FIGURE 7.3

NORTHEAST UTILITIES

THE CONNECTICUT LIGHT AND POWER COMPANY
WESTERN MASSACHUSETTS ELECTRIC COMPANY
HOLYOKE WATER POWER COMPANY
NORTHEAST UTILITIES SERVICE COMPANY
NORTHEAST NUCLEAR ENERGY COMPANY

PROCEDURE TRANSMITTAL RECEIPT FORM

MEMO

TO: CONTROL COPY HOLDER # 38 Date: 3/15/93

CORPORATE ORGANIZATION FOR NUCLEAR INCIDENTS
PROCEDURE MANUAL

FROM: R. C. RODGERS, DIRECTOR, EMERGENCY PREPAREDNESS DEPARTMENT

SUBJECT: NEW/REVISED PROCEDURES

Attached please find new or revised procedures for the Corporate Organization for Nuclear Incidents Procedure Manual assigned to you. Also find a new Table of Contents and a memo describing the changes to each procedure.

Please sign and return entire form to:

R. C. Rodgers, Emergency Preparedness
NORTHEAST UTILITIES SERVICE COMPANY
POST OFFICE BOX 270 (Room W-122)
HARTFORD, CONNECTICUT 06141-0270

This acknowledges receipt of the Corporate Organization for Nuclear Incidents Procedures information contained in **Transmittal No. 75, dated March 15, 1993**.

Signature of Manual Holder*	Date	38 Copy No.

*If signing for the Manual Holder, please indicate Manual Holder's name.

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NORTHEAST UTILITIES
THE CONNECTICUT LIGHT AND POWER COMPANY
WESTERN MASSACHUSETTS ELECTRIC COMPANY
HOLYOKE WATER POWER COMPANY
NORTHEAST UTILITIES SERVICE COMPANY
NORTHEAST NUCLEAR ENERGY COMPANY

MEMO

March 15, 1993
EP-93-154

TO: CONI Procedure Manual Copyholders

FROM: R. C. Rodgers
(Ext. 5655)

SUBJECT: **CONI TRANSMITTAL NO. 75, DATED MARCH 15, 1993**

The position of Radiological Work Center Coordinator (RWCC) has been added to the Radiological Assessment staff. This addition requires that several CONI Section 4 procedures be updated. They are:

CONI 4.01, Rev. 14
CONI 4.02, Rev. 20
CONI 4.08, Rev. 10
CONI 4.10, Rev. 20

CONI 4.08 was also revised to replace the PUFF Dose Assessment Model with ADAM, the Accident Dose Assessment Model.

Also, two CONI Section 10 procedures were revised to reflect the Emergency Preparedness Department restructuring. They are:

CONI 10.04, Rev. 1
CONI 10.05, Rev. 1

RCR/JGM/sba

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CORPORATE ORGANIZATION FOR NUCLEAR INCIDENTS (CONI) PROCEDURE

CONI 4.01

ON-CALL RADIOLOGICAL ASSESSMENT STAFF LOGISTICS

THIS PROCEDURE CHANGE IS APPROVED, AND APPROPRIATE 10CFR50.54(q) ACTIONS HAVE BEEN TAKEN.

R L Rodgers

Lead Manager, Radiological Consequence Assessment

REVISION 14

EFFECTIVE DATE March 15, 1993

CONCURRENCE R L Rodgers

Corporate Nuclear Emergency Plan Coordinator

CORPORATE ORGANIZATION FOR NUCLEAR INCIDENTS (CONI) PROCEDURE

CONI 4.01

ON-CALL RADIOLOGICAL ASSESSMENT STAFF LOGISTICS

1.0 PURPOSE

This procedure defines the responsibilities and duties of the NUSCO Radiological Assessment staff as they relate to the coordination and acquisition of personnel and other support services needed during emergency operations at a nuclear power generation facility.

2.0 APPLICABILITY

This procedure applies to the on-call Radiological Assessment staff (Manager of Radiological Consequence Assessment, Radiological Work Center Coordinator, Radiological Assessment Engineer, and Field Team Data Coordinator) and the supporting staff, the Meteorological Team and Environmental Sampling Team.

