controllers. The controllers will present the initial station conditions, answer related questions, and attempt to ensure that station management's understanding of plant conditions accurately reflects actual awareness.

Initial Condition briefing of key OSC and EOF responders will be conducted the day before the exercise at locations to be determined.

SIMULATOR: The Simulator Operator should turn off the simulator local Radiation Data Management System (RDMS) alarm buzzer.

REAL TIME	ELAPSED TIME	DETAILED SCENARIO DESCRIPTION	MESSAGE NUMBER
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B. Initial Meteorological Conditions

This exercise will use actual meteorology, i.e., exercise meteorological data are the real time, current parameters.

C. Detailed Scenario Timeline

0700	H-01:00	Initial Conditions are provided to Simulator players.	ERO1
------	---------	---	------

		Message ERO2 will transmit Initial Conditions to non-Control Room Emergency Response Organization personnel. This message should be passed to players as they respond to their assigned facilities.	ERO2
--	--	---	------

NOTE: As appropriate, controllers shall inform players of the following initial core parameters when requested:

Average Core Burnup = 11,000 MW days/tonne
Effective Full Power Days = 280

0800	H+00:00	Initial Conditions established; exercise begins. Simulator Lead Controller shall verbally inform the players that the exercise has begun.	N/A
------	---------	---	-----

0805	H+00:05	Steam Generator RC-E-11C suffers a tube rupture resulting in a 200 gpm primary to secondary leak rate. The Control Room receives indications of decreasing pressurizer level and pressure with corresponding increases in Steam Generator C level. Additionally, radiation alarms are received on the C main steam line and condenser offgas monitors.	ERO3g
------	---------	--	-------

Depending upon operator responses, the reactor will be either manually or automatically tripped; a Safety Injection actuation will follow.

SIMULATOR: Malfunction 25, ramp = 1 minutes, Size = as required.

REAL TIME	ELAPSED TIME	DETAILED SCENARIO DESCRIPTION	MESSAGE NUMBER
--------------	-----------------	-------------------------------	-------------------

SIMULATOR: The Simulator Operator should enter the necessary I/O overrides to obtain an R Yellow Critical Safety Function Status Tree (CSFST). The Yellow path is obtained from a Hi Condenser Offgas Monitor Alarm.

Upon entering Emergency Operating Procedure E-3, Steam Generator Tube Rupture, an Alert declaration will be warranted in accordance with Procedure ER 1.1, Classification of Emergencies, Initiating Condition 7b.

The Shift Superintendent will assess plant conditions, declare an Alert and assume the role of Short Term Emergency Director (STED). Subsequent Control Room Actions are specified in Procedure ER 1.3, Alert. The STED will turn over Command and Control responsibilities to Site Emergency Director.

The Technical Support Center will activate and perform subsequent duties in accordance with Procedure ER 3.1, TSC Operations. The Site Emergency Director maintains control of onsite response actions from the TSC.

Station non-essential personnel are evacuated (simulated) and accountability is conducted. These activities will be controlled primarily from Guard Island in accordance with Security Procedure GD1332.00, Station Emergency/Evacuation.

The onsite assembly area at the Inprocessing Center will activate and perform subsequent duties in accordance with Procedure ER 3.6, Assembly Area Operations. Activation will be limited for this exercise.

The Operational Support Center will activate and perform subsequent duties in accordance with Procedure ER 3.2, OSC Operations.

The Emergency Operations Facility will activate and perform subsequent duties in accordance with Procedure ER 3.3, EOF Operations. The Response Manager assumes overall NHY Command and Control responsibility.

REAL TIME	ELAPSED TIME	DETAILED SCENARIO DESCRIPTION	MESSAGE NUMBER
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The Media Center and Joint Telephone Information Center will activate and perform subsequent duties in accordance with Procedure ER 3.5, Media Center/Joint Telephone Information Center. An initial press release from the General Office Building may be issued using Procedure ER 3.4, Seabrook Station News Services Operation.

Following the Alert declaration, assigned controllers should refer to Mini-Scenario 6.1.2 for simulation and play instructions regarding Non-State ERO interfaces.

Following Media Center and Joint Telephone Information Center activation, a series of media relations and rumor control messages is provided for controller use during the duration of the exercise.

15 mins
after
entry
into E3

If not already accomplished, the Shift Superintendent will be directed to declare an Alert in accordance with Procedure ER 1.1, Initiating Condition 7b.

ERO4c

0930

H+01:30
(90)

Ongoing power grid disturbances induced by the loss of Station generation in conjunction with other offsite grid conditions result in a loss of offsite power to Seabrook Station. Offsite power will not be restored for the duration of the exercise.

ERO5g

SIMULATOR: Malfunction 114

Both Emergency Diesel Generators, DG-DG-1A and 1B, automatically start. Following obtainment of rated voltages and frequencies, the generators will begin supplying power to appropriate station loads.

REAL TIME	ELAPSED TIME	DETAILED SCENARIO DESCRIPTION	MESSAGE NUMBER
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Controllers should refer to Mini-Scenario 6.1.3 to determine station equipment affected by the loss of offsite power. Lost equipment indications should be passed along to players as appropriate to their attempts to use the equipment.

Upon recognizing that a loss of offsite power exists concurrently with the ongoing Steam Generator Tube Rupture, a Site Area Emergency declaration will be warranted in accordance with Procedure ER 1.1, Initiating Conditions 6a and 7b.

The Site Emergency Director will assess plant conditions and declare a Site Area Emergency.

Based on current plant and radiological conditions, and associated procedural requirements, NHY will not issue any evacuation or sheltering Protective Action Recommendations (PARs) at this time.

0950	H+01:50 (110)	If not already accomplished, the Site Emergency Director will be directed to declare a Site Area Emergency in accordance with Procedure ER 1.1, Initiating Conditions 6a and 7b.	ER06c
1000	H+02:00 (120)	Motor Driven Emergency Feedwater Pump P-37B fails due to pump shaft seizure. Refer to Mini-Scenario 6.1.4 for further information.	N/A
1035	H+02:35 (155)	<u>SIMULATOR</u> : The Simulator Operator should enter the necessary I/O overrides to obtain an R Green CSPST. The Green path results from the clearing of all Hi alarms on the C main steam line and condenser offgas monitors.	N/A
1230	H+04:30 (270)	NRC Player Controller arrives at the EOF. Refer to Mini-Scenario 6.1.5 for further information.	N/A

<u>REAL TIME</u>	<u>ELAPSED TIME</u>	<u>DETAILED SCENARIO DESCRIPTION</u>	<u>MESSAGE NUMBER</u>
1300	H+05:00 (300)	Exercise play is terminated as directed by the Exercise Manager. Emergency response facility managers are now directed to begin deactivation and restoration of their respective facilities.	ER07
1330	H+05:30 (330)	Controllers commence critiques at each emergency response facility and among field team personnel.	ER08
1400	H+06:00 (360)	Exercise critique ends; participants dismissed.	

NEW HAMPSHIRE YANKEE

SEABROOK STATION

1991 GRADED EXERCISE

4.2 ORGANIZATIONAL RESPONSE TIMELINES

3/11/91

NEW HAMPSHIRE YANKEE

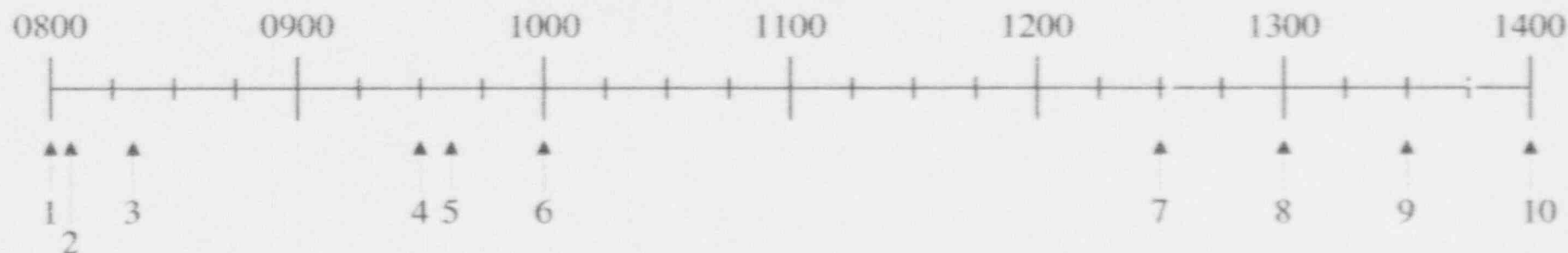
SEABROOK STATION

1991 GRADED EXERCISE

4.2.1 NHY ERO EVENT TIMELINE

3.11/91

1991 GRADED EXERCISE NHY ERO EVENT TIMELINE



1. Initial Conditions established; exercise begins

2. Tube rupture in C steam generator resulting in 200 gpm leak rate. A reactor trip and safety injection will follow.

3. Alert declared based on entry into EOP E-3. Alert declaration will result in activation of the TSC, OSC, Assembly Area, EOF, Media Center and Joint Telephone Information Center.

4. Grid disturbances result in a loss of offsite power at Seabrook Station. Both emergency diesel generators auto-start and busses E5 and E6 are re-energized.

5. Site Area Emergency declared based on a tube rupture coincident with a loss of offsite power. No pre-cautionary PARs are warranted by procedure.