3.0 REFERENCES

3.1 CONI 1.03. Alerting and Notification Using the Radiopager System.

3.2 CONI 4.10. On-Call Radiological Assessment Staff Telephone List.

4.0 DEFINITIONS

4.1 On-call Radiological Assessment staff - the Corporate Manager of Radiological Consequence Assessment (CMRCA), Radiological Work Center Coordinator (RWCC), Radiological Assessment Engineer (RAE), and the Field Team Data Coordinator (FTDC).

4.2 On-call Lead Manager - is the Director of the Emergency Preparedness Department.

4.3 Reporting Location - the reporting location for the on-call Radiological Assessment staff and the Meteorological Team is the Corporate Emergency Operations Center, Berlin. The reporting location for the Environmental Sampling Team is Middletown Station.

5.0 RESPONSIBILITIES

The on-call Radiological Assessment staff, after receiving notification of an emergency, shall respond in accordance with Reference 3.1.

6.0 INSTRUCTIONS

6.1 On-Call Personnel

A listing of the on-call Radiological Assessment staff, on-call Meteorological Team, and on-call Environmental Sampling Team appears in Reference 3.2.

6.2 On-Call Schedule

6.2.1 Annually, the Lead Manager shall provide the Nuclear Operations Duty Officer with a schedule for the on-call Radiological Assessment staff.

6.2.2 Annually, the Meteorological and the Environmental Sampling Team Leaders shall provide the Nuclear Operations Duty officer with a schedule of their team membership.

6.3 Fan Out Notification

6.3.1 ALERT - Charlie-One, SITE AREA EMERGENCY - Charlie-Two,GENERAL EMERGENCY - Bravo or Alpha

6.3.1.1 Upon notification by radiopager or by telephone, the on-call CMRCA, RWCC, RAE and FTDC will respond to the radiopager message by calling in and also by immediately attempting to notify at least one other person trained as CMRCAs, RWCCs, RAEs, and FTDCs, respectively, as listed in Reference 3.2.

The on-call CMRCA, RWCC, RAE, and FTDC will then report to the Berlin EOC as prescribed in Reference 3.1.

6.3.1.2 When notified, the on-call Meteorological and Environmental Sampling team members will respond to the radiopager message as prescribed in Reference 3.1. They will also call at least one more member of their respective teams to come in to provide assistance.

6.3.2 UNUSUAL EVENT - Delta-Two

When notified, the on-call CMRCA will call the station Duty Officer or chemist for more details and offer assistance. Other support staff will be notified as necessary.

6.3.3 The Lead Manager will have prepared telephone number listings of his on-call staff. These will be distributed to all on-call staff. Also, this listing appears in Reference 3.2.

7.0 FIGURES

None

8.0 ATTACHMENTS

None

CORPORATE ORGANIZATION FOR NUCLEAR INCIDENTS (CONI) PROCEDURE

CONI 4.02

ON-CALL RADIOLOGICAL ASSESSMENT STAFF RESPONSIBILITIES AND GENERAL GUIDELINES

THIS PROCEDURE CHANGE IS APPROVED, AND APPROPRIATE 10CFR50.54(q) ACTIONS HAVE BEEN TAKEN.

R R L Rodgers
Lead Manager, Radiological Consequence Assessment

REVISION 20

EFFECTIVE DATE March 15, 1993

CONCURRENCE R L Rodgers
Corporate Nuclear Emergency Plan Coordinator

CORPORATE ORGANIZATION FOR NUCLEAR INCIDENTS (CONI) PROCEDURE

CONI 4.02

ON-CALL RADIOLOGICAL ASSESSMENT STAFF RESPONSIBILITIES AND GENERAL GUIDELINES

1.0 PURPOSE

To provide a listing of the major responsibilities of the on-call Corporate radiological assessment staff positions; the Corporate Manager of Radiological Consequence Assessment (CMRCA), the Radiological Work Center Coordinator (RWCC) the Radiological Assessment Engineer (RAE), and the Field Team Data Coordinator (FTDC), and the support position of meteorologist. This procedure provides guidelines and a general strategy for the CMRCA.

2.0 APPLICABILITY

This procedure is to be used by the on-call Corporate radiological assessment staff.

3.0 REFERENCES

3.1 Millstone Station Emergency Plan Implementing Procedures.

3.2 Haddam Neck Station Emergency Plan Implementing Procedures.

3.3 CONI Procedures - Section 4.

3.4 CONI Procedures 1.05, 1.07, and 3.01.

3.5 EMIT Manual.

3.6 Emergency Reference Manual.

3.7 State of Connecticut Emergency Response Plan.

3.8 State of Connecticut Ingestion Pathway Plan.

4.0 DEFINITIONS

None.