6. Motor Driven EFW Pump P-37B fails due to shaft seizure.

7. NRC Player/Controller arrives at EOF.

8. Exercise play ends. Players are directed to deactivate facilities while Controllers prepare for critique.

9. Begin exercise critique.

10. Critique ends; participants dismissed.

NEW HAMPSHIRE YANKEE

SEABROOK STATION

1991 GRADED EXERCISE

5.1 NHY ERO MESSAGES

3/11/91

ERO MESSAGE IMPLEMENTATION KEY
1991 GRADED EXERCISE

<u>MESSAGE</u>	<u>TIME</u>	<u>RESPONSIBILITY</u>
ERO1	0700	D. Young/Others as appropriate
ERO2	When needed	All controllers as needed
ERO3g	0805	J. Hill
ERO4c	See message	D. Young
ERO5g	0930	J. Hill
ERO6c	0950	L. Walsh
ERO7	1300	All Lead Controllers
ERO8	1330	All Controllers

SEABROOK STATION
EMERGENCY PREPAREDNESS MESSAGE FORM

MESSAGE NO.: ERO1

TIME: 0700

TO: Control Room Personnel

FROM: Station Logs and Instrumentation

LOCATION: Simulator Control Room

***** THIS IS A DRILL *****

The exercise date is assumed to be May 22, 1991.

Onsite personnel are limited to the normal weekday complement. The station is operating at 100 percent power with rod control in the "automatic" mode. The station has been at or above 90 percent power for 180 days and is near the end of cycle 1 core life. All plant parameters are normal and stable except as noted below.

| Startup Feedwater Pump P-113 was tagged out at 0630 this morning for replacement of the pre-lube oil pump. Work on the pump has not yet commenced. See the attached work request.

| Residual Heat Removal Pump P-8A was tagged out at 0310 on May 20 to investigate high pump vibration and low flow rate recorded during a surveillance test. Subsequent inspection revealed a loose impeller lock nut. The lock nut has been replaced and efforts continue to return the pump to service. Repair activities are expected to be completed by 1500 this afternoon.

Unless otherwise instructed, use actual meteorology, i.e., exercise meteorological data are the real time, current parameters.

THIS IS A DRILL

DO NOT INITIATE ACTIONS AFFECTING STATION OPERATION

SEABROOK STATION
EMERGENCY PREPAREDNESS MESSAGE FORM

MESSAGE NO.: ERO2

TIME: When Needed

TO: Exercise Players

FROM: Exercise Controllers

LOCATION: Where Needed

***** THIS IS A DRILL *****

The exercise date is assumed to be May 22, 1991. The following initial conditions described the station at 0800 today.

Onsite personnel are limited to the normal weekday complement. The station is operating at 100 percent power with rod control in the "automatic" mode. The station has been at or above 90 percent power for 180 days and is near the end of cycle 1 core life. All plant parameters are normal and stable except as noted below.

Residual Heat Removal Pump P-8A was tagged out at 0310 on May 20 to investigate high pump vibration and low flow rate recorded during a surveillance test. Subsequent inspection revealed a loose impeller lock nut. The lock nut has been replaced and efforts continue to return the pump to service. Repair activities are expected to be completed by 1500 this afternoon.

Unless otherwise instructed, use actual meteorology. i.e., exercise meteorological data are the real time, current parameters.

THIS IS A DRILL

DO NOT INITIATE ACTIONS AFFECTING STATION OPERATION

SEABROOK STATION
EMERGENCY PREPAREDNESS MESSAGE FORM

MESSAGE NO.: ERO3g

TIME: 0805

TO: Control Room Personnel

FROM: Control Room Instrumentation

LOCATION: Simulator Control Room

***** THIS IS A DRILL *****

The following annunciators are received:

PZR LEVEL DEVIATION LO
MASTER PRESS CTRLR OUTPUT LO

Concurrently with the following VAS alarms:

4327 PZR PRESSURE LO AND BU HTRS ON

THIS IS A DRILL

DO NOT INITIATE ACTIONS AFFECTING STATION OPERATION

SEABROOK STATION
EMERGENCY PREPAREDNESS MESSAGE FORM

MESSAGE NO.: ERO4c

TIME: 15 minutes after
entry into E-3

TO: Shift Superintendent

FROM: Control Room Lead Controller

LOCATION: Simulator Control Room

***** THIS IS A DRILL *****

Events warrant that an ALERT be declared in accordance with Procedure ER 1.1,
Classification of Emergencies, Initiating Condition 7b.

THIS IS A DRILL

DO NOT INITIATE ACTIONS AFFECTING STATION OPERATION

SEABROOK STATION
EMERGENCY PREPAREDNESS MESSAGE FORM

MESSAGE NO.: ER05g

TIME: 0930

TO: Control Room Personnel

FROM: Control Room Instrumentation

LOCATION: Simulator Control Room

***** THIS IS A DRILL *****

The following annunciators are received:

4160V BUS 5 VOLTS LO	PCCW TRAIN A FLOW LO
4160V BUS 6 VOLTS LO	PCCW TRAIN B FLOW LO
480V BUS 51/52/53 VOLTS LO	PCCW RCP COOLERS FLOW LO
480V BUS 61/62/63 VOLTS LO	
CIRC WATER PUMP A TRIP	SW TRAIN A PRESS LO
CIRC WATER PUMP B TRIP	SW TRAIN B PRESS LO

Concurrently with the following VAS alarms:

6266 BUS 1 UNDERVOLTAGE TRIP
6286 BUS 2 UNDERVOLTAGE TRIP
6306 BUS 3 UNDERVOLTAGE TRIP
6316 BUS 4 UNDERVOLTAGE TRIP
6337 BUS E5 RAT INCOMING LINE VOLT LOW
6360 BUS E6 RAT INCOMING LINE VOLT LOW
7330 BUS E6 UAT INCOMING LN BKR TRIP
7343 BUS E5 UAT INCOMING LN BKR TRIP

Shortly thereafter, the following VAS alarms are received:

6555 DG A AUTO START
6605 DG B AUTO START

THIS IS A DRILL

DO NOT INITIATE ACTIONS AFFECTING STATION OPERATION

SEABROCK STATION
EMERGENCY PREPAREDNESS MESSAGE FORM

MESSAGE NO.: EFD6c

TIME: 0950

TO: Site Emergency Director

FROM: TSC Lead Controller

LOCATION: Technical Support Center

***** THIS IS A DRILL *****

Events warrant that a SITE AREA EMERGENCY be declared in accordance with
Procedure ER 1.1, Classification of Emergencies, Initiating Conditions 6a and
7b.

THIS IS A DRILL

DO NOT INITIATE ACTIONS AFFECTING STATION OPERATION

5.1-7

3/11/91

SEABROOK STATION
EMERGENCY PREPAREDNESS MESSAGE FORM

MESSAGE NO.: ERO7

TIME: 1300

TO: ERF Lead Managers

FROM: ERF Lead Controllers

LOCATION: All ERFs

***** THIS IS A DRILL *****

Exercise play is terminated. Direct the deactivation and restoration of your emergency response facility.

THIS IS A DRILL

DO NOT INITIATE ACTIONS AFFECTING STATION OPERATION

SEABROOK STATION
EMERGENCY PREPAREDNESS MESSAGE FORM

MESSAGE NO.: ERO8

TIME: 1330

TO: Exercise Players

FROM: Exercise Controllers

LOCATION: All ERPs and Field Teams

***** THIS IS A DRILL *****

A facility critique will now commence. Follow the instructions of your Facility Lead Controller.

THIS IS A DRILL

DO NOT INITIATE ACTIONS AFFECTING STATION OPERATION

NEW HAMPSHIRE YANKEE

SEABROOK STATION

1991 GRADED EXERCISE

6.0 MINI-SCENARIOS

3/11/91

NEW HAMPSHIRE YANKEE

SEABROOK STATION

1991 GRADED EXERCISE

6.1 NHY ERO MINI-SCENARIOS

3/11/91

ERO MINI-SCENARIO IMPLEMENTATION KEY
1991 GRADED EXERCISE

<u>MINI-SCENARIO</u>	<u>TIME</u>	<u>RESPONSIBILITY</u>
6.1.1	±0830	As assigned in OSC
6.1.2	±0815	R. Krohn/R. Wolfe
6.1.3	0930	All onsite controllers
6.1.4	1000+	As assigned in OSC
6.1.5	1230	R. Krohn
6.1.6	±0830	As assigned in OSC

NEW HAMPSHIRE YANKEE

SEABROOK STATION

1991 GRADED EXERCISE

6.1.1 STARTUP FEEDWATER PUMP P-113

3/11/91

MINI-SCENARIO 6.1.1

STARTUP FEEDWATER PUMP P-113

This pump was tagged out to Colin Powell at 0630 on May 22 to investigate problems identified during a monthly surveillance test. During the test, the pump failed to start due to low lube oil pressure. Preliminary assessments indicated that the motor driven pre-lube oil pump (1-FW-P-161) was faulty and in need of replacement.

At the time of exercise commencement, no work has been done to the pump other than tagging it out. No components, tools, prints, etc. have yet been brought to the pump.

An Emergency Repair Team should be dispatched from the OSC to perform pump repairs. The assigned controller should note what measures are taken to assure the safety of the repair team.

Work required to restore the pump to service includes:

1. Selection and procurement of appropriate manuals, procedures, prints and tools.
2. Obtain a new pre-lube oil pump from Stores.
3. Remove old pump and install new one.
4. Check oil levels and add oil as required.
5. Lift tags, remove ground truck and install breaker (Bus 4, Node A40).