5.0 RESPONSIBILITIES

5.1 General

Each member of the on-call radiological assessment staff is responsible for understanding the requirements of their position as outlined in this procedure. During an incident, the CMRCA has overall responsibility for assuring that the requirements of this procedure are fulfilled. The corporate radiological assessment staff report to the CERO Director through the CMRCA. This staff supports the station EOC staff and State DEP staff, through the CMRCA, in determining radiological consequences and recommending protective actions.

5.2 Corporate Manager of Radiological Consequence Assessment

The CMRCA should ensure that the functions in this procedure, as outlined below in section 6.1, are fulfilled. During an incident, the CMRCA will direct the activities of the radiological on-call staff in meeting the requirements of this procedure. Further, the CMRCA will use his expertise to interpret results of calculations. The CMRCA will directly interface with the DCERO and State DEP in providing Protective Action Recommendations (PARs) per CONI 4.12.

5.3 Radiological Work Center Coordinator

The RWCC will coordinate and review the work of the RAE, FTDC, and Meteorologist to ensure the direction provided by the CMRCA is carried out and a comprehensive evaluation (not only data) is provided to the CMRCA.

5.4 Radiological Assessment Engineer

The Radiological Assessment Engineer (RAE) performs calculations (i.e., manual and/or computer) to determine radioactive releases, doses, and core damage estimates. During an incident, the RAE will perform analytical tasks assigned by the CMRCA through the RWCC in compliance with this procedure.

5.5 Field Team Data Coordinator

The Field Team Data Coordinator (FTDC) provides the strategy and logistics of field team deployment and data collation and reporting. During an incident, the FTDC will perform tasks assigned by the CMRCA through the RWCC in compliance with this procedure.

5.6 Meteorologist

The Meteorologist obtains and interprets actual and forecasted meteorological conditions. During an incident, the meteorologist will perform tasks assigned by the CMRCA or through the RWCC in compliance with this procedure.

6.0 INSTRUCTIONS

6.1 Primary Functions of the CMRCA

The following lists the primary functions of the CMRCA and some general guidelines on how to carry these out:

6.1.1 Assist the CERO Director in recommending changes to the emergency classification.

6.1.2 Identify the accident sequence through discussions with the Manager of Technical Support. Use OFIS or, if unavailable, communicate with the station to obtain radiation monitor readings to maintain awareness of radiological conditions on-site. Specify to the RWCC and RAE the assumptions for parametric calculations using Attachment 8. E.

6.1.3 Develop public PARs for the DCERO who will in turn provide them to the State through the NU Corporate Representative in the State EOC. If possible, the CMRCA should discuss these recommendations in advance with the State DEP in the State EOC.

Initiate PAR preparations immediately in anticipation of a GENERAL EMERGENCY. They should be provided to the State preferably at the time of declaration of a GENERAL EMERGENCY. Use CONI 4.12 and Attachments 8.J, 8.K, and 8.L as appropriate. In fast-moving events, verbal concurrence by the CERO Director is appropriate.

6.1.4 Notify the CERO Director the first time any off-site dose rates exceed 5 mR/hr, 50 mR/hr, 1,000 mR/hr, or 5,000 mR/hr for the whole body and/or thyroid dose rates exceed 25 mrem/hr, 250 mrem/hr, 5,000mrem/hr, or 25,000 mrem/hr.

6.1.5 Provide technical support to the Site Manager of Radiological Consequence Assessment, the Site Manager of Radiological Dose Assessment, and the State DEP at the State EOC.

Determine the Site Manager's priorities for technical and resource support. For example, the Site MRCA may need assistance in determining core damage estimates or in reducing radiation exposure.

6.1.6 Manage and direct support staff activities. Staff the Work Center with additional call-out personnel as soon as possible. If necessary, set up the expanded two shift organization, using the guidelines in Attachment 8.D. Establish control on appropriate Work Center activities such as calculations and release of radiological and meteorological data. Establish the strategy to be used in off-site dose assessment (Attachment 8.C). Anticipate conditions/actions as much as possible. Keep Work Center key staff informed of plant status.