The above actions should require 3 to 4 hours to complete. The assigned controller is free to adjust the elapsed time for each activity as appropriate to the decisions of the players. Repair of this pump is not critical to the overall scenario timeline.

FOF

ONLY

WORK REQUEST
SECTION I - INITIATION

TAG NO. 1-FW-P-113		CONTENT STARTUP FEEDWATER PUMP		9 1 W 9 9 9 9 9 1 U	
UNIT 1	LOCATION TB 106	SYSTEM FW	TRAIN N/A	INIT. DOC. DEF TAG 888888	PLANT EQUIPMENT Y
BRIEF DESCRIPTION PUMP FAILED TO START DURING SURVEILLANCE TEST					
FAILURE/WORK REQUESTED INVESTIGATE CAUSE OF PUMP FAILURE; LOW WUBE OIL PRESS INDICATED. REPAIR/REPLACE COMPONENTS AS NECESSARY.					
ORIG. DAVID YOUNG	DATE 5/22/91	DISCOVERY STATUS B	EFFECT ON PLANT G		
EXTENSION 3380	DEPT. OPS	EFFECT ON SYSTEM A	FAILURE DETECTION C		

SECTION II - APPROVAL

PRIORITY 1	M.E.R. N/A	SCH. IMPACT CODE 00-02	SHIFT SUPERINTENDENT JIM HOLL	DATE/ TIME 5/22/91 0630
------------	------------	------------------------	-------------------------------	-------------------------

SECTION III - EVALUATION/PLANNING

LEAD DEPT. MM	TECHNICAL REQUIREMENTS										
ASSIST. DEPT.	SAFETY RELATED Y	SECURITY N	ASME SECTION XI N								
WR#	FIRE PROTECTION N	EQUIP. QUALIFICATION N	1E ASSOCIATED N								
	SEISMIC N	INSERVICE TESTING N	B31.1 UPGRADE N								
PROGRAM REQUIREMENTS											
PROCEDURES/DRAWINGS	WELD SPEC/TRAV. N										
	NDE REQ'D N										
	MA3.5 RETEST Y										
DESCRIPTION OF WORK/PRECAUTIONS											
① INVESTIGATE CAUSE OF LOW WUBE OIL PRESSURE INDICATION ② INSPECT FOR DAMAGE/BAD COMPONENTS, DISASSEMBLY AS REQUIRED ③ REPAIR/REPLACE PARTS AS NECESSARY ④ REASSEMBLY & RETEST											
QC REVIEW Y	UNIT/CHARGE NUMBER										
ENGINEER MAX KEYES	DATE 5/22/91	1	2	3	4	5	6	7	8	9	1
TAGGING NO.: 91-9876	Y	IGN. SOURCE PERMIT N	COMBUSTIBLE	CONFINED SPACE							
RWP NO.:	N	MAT'L PRESTAGED N	MAT'L PERMIT N	ENTRY PERMIT		N					
TEMP. EQUIP. REQ'D	N	ALARA	N	EX CLOSEOUT FORM Y	PME REQTS FORM		N				
EST. TIME OUT OF SERVICE 12	ES. MANHOURS 30										
H.P. PLANNER SIGNATURE N/A	DATE: N/A										
QC SIGNATURE Luck Chung	NOTIFY QC PRIOR TO START			Y	HOLD POINTS		Y				
RESPONSIBLE PLANNER	DATE 5/22/91										

MA 3.1A
Rev 19

FOF

ONLY

NEW HAMPSHIRE YANKEE

SEABROOK STATION

1991 GRADED EXERCISE

6.1.2 CONTROL CELL INSTRUCTIONS FOR
EXTERNAL ERO INTERFACE SIMULATIONS

3/11/91

MINI-SCENARIO 6.1.2
CONTROL CELL INSTRUCTIONS FOR
EXTERNAL ERO INTERFACE SIMULATIONS

I. General Instructions and Comments

- A. The following information should be used as a basis for simulating responses.
- B. Controllers may add to, delete from or otherwise modify any of the following information in response to player actions as deemed appropriate.
- C. Controllers should thoroughly acquaint themselves with any referenced documents and forms prior to the drill.
- D. Controllers should obtain a copy of the Emergency Response Telephone Directory prior to drill commencement.

II. American Nuclear Insurers

- A. Start Time: As initiated by players.
- B. ERO Contact: Health and Safety Coordinator
- C. Contact Location: EOF
- D. Topic(s) Discussed:
 - 1. Initiating events
 - 2. Current situation and accident prognosis
 - 3. Status of actual or potential radiological releases
 - 4. Protective actions recommended and/or implemented
 - 5. Known offsite damages or injuries
 - 6. Establishment of exclusion or restricted areas

III. American Nuclear Society

- A. Start Time: As initiated by players
- B. ERO Contact: Industry Liaison
- C. Contact Location: EOF
- D. Topic(s) Discussed:
 - 1. General accident status
 - 2. Transmittal of approved news releases
- E. Information to Provide:
 - 1. Telecopy number for press releases

IV. Institute of Nuclear Power Operations

- A. Start Time: As initiated by players
- B. ERO Contact: Industry Liaison
- C. Contact Location: EOF
- D. Topic(s) Discussed:
 - 1. General accident information and response status
 - 2. EOF switchboard number
 - 3. EOF DCC telecopy number
 - 4. Resources available through INPO Emergency Resources Manual
 - 5. DO NOT provide any response guidance or recommendations.
- E. Information to Provide:
 - 1. Telecopy number

V. NRC Emergency Notification System

While the Alert declaration is in effect, request that NHY call back every 30 minutes with an update until the event is terminated. After declaration of a Site Area Emergency, request that the ENS line be continually manned.

- A. Start Time: As initiated by players
- B. ERO Contact: STED and Emergency Operations Manager
- C. Contact Location: Control Room and TSC
- D. Topic(s) Discussed:
 - 1. Information contained on Form ER 2.0D
 - 2. Any other questions related to the accident or associated response actions
 - 3. DO NOT provide any guidance, recommendations or directions.
- E. Information to Provide:
 - 1. 5 minutes after declaration of a Site Area Emergency:
 - a. Initial Activation Team will be dispatched to EOF
 - b. Estimated arrival time at the EOF: 1230 on 5/22/91
 - c. Team members:
 - Site Team Leader
 - Reactor Safety Coordinator
 - Safeguards/Security Coordinator
 - Emergency Response Coordinator
 - Public Affairs Coordinator
 - Government Liaison Coordinator
 - Protective Measures Coordinator

- d. Team will fly to Pease AFB
 - e. Ground transportation to the EOF and Media Center has been arranged.
 - f. The Public Affairs Coordinator will be proceeding directly to the Media Center.
2. 10 minutes after Site Area Emergency declaration, inform your contact that the NRC wants the HPN line established by NHY. Provide the drill HPN number to the contact.

VI. NRC Health Physics Network

- A. Start Time: As initiated by players; should be approximately 0950. If the contact has not been initiated by 1000, establish the HPN and identify yourself as the NRC HPN Communicator.
- B. ERO Contact: Health and Safety Coordinator
- C. Contact Location: EOF
- D. Topic(s) Discussed:
 - 1. Information contained on Form ER 2.0G (obtain copies prior to drill)
 - 2. Any other questions related to radiological aspects of the accident or associated response actions including Protective Action Recommendations.
 - 3. DO NOT provide any guidance, recommendations or directions.
- E. Information to Provide:
 - 1. Telecopy number for HPN forms

VII. PSNH Control Center

- A. Start Time: As initiated by players
- B. ERO Contact: Corporate Support Manager
- C. Contact Location: EOF
- D. Topic(s) Discussed:
 - 1. Information contained on Form ER 3.3P
 - 2. The offsite power loss is being investigated. A restoration time is not yet known.
 - 3. DO NOT provide any guidance, recommendations or directions.

VIII. Westinghouse

- A. Start Time: As initiated by players
- B. ERO Contact: Industry Liaison
- C. Contact Location: EOF
- D. Topic(s) Discussed:

- 1. Availability of Westinghouse resources

- a. Accident and transient analysis
 - b. Fuel damage assessment
 - c. Replacement fuel and parts to support recovery operations

- 2. DO NOT provide any response guidance or recommendations.

- E. Information to Provide:

- 1. 5 minutes after requested by EOF: A team will be dispatched to EOF
 - a. Estimated arrival time @ EOF: 5 hours after request but not earlier than 1300
 - b. Team composition as requested by players
 - c. Team will fly to Logan
 - d. Request assistance with ground transportation and lodging arrangements
 - e. Request directions to the EOF and required passes

NEW HAMPSHIRE YANKEE

SEABROOK STATION

1991 GRADED EXERCISE

6.1.3 EQUIPMENT LOST DUE TO LOP

3/11/91

MINI-SCENARIO 6.1.3
EQUIPMENT LOST DUE TO LOP

I. General Comments and Notes

- A. Unless otherwise specified, all equipment will be lost at 0930
- B. Reference documents
 - 1. Final Safety Analysis Report, Chapter 8.3, Onsite Power Systems
 - 2. Engineering Evaluation 89-016, Power Failure Analysis for Emergency Response Facilities
 - 3. Some equipment listed below as lost may be restored to service if the power source is changed to a receptacle supplied by a Bus 5 or 6.