6.1.7 Inform the Manager of Technical Support of radiological conditions which may affect the completion of their recommendations for plant recovery. Obtain data on core uncovery times, operation of radioactivity mitigating systems, containment pressure reduction, etc., which affect off-site projected/actual dose calculations. Perform radiological based core damage assessments and compare with thermo-hydraulics estimates from Manager Technical Support.

6.1.8 Provide updated Meteorological and Field Team Data, as necessary, to the station MRCA and MRDA as well as the State DEP in the State EOC. Review and initial all data prior to transmittal.

6.1.9 Periodically update the Environmental Sampling Team (POSL) with plant status and meteorology. Wind direction data is needed for them to assess their potential habitability problems. If release rates significantly change, this may also be important to discuss with them.

6.1.10 Provide, as necessary, updated meteorological data to the Emergency Planning Zone towns using the FAXWorks System. Have the meteorologist complete Attachment 8.M and have it transmitted as follows:

- Dial 1-800-833-4329 on the FAX machine telephone to access FAXWorks.
- When asked, enter the password followed by the star key; enter 7561708*.
- To send a FAX, press 1.
- Four transmittal options will be offered. Select the first, which is to send the FAX immediately. Press 1.
- The destination FAX number or list number will be requested. Enter the list number followed by the star key. Enter 1* for Millstone EPZ towns or Enter 2* for Connecticut Yankee EPZ towns.
- To transmit to both lists, enter 1*2*.
- Press the pound (#) key on the telephone to end list number entry.
- At the tone, press the FAX machine start button, then hang up the telephone.

6.1.11 Provide emergency dosimetry services.

Obtain or assist the Station Manager of Radiological Consequence Assessment in obtaining additional dosimetry or monitoring instrumentation as necessary.

- NUSCO TLD Lab
- The alternate nuclear site

Other nuclear facilities in the area. Phone numbers are given in CONI 4.10.

6.1.12 Maintain a log of data/information on all key events brought to your attention and communications made.

6.2 Primary Functions of the RWCC

The RWCC's primary functions and some general guidelines on how to accomplish them are as follows:

6.2.1 Ensure effective communications among the radiological staff. For example, ensure plant status information obtained from the main EOC is communicated to the Work center staff, ensure key calculation results or field team measurements are communicated to the CMRCA. Implement the radiological assessment strategy established by the CMRCA.

6.2.2 Provide guidance and technical oversight to the RAEs and FTDCs. Discuss strategy with these individuals and ensure actions are effective. Summarize data and provide results for the CMRCAs (e.g., location and extent of the plume footprint, correlation of calculated and measured dose rates, key data thresholds per 6.1.4).

6.2.3 Review the radiological, meteorological, and environmental data provided to the CMRCA and the State.

6.2.4 Communicate information to the State DEP and station personnel as requested by the CMRCA.

6.2.5 Initiate and maintain the Work Center Log and Checklist. Perform other duties as assigned by the CMRCA.

6.3 Primary Functions of the RAE

The following lists the primary functions of the Radiological Assessment Engineer (RAE) and some general guidelines on how to carry out these responsibilities.

6.3.1 Provide Technical Support to the CMRCA

Upon receiving guidance from the CMRCA or RWCC on the prioritization of work requests, the RAE will be responsible for performing technical assessments and calculations, including calculation of release rates and resultant offsite doses and correlation of calculated and measured doses. In addition, the RAE may be assigned to perform other tasks such as core damage estimates, shielding calculations, etc. Use Attachment 8.E to identify the assumptions for parametric calculations.

6.3.2 Make Frequent Reports to the RWCC and FTDC

The RAE should provide updates of dose calculations to the RWCC and obtain approval to use this information prior to issuing it to other station or corporate staff. Notify the CMRCA if predictions on calculated dose rates will exceed the values in 6.1.4.

6.3.3 Document Calculations

The RAE should document all calculations and important communications and insure that date and time are noted.

6.4 Primary Functions of the FTDC

The Field Team Data Coordinators' primary functions and some guidelines on how to accomplish them are as follows:

6.4.1 Be the Source of Technical and Logistic Control for Off-Site Field Teams

The FTDC will assume control of field team deployment as soon as possible, and preferably when the team is ready to leave the site EOF. The FTDC will operate under the direction of the RWCC and will furnish instructions to the offsite Field Teams. The FTDC will interact with the RWCC and RAE in order to determine proper deployment so as to locate and track the radioactive plume in an expeditious manner.

6.4.2 Document the Radiological Monitoring Reports of Field Teams

The FTDC will keep reports on the radio transmissions of the Field Teams in accordance with CONI 4.05.

6.4.3 Track Radiological Doses of Field Teams in Liaison with the Station

The FTDC will track and log exposures of the field teams and will track allowable exposures with the assistance of the Station MRDA.

6.4.4 Inform the RWCC or the CMRCA when measured dose rates exceed the levels in 6.1.4.

6.5 Execution of Duties

It is the responsibility of the CMRCA in conjunction with the CERO Director to determine the needs and priorities of all radiological tasks to be performed. The CMRCA should perform and/or direct the radiological assessment staff to perform jobs as appropriate. Attachments 8.A and 8.B provide checklists of some tasks and responsibilities of the on-call CMRCA. These checklists are a guide for the CMRCA and should be reviewed periodically during an incident.

7.0 FIGURES

None

8.0 ATTACHMENTS

Attachment No.	Attachment Title
8.A	CMRCA Task Checklist
8.B	Work Center Checklist
8.C	Dose Assessment Guidelines
8.D	Call-out Expanded Organization Guidelines
8.E	Dose Calculations - Input Information
8.F	Connecticut Yankee Plant
8.G	Millstone Unit 1
8.H	Millstone Unit 2
8.I	Millstone Unit 3
8.J	Imminent Core Damage - Whole Body Dose Estimate
8.K	Plume Profile Off Centerline - Elevated Release
8.L	Plume Profile Off Centerline - Ground Release
8.M	Weather (Meteorological) Status

ATTACHMENT 8.A

CMRCA TASK CHECKLIST

I Initial Set-Up

	Time Completed	Notes
A. Staffing		
1. Confirm that all On-Call Staff have reported.	_____	_____
2. Contact additional Call-Out personnel for support as necessary. Establish expanded organization per Attachment 8.D.	_____	_____
3. Consider the possibility of staffing for extended time periods.	_____	_____
4. Consider staffing CT or RI State EOCs.	_____	_____
B. Hardware - EOC		
1. Initiate log of activities in the EOC.	_____	_____
2. Ensure Information Resources Group (IRG) representative prioritizes IBM Mainframe. If **not**, call IRG,Wethersfield (8-702-4051) for prioritization of computer resources:		
a. For an emergency, indicate Affected Site and "Code 1 Nuclear Emergency."		
b. For an exercise, indicate Affected Site and "Code 2 Nuclear Exercise."		
c. For a drill, indicate Affected Site and "Code 3 Nuclear Drill."	_____	_____
3. Hot line to station RCA Manager.	_____	_____
4. Hot line to station RDA Manager/Work Center.	_____	_____
5. Internal Ext. 3805 with Work Center Ext. 5199 or 5298.	_____	_____
6. Outside line 666-3397.	_____	_____
7. Meteorological Team Ext. 5294.	_____	_____

	Time Completed	Notes
B. Hardware - EOC		
8. Hot line to State DEP in State EOC (or alternate phone).	_____	_____
9. Access the Offsite Facilities Information System (OFIS). (See CONI 1.07 for instructions.) Log on using BE091AZ.	_____	_____
10. Have Work Center complete their checklist.	_____	_____
C. Inform CERO Director when Staffing and Equipment are Operational.	_____	_____

II. On-Going Major Tasks

This list should be reviewed periodically for applicability. The items here are to done in accordance with the priorities set by the CMRCA. **Ensure that these tasks are documented in the logbook.**

A. Key Tasks

1. Assist the CERO Director in incident classification recommendations to the SERO Director.

2. Identify to the RWCC, the calculations to be done by the RAE. Identify or predict the release pathway through the plant systems. Use Attachment 8.E to specify inputs for dose calculations.

3. Initiate as soon as possible the PAR development using CONI Procedure 4.12. Commence filling out the appropriate data on the forms in anticipation of approaching **GENERAL EMERGENCY**. Use, as appropriate, the quick method of whole body dose calculation Attachment 8.J and the Plume Profile data in Attachments 8.K and 8.L.

4. Keep DCERO informed - plant status, in-plant operations - to mitigate radiation releases or core uncovery and field team data.

5. Determine the needs of the Station Managers of RCA and RDA. Also, keep them informed on dose and core damage assessment results, field team data, and meteorological information.

6. Keep State DEP informed on meteorology, effluent parameters, dose assessments, and field team data. Also, discuss protective action strategies and formulate recommendations.