II. TSC Equipment

- A. Normal lighting in all areas
- B. Telecopier (if plugged into south wall of Room CB307)
- C. FINIS Terminal and Printer (if plugged into south wall of Room CB307)
- D. Copy Machine (if plugged into south wall of Room CB307)

III. OSC Equipment at HP Control Point (Room 156)

- A. Normal lighting
- B. Emergency lighting - lost after 1100
- C. Internal OSC Public Address system
- D. HVAC (Administration Building Air Handling System)

V. OSC Equipment at OSC Office Area (HP Count Room - Room 157)

- A. Normal lighting
- B. Emergency lighting - lost after 1100
- C. Automatic counters and printers
- D. Alpha/beta counters, analyzer and printer
- E. Clock

- F. HVAC (Administration Building Air Handling System)
- VI. OSC Equipment at Adjacent OSC Area (HP Supply Room - Room 158)
 - A. Normal lighting
 - B. Emergency lighting - lost after 1100
 - C. HVAC (Administration Building Air Handling System)
- VII. OSC Equipment at Adjacent OSC Area (Room 143)
 - A. Normal lighting
 - B. Emergency lighting - lost after 1100
 - C. Canberra computer printer
 - D. HVAC (Administration Building Air Handling System)
- VIII. OSC Equipment at HP Computer Room (Room 140)
 - A. Normal lighting
 - B. Emergency lighting - lost after 1100
 - C. Clock
 - D. Canberra computer and accessories
 - E. HVAC (Administration Building Air Handling System)
- IX. OSC Equipment in Corridors Adjacent to OSC (Rooms 138, 159 & 160)
 - A. Normal lighting
 - B. Emergency lighting - lost after 1100
 - C. Radiation monitors and equipment
 - D. HVAC (Administration Building Air Handling System)
- X. Chemistry Hot Lab Equipment (Room 133)
 - A. Normal lighting
 - B. Emergency lighting on walls - lost after 1100
 - C. Canberra units and spares
 - D. Counter titration units

- E. Glassware equipment and drying units
- F. Fume Hoods 2 and 3
- G. Refrigerator
- H. HVAC (Administration Building Air Handling System)

XI. Chemistry Hot Lab Computer Room Equipment (Room 131)

- A. Normal lighting
- B. Emergency lighting - lost after 1100
- C. HVAC (Administration Building Air Handling System)
- D. Computer - Following start of diesel generators, this computer is returned to service after manual efforts are made to re-boot it.
- E. Count Room Air Conditioner Unit

NEW HAMPSHIRE YANKEE

SEABROOK STATION

1991 GRADED EXERCISE

6.1.4 MOTOR DRIVEN EMERGENCY FEEDWATER PUMP P-37B

3/11/91

MINI-SCENARIO 6.1.4

MOTOR DRIVEN EMERGENCY FEEDWATER PUMP P-37B

This pump will auto-start following the station trip caused by the SGTR, and functions properly until 1000. At that time, pump trips due to impeller shaft seizure resulting from a loss of lube oil to the out-board bearings. The seizure leads to a motor high current trip. Emergency Repair Team(s) should be dispatched from the OSC to investigate the pump failure. The assigned controller should note what measures are taken to assure the safety of the repair team.

A team should proceed to Bus E6, breaker node 1-A80. Upon arrival and initial inspection of breaker indications, the team should be informed of the following:

- a. Orange flag on 86 device handswitch
- b. White light near 86 device handswitch is not lit
- c. Orange TIME TRIP flag on the 50-51 relay

Electricians may check the motor circuitry for short circuits and grounds. This will involve pulling the breaker, installing a ground truck, and meggering and bridging the motor. Upon completion of these activities (should require approximately 20 minutes), they should be informed that no faults are evident. If pump operation is attempted, inform the players that the breaker trips (The indications are the same as initially noted).

Either following or in parallel with the above activities, a team should be dispatched to the pump. Upon arrival at and initial inspection of the pump, the team should be informed that a large puddle of oil has collected in the catch basin under the pump. Upon closer inspection, the oil appears to be leaking from the out-board bearing oil reservoir at the drain plug.

Mechanics may uncouple the pump and motor and attempt to rotate the shaft of each. They should be informed that the pump shaft will not rotate.

To return the pump to service, the outboard bearings must be replaced. This activity will not be completed during the exercise. Repair of this pump is not critical to the overall scenario timeline.

NEW HAMPSHIRE YANKEE

SEABROOK STATION

1991 GRADED EXERCISE

6.1.5 NRC RESPONSE AT THE EOF

3/11/91

MINI-SCENARIO 6.1.5
NRC RESPONSE AT THE EOF

The following information should be utilized as a basis for simulating the NRC response. The controller may expand on any of the following information as deemed appropriate.

DISPATCH and TRANSPORTATION TO EOF

NRC Region I dispatched an Initial Activation Team to the EOF at 0945. The team consisted of:

Sitc Team Leader	Public Affairs Coordinator
Reactor Safety Coordinator	Government Liaison Coordinator
Safeguards/Security Coordinator	Protective Measures Coordinator
Emergency Response Coordinator	

The team flies to Pease Air Force Base and receives ground transportation to the EOF and, in the case of the Public Affairs Coordinator, the Media Center. Personnel arrive at the EOF and Media Center at 1230.

LODGING AND TRANSPORTATION ARRANGEMENTS

The NRC has made their own lodging arrangements. They have also made provisions for ground transportation.

BRIEFINGS AT THE EOF

Upon arrival, NRC personnel will need a briefing(s) concerning:

1. What caused the accident?
2. What is the current situation and accident prognosis?
3. Have there been or are there currently any releases from the plant?
4. What is the potential for further releases and when might they be terminated?
5. What Protective Action Recommendations has NHY issued?
6. What Protective Actions have been implemented?

Team members will also want to review ENS and HPN forms, and emergency response documentation. The Licensing Coordinator should designate ERO members to interface with NRC Team personnel.

WORK STATIONS

All personnel will need work stations in or near the EOF except for the Public Affairs Coordinator who has requested a work station at the Media Center. He will need a dedicated phone.

NEW HAMPSHIRE YANKEE

SEABROOK STATION

1991 GRADED EXERCISE

6.1.6 RESIDUAL HEAT REMOVAL PUMP P-8A

4/26/91

MINI-SCENARIO 6.1.6

RESIDUAL HEAT REMOVAL PUMP P-8A

This pump was tagged out to Mike David at 0310 on May 20 to investigate problems identified during a quarterly surveillance test. During the test, the pump exhibited high vibration and low flow rate. Operators secured the pump and generated a Priority 1 Work Request (attached).

Following pump tagout, the power leads were de-terminated and the upper half of the pump was removed to inspect the impeller. The inspection revealed that a loose impeller lock nut was causing the pump vibration and operating inefficiency. The impeller lock nut was replaced and minor cleanup of the impeller and wear ring performed. Pump reassembly was completed without incident. At 0800 on May 22, the pump is assembled and in the final stages of re-termination. The 4160V leads have already been terminated.

An Emergency Repair Team should be dispatched from the OSC to complete pump repairs. The assigned controller should note what measures are taken to assure the safety of the repair team.

Work remaining to restore the pump to service includes:

1. Meggaring of 4160V power leads.
2. Connection of pump instrumentation and 120V motor heaters.
3. Lift tags, remove ground truck and install breaker (Bus 5).
4. Fill and vent Train A RHR System.

The above actions should require approximately 3 hours to complete. The assigned controller is free to adjust the elapsed time for each activity as appropriate to the decisions of the players. Repair of this pump is not critical to the overall scenario timeline.

WORK REQUEST

FOR DRILL USE ONLY

91W009999

TAG NO. 1-RH-P8A		COMPONENT RH Pump Train A			PLANT EQUIPMENT Y	
UNIT 1	LOCATION RV	SYSTEM Rit	TRAIN A	INIT. DOG. 0x143.01		
BRIEF DESCRIPTION RH Pump exhibiting high vibration and low flow						
FAILURE/WORK REQUESTED 0x143.01 data indicated loss in RH flow and higher than normal vibration. Investigate						
ORIG. J. Andrus		DATE 5-20-91		DISCOVERY STATUS B	EFFECT ON PLANT G	
EXTENSION 3046		DEPT. TS		EFFECT ON SYSTEM A	FAILURE DETECTION C	

SECTION II - APPROVAL

PRIORITY 1	M.E.R. N/A	SCH. IMPACT CODE 0001	SHIFT SUPERINTENDENT M. David	DATE/TIME 5-20-91 0305
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SECTION III - EVALUATION/PLANNING

LEAD DEPT. MA		TECHNICAL REQUIREMENTS					
ASSIST. DEPT. ME	WR#	SAFETY RELATED	Y	SECURITY	N	ASME SECTION XI	N
		FIRE PROTECTION	N	EQUIP. QUALIFICATION	Y	IE ASSOCIATED	N
		SEISMIC	Y	INSERVICE TESTING	Y	B31.1 UPGRADE	N
PROGRAM REQUIREMENTS							
PROCEDURES/DRAWINGS MS0514.01 MS0514.08 MS0523.24						WELD SPEC/TRAV.	N
ES1809.001 1-NH-310887 SH A57.						NDE REQ'D	N
						MA3.5 RETEST	Y
DESCRIPTION OF WORK/PRECAUTIONS Perform a disassembly of 1-RH-P8A in accordance with MS0523.24. Perform a MA4.5 check to document all leads lifted and relanded. All terminations to be performed in accordance with MS0514.08 for 460 volt leads. Contact system engineer for evaluation when pump is disassembled. Perform retest upon reassembly per MA3.5 sheet attached.							
QC REVIEW Y				UNIT/CHARGE NUMBER			
ENGINEER J. Andrus				DATE: 5-20-91 1300619532			
TAGGING NO.:	Y	IGN. SOURCE PERMIT	N	COMBUSTIBLE		CONFINED SPACE	
RWP NO.:	Y	MAT'L PRESTAGED	N	MAT'L PERMIT	N	ENTRY PERMIT	N
TEMP. EQUIP. REQ'D	N	ALARA	Y	HK CLOSEOUT FORM	Y	FME REQTS FORM	Y
EST. TIME OUT OF SERVICE 72		EST. MANHOURS 150					
H.P. PLANNER SIGNATURE D. Kelsey				DATE: 5-20-91			
QC SIGNATURE J. Kett				NOTIFY QC PRIOR TO START		Y	HOLD POINTS Y
RESPONSIBLE PLANNER J. Andrus				DATE 5-20-91			