ATTACHMENT 8.A

CMRCA TASK CHECKLIST

B. Calculations and Recommendations

1. Have source terms calculated. Some methods are grab samples (CONI 4.03), radiation monitor readings (CONI 4.03, EPIPs - Ctmt High Range Monitors), process system inventories (EMIT Manual), piping source terms, PASS systems. Take note of sampling time and location. Is this a representative sample?

2. Have release rates calculated. Methods include CONI 4.02 Attachments 8.E and 8.J, CONI 4.03, and station EPIPs.

3. Have off-site doses (actual and projected) calculated. Methods include station EPIPs, CONI 4.02 Attachment 8.J, and CONI 4.08 (ADAM). From a radiological standpoint, verify classification as soon as possible.

4. Have data correlated. Compare calculated dose rate data with actual data collected from the Field Teams. When appropriate, adjust calculations. See CONI 4.05.

5. Based on the results of calculations, verify proper classification and ensure that station and State DEP are updated with the latest information.

6. Provide technical resource support. The station or Corporate EOC may require technical resource support in a variety of areas (e.g., shielding calculations, on-site dose rate estimate, etc.).

7. Provide emergency dosimetry services to station. Services can be obtained from NUSCO TLD lab, alternate nuclear site, or other nuclear facilities in the area. List appears in CONI 4.10.

8. Provide additional health physics personnel. Work with Manager of Resources. Personnel may be available from the lists in CONI 4.10 or CONI 1.05.

9. Provide guidance on potassium iodide tablets to NU offices and power plants. (For locations, see CONI Procedure 3.01.)

10. Direct the collection of TLDs and environmental samples. Method given in CONI 4.06.

11. Direct the analysis of environmental samples. Method given in CONI 4.06.

12. Calculate the Ingestion Pathway doses per CONI 4.07, if appropriate.

13. Perform core damage assessment.

C. Information Flow

1. Obtain on-site Field Team data from site Manager RCA.

2. Keep Work Center informed of current conditions.

3. Review all essential Work Center calculations. Sign off data leaving the Work Center (e.g., that is going to site managers RCA or RDA, State EOC, or other Managers in Corporate EOC).

4. Distribute met data (forecast about once/hour and actual about every 15 minutes) from on-call Meteorologist to Work Center, Site EOF, Manager Radiological Dose Assessment, and State DEP.

5. Distribute Field Team Data and Dose Calculation Results to site EOF, Manager Radiological Dose Assessment, and State DEP.

6. Provide State DEP with assumptions on plant parameters for an off-site dose calculation. Initialize models and assumption as soon as possible. Then periodically update data. Send copy to Site EOF Manager Radiological Dose Assessment.

7. Verify that FTDC is providing guidance to Field Teams on sampling locations and plant status.

8. Discuss plant status with Manager of Technical Support, especially core uncovery and radioactivity mitigating systems. Follow OFIS data to maintain awareness of plant radiological conditions.

9. Brief site MRDA on off-site Field Team data, results of calculations, weather forecasts, etc.

10. Keep NRC representative in EOC informed as necessary.

11. Ensure status boards are updated with correct radiological information.

12. Keep POSL informed of plant conditions and meteorology.

13. Interface with State DEP, OEM, local communities, and Federal Agencies as necessary.

ATTACHMENT 8.B

WORK CENTER CHECKLIST

The RWCC or an assigned staff member should accomplish this checklist.

		Time Completed	Notes/Name
1.	Initiate log of work center activities.	_____	_____
2.	Check Hot line to POSL.	_____	_____
3.	Check outside phones.	_____	_____
4.	Radio connection with Site EOC and Field Team.	_____	_____
5.	Check NU Berlin computer for operability. Log on using BE091BZ, BE091CZ, or BEO91DZ.	_____	_____
6.	Check operability of portable computers.	_____	_____
7.	Obtain meteorological data from time of notification to present.	_____	_____

ATTACHMENT 8.C

DOSE ASSESSMENT GUIDELINES

This document provides a general discussion of dose assessment strategy for the Corporate Manager of Radiological Consequence Assessment (CMRCA); Radiological Work Center Coordinator (RWCC); Radiological Assessment Engineers (RAE); and the Field Team Data Coordinators (FTDC) as guidance on the proper utilization of various resources available at the Corporate EOC. It is understood that every situation is different and that what follows might not always apply. In all cases, the CMRCA will make the final determination of actions and priorities.

Purpose of Dose Assessment

The results of a dose (or dose rate) assessment will be used for the following purposes (in order of priority):

- Give important information for the proper determination of event classification.
- As a basis for periodic reports to the DCERO to be used in the development of recommendations for public protective actions to the State.
- Validate the CMRCA's grasp of the situation. By comparing what is understood to be happening to measurements of what is actually happening, the CMRCA can estimate the validity of his understanding of the events.

Requirements of Dose Assessment

The best assessment of dose requires that the CMRCA and staff:

- Be familiar with the available release rate and dose rate calculation models, including their limitations and manpwer requirements.
- Understand the physical situation (e. g., release point).
- Know what the dose assessment will be used for, particularly if it is used for off-site protective actions.

Comparing Dose Assessment Model To Field Team Data

- Validate and compare dose model results with those results obtained from field team data.
- ADAM may be used to back calculate release rates based upon monitoring team location. Care should be used because this method is not exact.
- ADAM is useful for integrating doses at certain locations. Comparing ADAM results to field team data validates estimates.

Reporting of Dose Assessments to CMRCA and DCERO

Give highest field team and calculated data on hourly basis for site boundary, 2, 5, and 10 miles. The Radiological Work Center staff should immediately notify CMRCA as soon as calculated or measured site boundary, 2-mile, 5-mile, and 10-mile dose rates exceed 5 mR/hr, 1,000 mR/hr, or 5,000 mR/hr for the whole-body and/or thyroid dose rates exceed 25 mrem/hr, 250 mrem/hr, 5,000 mrem/hr, or 25,000 mrem/hr.

ATTACHMENT 8.D

CALL-OUT EXPANDED ORGANIZATION GUIDELINES

Guidelines are provided as to the optimum organization for the expanded on-shift Radiological Consequence Assessment Team. The initial on-call group of one each CMRCA, FTDC, RAE, RWCC, and Meteorologist should be expanded through call-out by each of the on-call persons to up to two more CMRCA trained, one more RWCC trained, two more RAE trained, two more FTDC trained, one more meteorologist trained individuals, and one secretary. This would enable a two shift (12 hours each) approach to dealing with the emergency.

The expanded organization would function as follows:

A. **Main EOC Desk**

The on-call or the Designated CMRCA and one other CMRCA trained person and, as necessary, one RWCC trained person will occupy the desk in the main EOC. They will be the front line interface with the rest of the Corporate EOC, the site EOF, the State DEP, and NRC, answering all phones, etc.

B. **Annex Room**

The Annex Room staff should consist of up to two RWCCs, three FTDCs, two RAEs, two meteorologists, and one secretary.

The three FTDCs should develop the strategy and conduct the logistics for Field Team deployment. They should periodically report results to the lead CMRCA through the RWCC. The two RAEs should do the dose calculation and other assignments as called for by the CMRCA and/or identified in procedures. Results will be reported to the lead CMRCA through the RWCC. The two Meteorologists will follow their procedures and also assist the RWCC and FTDCs in providing advance meteorological information to develop field team strategy. The Secretary will operate the telecopier machines to transmit and receive all radiological, meteorological and other data as directed by the CMRCA.

ATTACHMENT 8.E

DOSE CALCULATIONS - INPUT INFORMATION

Name: _____ Date/Time: _____

Calculation Type: What If/Actual (Circle One)

Unit/Release Point: _____ Met. Data Elevation: _____

Rx Shutdown Time: _____ Release From: _____ (Hr/Min) to _____ (Hr/Min)

Noble Gas Release Rate (Check One)