MA 3.1A
Rev 19**FOR DRILL USE ONLY**

FOR DRILL USE ONLY

NPRDS DISCOVERY CODES

DISCOVERY STATUS

SYSTEM LEVEL

A-SYSTEM IN SERVICE
B-SYSTEM IN TEST
C-SYSTEM IN MAINTENANCE
D-SYSTEM OUT OF SERVICES

CHANNEL LEVEL (COMPONENT)

E-SUBSYSTEM/CHANNEL IN SERVICE (OPERATING/STANDBY)
F-SUBSYSTEM/CHANNEL IN TEST
G-SUBSYSTEM/CHANNEL IN MAINTENANCE
H-SUBSYSTEM/CHANNEL OUT OF SERVICE (NON MAINTENANCE)

EFFECT ON SYSTEM

A-LOSS OF SYSTEM FUNCTION
B-DEGRADED SYSTEM OPERATION
C-LOSS OF REDUNDANCY
D-LOSS OF SUBSYSTEM/CHANNEL
E-SYSTEM FUNCTION OR OPERATION UNAFFECTED

EFFECT ON PLANT

A-RESULTED IN REDUCED POWER OPERATION
B-RESULTED IN UNIT OFFLINE
C-RESULTED IN REACTOR TRIP
D-RESULTED IN PERSONNEL INJURY
E-RESULTED IN OFFSITE RADIATION RELEASE
F-RESULTED IN DAMAGE TO OTHER EQUIPMENT
G-RESULTED IN NO SIGNIFICANT EFFECT

FAILURE DETECTION CODE

A-OPERATIONAL ABNORMALITY
B-IN SERVICE INSPECTION
C-SURVEILLANCE TESTING
D-PREVENTIVE MAINTENANCE
E-SPECIAL INSPECTION
F-AUDIO/VISUAL ALARM
H-ROUTINE OBSERVATION
J-INCIDENTAL OBSERVATION
X-OTHER

FOR DRILL USE ONLY

NOTE: THIS PAGE IS NOT REQUIRED FOR RECORDS RETENTION PURPOSES

NEW HAMPSHIRE YANKEE

SEABROOK STATION

1991 GRADED EXERCISE

6.1.7 RADIATION DATA MANAGEMENT SYSTEM. (RM-11)

5/8/91

MINI-SCENARIO 6.1.7

RADIATION DATA MANAGEMENT SYSTEM (RM-11)

The following information provides a basis for simulating the loss of the Radiation Data Management System (RDMS) in the Control Room and OSC.

The RDMS uses redundant control and display computers (RM-11 No. 1 and RM-11 No. 2) to obtain data from station radiation monitors for display on the Control Room and OSC consoles. Each computer normally polls half of the monitors and then shares the data with the other computer. If either computer should fail, the other picks up the entire load with no degradation in system capabilities.

The RM-11 No. 1 computer was removed from service at 0700 this morning for routine maintenance and is scheduled to be back in service by 1000. RM-11 No. 2 is polling for all monitors.

When the Alert is declared, the panels of RM-11 No. 1 are open, and various circuit boards have been removed for cleaning and inspection.

At 0900, RM-11 No.2 suffers a power supply failure. Control Room and OSC RDMS consoles go blank and the Control Room receives appropriate alarm indications.

An emergency repair team should be dispatched from the OSC to the Administration Building computer room to investigate the failure and effect repairs. Efforts should then be made to perform a system reboot on either computer.

Computer RM-11 No.1

Requires 45 minutes to reassemble and reboot. The initial reboot efforts fail due to a loose circuit board in the computer. It will then take an additional 60 minutes to disassemble the computer, check all circuit boards, reassemble and reset, and successfully reboot the system.

Computer RM-11 No.2

Requires 1 hour and 45 minutes to disassemble, troubleshoot, obtain and install new power supply, reassemble and successfully reboot the system.

Either computer may be repaired and placed back in service. The assigned controller must contact the OSC Lead Controller prior to final reboot of either computer system.

NEW HAMPSHIRE YANKEE

SEABROOK STATION

1991 GRADED EXERCISE

7.0 PLANT PARAMETERS

3/11/91

1991 Graded Exercise - Section 7.0

Elapsed Time	Rx Pwr	NIS	Core Therm	EC5 Loop Flow	PZR	EC5 Wide				
hrs:mins	(%)	IR (mcamps)	SR (cps)	Power (MWt)	A (%)	B (%)	C (%)	D (%)	Level (%)	Range Press (psia)
0:00	100	307	0	3394	101	101	101	101	53	2185
0:05	100	307	0	3394	101	101	101	101	53	2185
0:10	0	0.075	0	N/A	102	102	102	102	22	2011
0:15	0	0.001	0	N/A	102	102	102	102	24	2111
0:20	0	0	1103	N/A	102	102	102	102	29	2195
0:25	0	0	37	N/A	102	102	102	102	32	2278
0:30	0	0	15	N/A	102	102	102	102	4	2024
0:35	0	0	14	N/A	103	103	103	103	0	1490
0:40	0	0	13	N/A	103	103	103	103	14	1185
0:45	0	0	11	N/A	103	103	103	103	48	1232
0:50	0	0	12	N/A	103	103	103	103	50	1126
0:55	0	0	11	N/A	32	39	117	47	55	1150
1:00	0	0	11	N/A	7	7	125	7	74	1196
1:05	0	0	11	N/A	7	7	125	7	66	1135
1:10	0	0	11	N/A	7	7	125	7	63	1102
1:15	0	0	11	N/A	124	7	7	7	28	1013
1:20	0	0	11	N/A	124	7	7	7	33	1031
1:25	0	0	11	N/A	124	7	7	7	36	1008
1:30	0	0	11	N/A	17	0	0	0	41	1001
1:35	0	0	11	N/A	4	4	2	3	47	933
1:40	0	0	11	N/A	4	4	1	4	48	924
1:45	0	0	11	N/A	4	4	0	4	42	905
1:50	0	0	11	N/A	4	4	0	4	41	895
1:55	0	0	11	N/A	4	4	0	4	39	879
2:00	0	0	11	N/A	4	4	0	4	39	873
2:05	0	0	11	N/A	4	4	0	4	42	868
2:10	0	0	11	N/A	4	4	0	4	43	852
2:15	0	0	11	N/A	4	4	0	4	44	841
2:20	0	0	11	N/A	4	4	0	4	41	831
2:25	0	0	11	N/A	4	4	0	4	47	821
2:30	0	0	11	N/A	4	4	0	4	48	811
2:35	0	0	11	N/A	4	4	0	4	42	801
2:40	0	0	11	N/A	4	4	0	4	41	791
2:45	0	0	11	N/A	4	4	0	4	39	781
2:50	0	0	11	N/A	4	4	0	4	39	771
2:55	0	0	11	N/A	4	4	0	4	42	761
3:00	0	0	11	N/A	4	4	0	4	43	751
3:05	0	0	11	N/A	4	4	0	4	44	741
3:10	0	0	11	N/A	4	4	0	4	41	731
3:15	0	0	11	N/A	4	4	0	4	47	721
3:20	0	0	11	N/A	4	4	0	4	48	711
3:25	0	0	11	N/A	4	4	0	4	42	701
3:30	0	0	11	N/A	4	4	0	4	41	691
3:35	0	0	11	N/A	4	4	0	4	39	681
3:40	0	0	11	N/A	4	4	0	4	39	671
3:45	0	0	11	N/A	4	4	0	4	42	661
3:50	0	0	11	N/A	4	4	0	4	43	651
3:55	0	0	11	N/A	4	4	0	4	44	641
4:00	0	0	11	N/A	4	4	0	4	41	631
4:05	0	0	11	N/A	4	4	0	4	47	621
4:10	0	0	11	N/A	4	4	0	4	48	611
4:15	0	0	11	N/A	4	4	0	4	42	601
4:20	0	0	11	N/A	4	4	0	4	41	591
4:25	0	0	11	N/A	4	4	0	4	39	581
4:30	0	0	11	N/A	4	4	0	4	39	571
4:35	0	0	11	N/A	4	4	0	4	42	561
4:40	0	0	11	N/A	4	4	0	4	43	551
4:45	0	0	11	N/A	4	4	0	4	44	541
4:50	0	0	11	N/A	4	4	0	4	41	531
4:55	0	0	11	N/A	4	4	0	4	47	521

1991 Graded Exercise - Section 7.0

Elapsed Time	Bulk Avg Core Temp	RCS WR Hot Leg Temp				RCS WR Cold Leg Temp				RC LP Temp	RCS
(hrs:mins)	(deg F)	A (deg F)	B (deg F)	C (deg F)	D (deg F)	A (deg F)	B (deg F)	C (deg F)	D (deg F)	Highest Avg (deg F)	Subcooling (deg F)
0:00	616	618	618	618	618	558	558	558	558	588	31
0:05	616	618	618	618	618	558	558	558	558	588	31
0:10	558	558	558	558	558	556	556	556	556	557	80
0:15	555	555	555	555	555	553	553	553	553	554	91
0:20	557	557	557	557	557	555	555	555	555	556	95
0:25	558	558	558	558	558	556	556	556	556	557	99
0:30	533	534	534	534	534	530	530	530	530	532	106
0:35	496	496	496	496	496	493	493	493	493	495	100
0:40	480	480	480	480	480	479	479	479	479	480	88
0:45	481	481	481	481	481	479	479	479	479	480	91
0:50	485	485	485	485	485	483	483	483	483	484	77
0:55	489	488	488	488	488	489	489	489	489	489	73
1:00	531	477	477	530	477	530	530	530	530	530	38
1:05	539	461	461	538	461	538	538	538	538	538	23
1:10	541	455	455	540	455	540	540	540	540	540	18
1:15	484	484	463	499	464	479	479	479	479	489	65
1:20	480	480	456	481	458	476	476	476	476	479	71
1:25	473	473	459	475	460	469	469	469	469	472	75
1:30	484	483	457	470	460	468	468	468	468	476	63
1:35	490	493	492	492	492	452	452	473	452	483	47
1:40	486	487	487	488	487	447	447	479	447	484	51
1:45	475	478	478	484	478	432	432	477	432	481	58
1:50	465	467	467	484	467	426	426	426	426	455	68
1:55	455	458	458	485	458	411	411	411	411	448	75
2:00	444	446	446	487	446	407	407	407	407	447	85
2:05	440	441	441	487	441	400	400	404	400	446	89
2:10	432	434	434	488	434	392	392	396	392	442	95
2:15	424	426	426	488	426	386	386	389	386	439	101
2:20	420	422	422	484	422	382	382	385	382	435	101
2:25	416	418	418	480	418	378	378	381	378	431	104
2:30	412	414	414	476	414	374	374	377	374	427	107
2:35	408	410	410	472	410	370	370	373	370	423	110
2:40	404	406	406	468	406	366	366	369	366	419	113
2:45	400	402	402	464	402	362	362	365	362	415	116
2:50	396	398	398	460	398	358	358	361	358	411	119
2:55	393	395	395	457	395	355	355	358	355	408	120
3:00	390	392	392	454	392	352	352	355	352	405	121
3:05	387	389	389	451	389	349	349	352	349	402	122
3:10	384	386	386	448	386	346	346	349	346	399	123
3:15	381	383	383	445	383	343	343	346	343	396	124
3:20	378	380	380	442	380	340	340	343	340	393	126
3:25	375	377	377	439	377	337	337	340	337	390	128
3:30	372	374	374	436	374	334	334	337	334	387	129
3:35	369	371	371	433	371	331	331	334	331	384	130
3:40	366	368	368	430	368	328	328	331	328	381	131
3:45	364	366	366	428	366	326	326	329	326	379	132
3:50	362	364	364	426	364	324	324	327	324	377	133
3:55	360	362	362	424	362	322	322	325	322	375	133
4:00	358	360	360	422	360	320	320	323	320	373	133
4:05	356	358	358	420	358	318	318	321	318	371	133
4:10	354	356	356	418	356	316	316	319	316	369	133
4:15	352	354	354	416	354	314	314	317	314	367	134
4:20	350	352	352	414	352	312	312	315	312	365	144
4:25	348	350	350	412	350	310	310	313	310	363	134
4:30	346	348	348	410	348	308	308	311	308	361	134
4:35	344	346	346	408	346	306	306	309	306	359	144
4:40	342	344	344	406	344	304	304	307	304	357	135
4:45	340	342	342	404	342	302	302	305	302	355	135
4:50	338	340	340	402	340	300	300	303	300	353	134
4:55	336	338	338	400	338	298	298	301	298	351	134

1991 Graded Exercise - Section 7.0

Eapsed Time	Containment Pressure	RVLIS Dynamic HD	RVLIS Full Range LVL	PRT Press	5 Min HU/CD Rate	15 Min HU/CD Rate	60 Min HU/CD Rate	Accumulators Press	Level
(hrs:mins)	(psia)	(%)	(%)	(psia)	(deg F/hr)	(deg F/hr)	(deg F/hr)	(psia)	(g/g)
0:00	0	100	100	2	0	0	0	625	6400
0:05	0	100	100	2	0	0	0	625	6400
0:10	0	100	100	2	572	124	31	625	6400
0:15	0	100	100	3	36	136	34	625	6400
0:20	0	100	100	3	24	128	32	625	6400
0:25	0	100	100	3	12	0	31	625	6400
0:30	0	100	100	3	300	88	56	625	6400
0:35	0	100	100	3	450	246	94	625	6400
0:40	0	100	100	4	180	310	109	625	6400
0:45	0	100	100	4	6	208	108	625	6400
0:50	0	100	100	4	48	42		625	6400
0:55	0	43	100	4	54	36		625	6400
1:00	0	39	100	4	498	200		625	6400
1:05	0	38	100	4	96	216		625	6400
1:10	0	38	100	4	24	206		625	6400
1:15	0	40	100	4	612	164	65	625	6400
1:20	0	40	100	4	126	238	78	625	6400
1:25	0	40	100	4	78	272	85	625	6400
1:30	0	20	100	4	42	54	57	625	6400
1:35	0	20	100	4	84	16	12	625	6400
1:40	0	20	100	4	12	46	4	625	6400
1:45	0	20	100	4	36	20	1	625	6400
1:50	0	20	100	4	306	110	29	625	6400
1:55	0	20	100	4	84	142	41	625	6400
2:00	0	20	100	4	12	134	83	625	6400
2:05	0	20	100	4	18	38	93	625	6400
2:10	0	20	100	4	42	24	98	625	6400
2:15	0	20	100	4	42	34	51	625	6400
2:20	0	20	100	4	48	44	44	625	6400
2:25	0	20	100	4	48	46	42	625	6400
2:30	0	20	100	4	48	48	49	625	6400
2:35	0	20	100	4	48	48	60	625	6400
2:40	0	20	100	4	48	48	65	625	6400
2:45	0	20	100	4	48	48	66	625	6400
2:50	0	20	100	4	48	48	45	625	6400
2:55	0	20	100	4	36	44	41	625	6400
3:00	0	20	100	4	36	40	43	625	6400
3:05	0	20	100	4	36	36	44	625	6400
3:10	0	20	100	4	36	36	44	625	6400
3:15	0	20	100	4	36	36	43	625	6400
3:20	0	20	100	4	36	36	42	625	6400
3:25	0	20	100	4	36	36	41	625	6400
3:30	0	20	100	4	36	36	40	625	6400
3:35	0	20	100	4	36	36	39	625	6400
3:40	0	20	100	4	36	36	38	625	6400
3:45	0	20	100	4	24	32	36	625	6400
3:50	0	20	100	4	24	28	34	625	6400
3:55	0	20	100	4	24	24	33	625	6400
4:00	0	20	100	4	24	24	32	625	6400
4:05	0	20	100	4	24	24	31	625	6400
4:10	0	20	100	4	24	24	30	625	6400
4:15	0	20	100	4	24	24	29	625	6400
4:20	0	20	100	4	24	24	28	625	6400
4:25	0	20	100	4	24	24	27	625	6400
4:30	0	20	100	4	24	24	26	625	6400
4:35	0	20	100	4	24	24	25	625	6400
4:40	0	20	100	4	24	24	24	625	6400
4:45	0	20	100	4	24	24	24	625	6400
4:50	0	20	100	4	24	24	24	625	6400
4:55	0	20	100	4	24	24	24	625	6400

1991 Graded Exercise - Section 7.0

Elapsed Time	CHG PMP DIS HDR	Leidown HDR	TK-6 CHG HDR Flow	SI TRN A Flow	SI TRN B Flow	RHR TRN A Flow	RHR TRN A Flow	CBS TRN A Dis Press	CBS TRN A Dis Press
(hrs:mins)	Flow (gpm)	Flow (gpm)	(gpm)	(gpm)	(gpm)	(gpm)	(gpm)	(psia)	(psia)
0:00	102	76	0	0	0	0	0	0	0
0:05	102	76	0	0	0	0	0	0	0
0:10	56	0	239	0	0	0	0	0	0
0:15	52	0	219	0	0	0	0	0	0
0:20	47	0	201	0	0	0	0	0	0
0:25	43	0	182	0	0	0	0	0	0
0:30	55	0	236	0	0	0	0	0	0
0:35	76	0	322	106	106	0	0	0	0
0:40	85	0	361	255	255	0	0	0	0
0:45	59	0	0	0	0	0	0	0	0
0:50	61	44	0	0	0	0	0	0	0
0:55	61	4	0	0	0	0	0	0	0
1:00	62	96	0	0	0	0	0	0	0
1:05	63	91	0	0	0	0	0	0	0
1:10	64	88	0	0	0	0	0	0	0
1:15	157	48	0	0	0	0	0	0	0
1:20	156	49	0	0	0	0	0	0	0
1:25	119	74	0	0	0	0	0	0	0
1:30	131	73	0	0	0	0	0	0	0
1:35	91	78	0	0	0	0	0	0	0
1:40	92	80	0	0	0	0	0	0	0
1:45	92	63	0	0	0	0	0	0	0
1:50	93	52	0	0	0	0	0	0	0
1:55	93	55	0	0	0	0	0	0	0
2:00	93	51	0	0	0	0	0	0	0
2:05	94	51	0	0	0	0	0	0	0
2:10	94	49	0	0	0	0	0	0	0
2:15	94	45	0	0	0	0	0	0	0
2:20	94	45	0	0	0	0	0	0	0
2:25	94	45	0	0	0	0	0	0	0
2:30	94	45	0	0	0	0	0	0	0
2:35	94	45	0	0	0	0	0	0	0
2:40	94	45	0	0	0	0	0	0	0
2:45	94	45	0	0	0	0	0	0	0
2:50	94	45	0	0	0	0	0	0	0
2:55	94	45	0	0	0	0	0	0	0
3:00	94	45	0	0	0	0	0	0	0
3:05	94	45	0	0	0	0	0	0	0
3:10	94	45	0	0	0	0	0	0	0
3:15	94	45	0	0	0	0	0	0	0
3:20	94	45	0	0	0	0	0	0	0
3:25	94	45	0	0	0	0	0	0	0
3:30	94	45	0	0	0	0	0	0	0
3:35	94	45	0	0	0	0	0	0	0
3:40	94	45	0	0	0	0	0	0	0
3:45	94	45	0	0	0	0	0	0	0
3:50	94	45	0	0	0	0	0	0	0
3:55	94	45	0	0	0	0	0	0	0
4:00	94	45	0	0	0	0	0	0	0
4:05	94	45	0	0	0	0	0	0	0
4:10	94	45	0	0	0	0	0	0	0
4:15	94	45	0	0	0	0	0	0	0
4:20	94	45	0	0	0	0	0	0	0
4:25	94	45	0	0	0	0	0	0	0
4:30	94	45	0	0	0	0	0	0	0
4:35	94	45	0	0	0	0	0	0	0
4:40	94	45	0	0	0	0	0	0	0
4:45	94	45	0	0	0	0	0	0	0
4:50	94	45	0	0	0	0	0	0	0
4:55	94	45	0	0	0	0	0	0	0

1991 Graded Exercise - Section 7.0

Elapsed Time (hrs:mins)	Total Recirc Flow (gpm)	RWST Level (gall)	CONTM Sump A LYs (in)	CONTM Sump B LYs (in)	CONTM Recirc Sump LYs (ft)	13.8 kV Bus 1 (volts)	13.8 kV Bus 2 (volts)	4.16 kV Bus 3 (volts)	4.16 kV Bus 4 (volts)	4.16 kV Bus 5 (volts)	4.16 kV Bus 6 (volts)
0:00	0	482,860	0	0	0	14015	14024	4402	4388	4400	4410
0:05	0	482,860	0	0	0	14015	14024	4402	4388	4400	4410
0:10	239	481,710	0	0	0	14015	14024	4402	4388	4400	4410
0:15	219	480,290	0	0	0	14015	14024	4402	4388	4400	4410
0:20	201	478,180	0	0	0	14015	14024	4402	4388	4400	4410
0:25	182	477,470	0	0	0	14015	14024	4402	4388	4400	4410
0:30	236	476,230	0	0	0	14015	14024	4402	4388	4400	4410
0:35	535	474,090	0	0	0	14015	14024	4402	4388	4400	4410
0:40	873	470,960	0	0	0	14015	14024	4402	4388	4400	4410
0:45	0	468,540	0	0	0	14015	14024	4402	4388	4400	4410
0:50	0	468,350	0	0	0	14015	14024	4402	4388	4400	4410
0:55	0	468,350	0	0	0	14015	14024	4402	4388	4400	4410
1:00	0	468,350	0	0	0	14015	14024	4402	4388	4400	4410
1:05	0	468,350	0	0	0	14015	14024	4402	4388	4400	4410
1:10	0	468,350	0	0	0	14015	14024	4402	4388	4400	4410
1:15	0	468,350	0	0	0	14015	14024	4402	4388	4400	4410
1:20	0	468,350	0	0	0	14015	14024	4402	4388	4400	4410
1:25	0	468,350	0	0	0	14015	14024	4402	4388	4400	4410
1:30	0	468,350	0	0	0	0	0	0	0	0	0
1:35	0	468,100	0	0	0	0	0	0	0	4400	4410
1:40	0	467,230	0	0	0	0	0	0	0	4400	4410
1:45	0	466,270	0	0	0	0	0	0	0	4400	4410
1:50	0	465,500	0	0	0	0	0	0	0	4400	4410
1:55	0	465,240	0	0	0	0	0	0	0	4400	4410
2:00	0	465,240	0	0	0	0	0	0	0	4400	4410
2:05	0	465,240	0	0	0	0	0	0	0	4400	4410
2:10	0	465,240	0	0	0	0	0	0	0	4400	4410
2:15	0	465,240	0	0	0	0	0	0	0	4400	4410
2:20	0	465,240	0	0	0	0	0	0	0	4400	4410
2:25	0	465,240	0	0	0	0	0	0	0	4400	4410
2:30	0	465,240	0	0	0	0	0	0	0	4400	4410
2:35	0	465,240	0	0	0	0	0	0	0	4400	4410
2:40	0	465,240	0	0	0	0	0	0	0	4400	4410
2:45	0	465,240	0	0	0	0	0	0	0	4400	4410
2:50	0	465,240	0	0	0	0	0	0	0	4400	4410
2:55	0	465,240	0	0	0	0	0	0	0	4400	4410
3:00	0	465,240	0	0	0	0	0	0	0	4400	4410
3:05	0	465,240	0	0	0	0	0	0	0	4400	4410
3:10	0	465,240	0	0	0	0	0	0	0	4400	4410
3:15	0	465,240	0	0	0	0	0	0	0	4400	4410
3:20	0	465,240	0	0	0	0	0	0	0	4400	4410
3:25	0	465,240	0	0	0	0	0	0	0	4400	4410
3:30	0	465,240	0	0	0	0	0	0	0	4400	4410
3:35	0	465,240	0	0	0	0	0	0	0	4400	4410
3:40	0	465,240	0	0	0	0	0	0	0	4400	4410
3:45	0	465,240	0	0	0	0	0	0	0	4400	4410
3:50	0	465,240	0	0	0	0	0	0	0	4400	4410
3:55	0	465,240	0	0	0	0	0	0	0	4400	4410
4:00	0	465,240	0	0	0	0	0	0	0	4400	4410
4:05	0	465,240	0	0	0	0	0	0	0	4400	4410
4:10	0	465,240	0	0	0	0	0	0	0	4400	4410
4:15	0	465,240	0	0	0	0	0	0	0	4400	4410
4:20	0	465,240	0	0	0	0	0	0	0	4400	4410
4:25	0	465,240	0	0	0	0	0	0	0	4400	4410
4:30	0	465,240	0	0	0	0	0	0	0	4400	4410
4:35	0	465,240	0	0	0	0	0	0	0	4400	4410
4:40	0	465,240	0	0	0	0	0	0	0	4400	4410
4:45	0	465,240	0	0	0	0	0	0	0	4400	4410
4:50	0	465,240	0	0	0	0	0	0	0	4400	4410
4:55	0	465,240	0	0	0	0	0	0	0	4400	4410

1991 Graded Exercise - Section 7.0

Elapsed Time (hrs:mins)	D/G		Steam Generator A			Steam Generator B			Steam Generator C			Steam Generator D		
	1A	1A	NR LVL	Press	WR LVL	NR LVL	Press	WR LVL	NR LVL	Press	WR LVL	NR LVL	Press	WR LVL
(kV)	(kV)	(%)	(psig)	(%)	(%)	(psig)	(%)	(%)	(psig)	(%)	(%)	(psig)	(%)	(%)
0:00	0	0	50	970	78	50	970	78	50	970	78	50	970	78
0:05	0	0	50	970	78	50	970	78	50	970	78	50	970	78
0:10	0	0	0	1069	63	0	1070	63	0	1070	65	0	1070	63
0:15	0	0	0	1047	67	0	1047	67	0	1047	72	0	1047	68
0:20	0	0	0	1063	69	0	1063	68	0	1091	78	0	1063	70
0:25	0	0	0	1066	71	0	1066	69	21	1133	84	0	1066	73
0:30	0	0	0	844	66	0	945	64	45	1124	87	0	845	68
0:35	0	0	0	604	61	0	604	59	48	1124	89	0	604	63
0:40	0	0	0	536	63	0	537	60	49	1124	92	0	537	65
0:45	0	0	0	538	66	0	539	63	49	1124	94	0	539	68
0:50	0	0	0	558	69	0	559	66	52	1124	95	0	559	72
0:55	0	0	0	576	73	0	576	69	53	1124	95	0	576	75
1:00	0	0	0	563	76	0	563	72	65	1124	94	0	563	79
1:05	0	0	0	486	72	0	486	68	70	1124	95	0	486	75
1:10	0	0	0	466	71	0	466	68	71	1120	94	0	466	74
1:15	0	0	0	523	60	0	521	75	63	1055	92	0	521	81
1:20	0	0	0	509	63	0	508	81	57	1034	93	26	508	86
1:25	0	0	0	474	60	19	472	83	53	1024	93	45	472	88
1:30	0	0	0	490	64	34	490	85	50	1012	93	59	490	90
1:35	6083	6083	0	444	67	46	444	87	49	1008	93	62	445	89
1:40	6083	6083	0	421	73	51	422	86	47	995	91	58	422	87
1:45	6083	6083	0	352	80	60	353	85	43	977	90	68	353	88
1:50	6083	6083	21	335	84	59	336	83	40	962	89	68	336	87
1:55	6083	6083	33	285	84	57	285	84	35	946	88	72	285	87
2:00	6083	6083	36	272	84	45	272	83	31	930	88	60	272	86
2:05	6083	6083	35	252	82	48	253	83	28	920	87	62	253	86
2:10	6083	6083	40	229	82	54	229	83	24	905	86	68	229	86
2:15	6083	6083	44	212	82	55	212	83	20	892	85	69	212	85
2:20	6083	6083	50	210	83	50	210	82	16	882	84	60	210	84
2:25	6083	6083	50	208	83	50	208	82	12	872	83	55	208	83
2:30	6083	6083	50	205	83	50	205	82	8	862	82	50	205	82
2:35	6083	6083	50	203	83	50	203	82	4	852	81	50	203	82
2:40	6083	6083	50	200	83	50	200	82	0	842	80	50	200	82
2:45	6083	6083	50	198	83	50	198	82	0	832	79	50	198	82
2:50	6083	6083	50	196	83	50	196	82	0	822	78	50	196	82
2:55	6083	6083	50	193	83	50	193	82	0	812	77	50	193	82
3:00	6083	6083	50	191	83	50	191	82	0	802	76	50	191	82
3:05	6083	6083	50	189	83	50	189	82	0	792	75	50	189	82
3:10	6083	6083	50	186	83	50	186	82	0	782	74	50	186	82
3:15	6083	6083	50	184	83	50	184	82	0	772	73	50	184	82
3:20	6083	6083	50	181	83	50	181	82	0	762	72	50	181	82
3:25	6083	6083	50	179	83	50	179	82	0	752	71	50	179	82
3:30	6083	6083	50	177	83	50	177	82	0	742	70	50	177	82
3:35	6083	6083	50	174	83	50	174	82	0	732	69	50	174	82
3:40	6083	6083	50	172	83	50	172	82	0	722	68	50	172	82
3:45	6083	6083	50	170	83	50	170	82	0	712	67	50	170	82
3:50	6083	6083	50	167	83	50	167	82	0	702	66	50	167	82
3:55	6083	6083	50	165	83	50	165	82	0	692	65	50	165	82
4:00	6083	6083	50	162	83	50	162	82	0	682	64	50	162	82
4:05	6083	6083	50	160	83	50	160	82	0	672	63	50	160	82
4:10	6083	6083	50	158	83	50	158	82	0	662	62	50	158	82
4:15	6083	6083	50	155	83	50	155	82	0	652	61	50	155	82
4:20	6083	6083	50	153	83	50	153	82	0	642	60	50	153	82
4:25	6083	6083	50	150	83	50	150	82	0	632	59	50	150	82
4:30	6083	6083	50	148	83	50	148	82	0	622	58	50	148	82
4:35	6083	6083	50	146	83	50	146	82	0	612	57	50	146	82
4:40	6083	6083	50	143	83	50	143	82	0	602	56	50	143	82
4:45	6083	6083	50	141	83	50	141	82	0	592	55	50	141	82
4:50	6083	6083	50	139	83	50	139	82	0	582	54	50	139	82
4:55	6083	6083	50	136	83	50	136	82	0	572	53	50	136	82

Elapsed Time
(hrs:mins)

Total EFW Flow
(gpm)

Critical Safety Function Status Trees

		S	C	H	P	Z	I	F	R
0:00	0	Green	Green	Green	Green	Green	Green	Green	Green
0:05	0	Green	Green	Green	Green	Green	Green	Green	Yellow
0:10	1600	Green	Green	Yellow	Green	Green	Green	Green	Yellow
0:15	773	Green	Green	Yellow	Green	Green	Green	Green	Yellow
0:20	709	Green	Green	Yellow	Green	Green	Green	Green	Yellow
0:25	549	Green	Green	Yellow	Green	Green	Green	Green	Yellow
0:30	676	Green	Green	Yellow	Green	Green	Yellow	Green	Yellow
0:35	793	Green	Green	Yellow	Green	Green	Yellow	Green	Yellow
0:40	818	Green	Green	Yellow	Green	Green	Yellow	Green	Yellow
0:45	820	Green	Green	Yellow	Green	Green	Green	Green	Yellow
0:50	805	Green	Green	Yellow	Green	Green	Green	Green	Yellow
0:55	823	Green	Green	Yellow	Green	Green	Green	Green	Yellow
1:00	829	Green	Yellow	Yellow	Green	Green	Green	Green	Yellow
1:05	1146	Green	Yellow	Yellow	Green	Green	Green	Green	Yellow
1:10	1311	Green	Yellow	Yellow	Green	Green	Green	Green	Yellow
1:15	1258	Green	Green	Yellow	Green	Green	Green	Green	Yellow
1:20	1141	Green	Green	Yellow	Green	Green	Green	Green	Yellow
1:25	890	Green	Green	Yellow	Green	Green	Green	Green	Yellow
1:30	657	Green	Green	Yellow	Green	Green	Green	Green	Yellow
1:35	660	Green	Green	Yellow	Green	Green	Green	Green	Yellow
1:40	687	Green	Green	Yellow	Green	Green	Green	Green	Yellow
1:45	817	Green	Green	Yellow	Green	Green	Green	Green	Yellow
1:50	545	Green	Green	Yellow	Green	Green	Green	Green	Yellow
1:55	501	Green	Green	Green	Green	Green	Green	Green	Yellow
2:00	302	Green	Green	Green	Green	Green	Green	Green	Yellow
2:05	419	Green	Green	Green	Green	Green	Green	Green	Yellow
2:10	326	Green	Green	Yellow	Green	Green	Green	Green	Yellow
2:15	204	Green	Green	Yellow	Green	Green	Green	Green	Yellow
2:20	190	Green	Green	Yellow	Green	Green	Green	Green	Yellow
2:25	190	Green	Green	Yellow	Green	Green	Green	Green	Yellow
2:30	190	Green	Green	Yellow	Green	Green	Green	Green	Yellow
2:35	190	Green	Green	Yellow	Green	Green	Green	Green	Green
2:40	190	Green	Green	Yellow	Green	Green	Green	Green	Green
2:45	190	Green	Green	Yellow	Green	Green	Green	Green	Green
2:50	190	Green	Green	Yellow	Green	Green	Green	Green	Green
2:55	190	Green	Green	Yellow	Green	Green	Green	Green	Green
3:00	190	Green	Green	Yellow	Green	Green	Green	Green	Green
3:05	190	Green	Green	Yellow	Green	Green	Green	Green	Green
3:10	190	Green	Green	Yellow	Green	Green	Green	Green	Green
3:15	190	Green	Green	Yellow	Green	Green	Green	Green	Green
3:20	190	Green	Green	Yellow	Green	Green	Green	Green	Green
3:25	190	Green	Green	Yellow	Green	Green	Green	Green	Green
3:30	190	Green	Green	Yellow	Green	Green	Green	Green	Green
3:35	190	Green	Green	Yellow	Green	Green	Green	Green	Green
3:40	190	Green	Green	Yellow	Green	Green	Green	Green	Green
3:45	190	Green	Green	Yellow	Green	Green	Green	Green	Green
3:50	190	Green	Green	Yellow	Green	Green	Green	Green	Green
3:55	190	Green	Green	Yellow	Green	Green	Green	Green	Green
4:00	190	Green	Green	Yellow	Green	Green	Green	Green	Green
4:05	190	Green	Green	Yellow	Green	Green	Green	Green	Green
4:10	190	Green	Green	Yellow	Green	Green	Green	Green	Green
4:15	190	Green	Green	Yellow	Green	Green	Green	Green	Green
4:20	190	Green	Green	Yellow	Green	Green	Green	Green	Green
4:25	190	Green	Green	Yellow	Green	Green	Green	Green	Green
4:30	190	Green	Green	Yellow	Green	Green	Green	Green	Green
4:35	190	Green	Green	Yellow	Green	Green	Green	Green	Green
4:40	190	Green	Green	Yellow	Green	Green	Green	Green	Green
4:45	190	Green	Green	Yellow	Green	Green	Green	Green	Green
4:50	190	Green	Green	Yellow	Green	Green	Green	Green	Green
4:55	190	Green	Green	Yellow	Green	Green	Green	Green	Green

MPCS SIMULATION DATA SHEET

DATE:

[illegible]

MPCS SIMULATION DATA SHEET

PLANT PARAMETERS		DATE:	
		TIME:	
Parameter	Range	SOURCE	VALUE
Power Range	0 - 120%		
Source Range	1 - 10E6 cps		
Reactor Vessel Level	0 - 120%		
Pressurizer Level	0 - 100%		
RCS Wide Range Pressure	0 - 3000 psig		
RCS Wide Range T Hot	0 - 700 F		
RCS Wide Range T Cold	0 - 700 F		
Core Exit Thermocouples	0 - 2300 F		
Subcooling	(-50) - 300 F		
WR S/G Level (Intact Avg)	0 - 100%		
S/G Pressure (Intact Avg)	0 - 1300 psig		
Total EFW Flow (Intact)	0 - 2000 gpm		
Containment Building Level	.5 - 8 ft		
Containment H2 Concen.	0 - 10%		
Containment Pressure	0 - 60 psig		
Containment Avg Air Temp	0 - 300 F		
Cont Enclose/Atmos DP	0 - 0.5 in WC		
RWST Level	0 - 500 kgal		