_____ 1 Ci/sec

_____ Gap (3% Core Inventory)/1 hour

_____ Melt (100% Core Inventory)/1 hour

_____ Calculation Based On Current Radiation Readings

_____ Other:

Iodine Release Rate

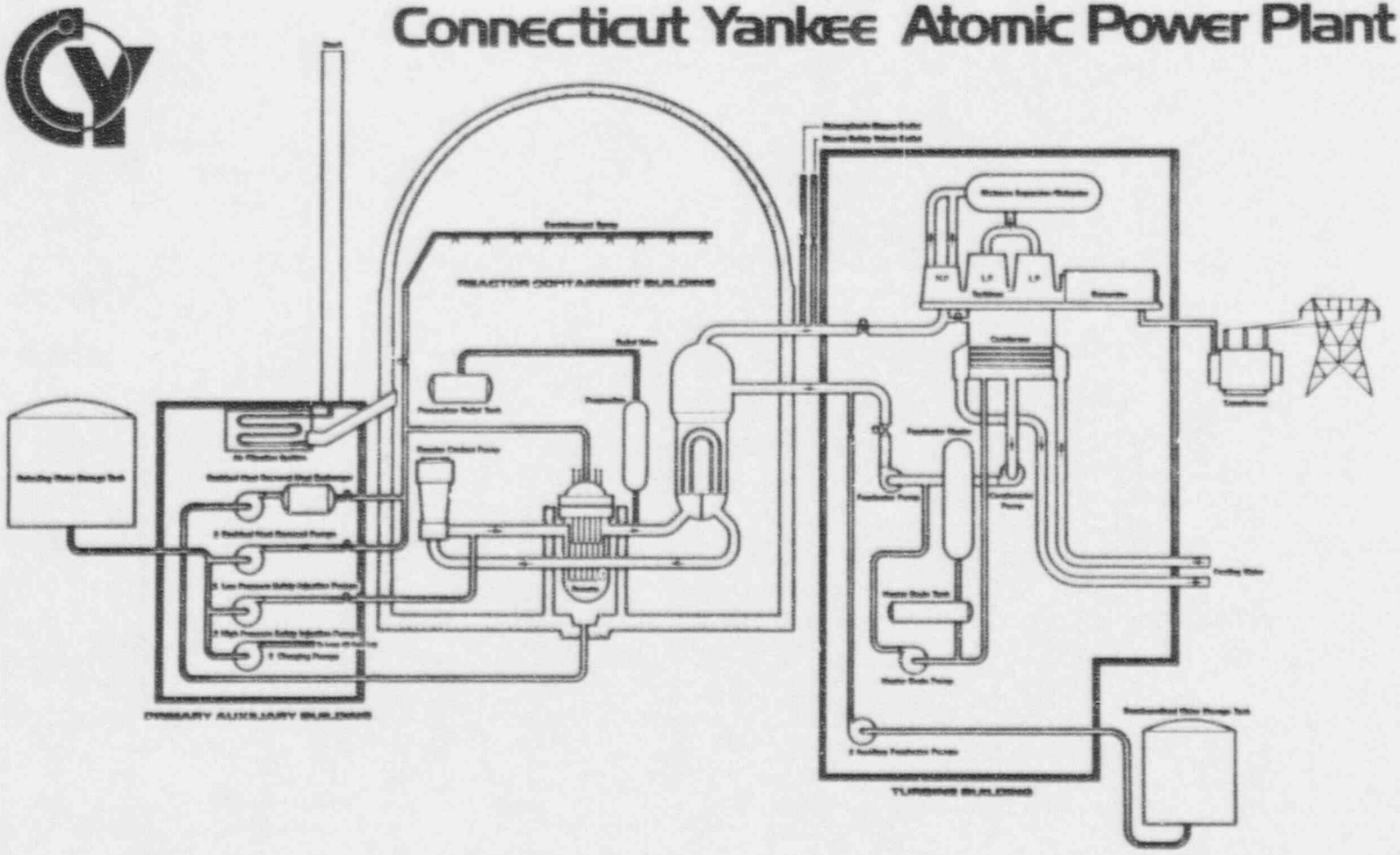
_____ Not Controlling - Assume 10^{-6} times NG release rate

_____ Calculation Based on CONI Procedure 4.03

Mitigating Systems To Consider For Iodine Releases	Applicability (Circle)			
	MP1	MP2	MP3	CY
Containment Air Recirc				X
Reactor Containment/Drywell Sprays	X	X	X	X
PAB/Aux Building Filtration System		X	X	X
Enclosure Building Filtration		X		
Rx Building Standby Gas Treatment System	X			
Supplemental Leak Collection System (SLRCS)			X	
Torus Scrubbing	X			
Main Condenser		X	X	X
SGTR - Normal Partitioning		X	X	X
SGTR - Solid Secondary Side		X	X	X
Containment/Drywell Hold Up	X	X	X	X
Rx Building Hold Up	X			
PAB/Aux Building Hold Up and Plate Out		X	X	X
ESF Building Hold Up and Plate Out			X	
Other (Specify)	X	X	X	X

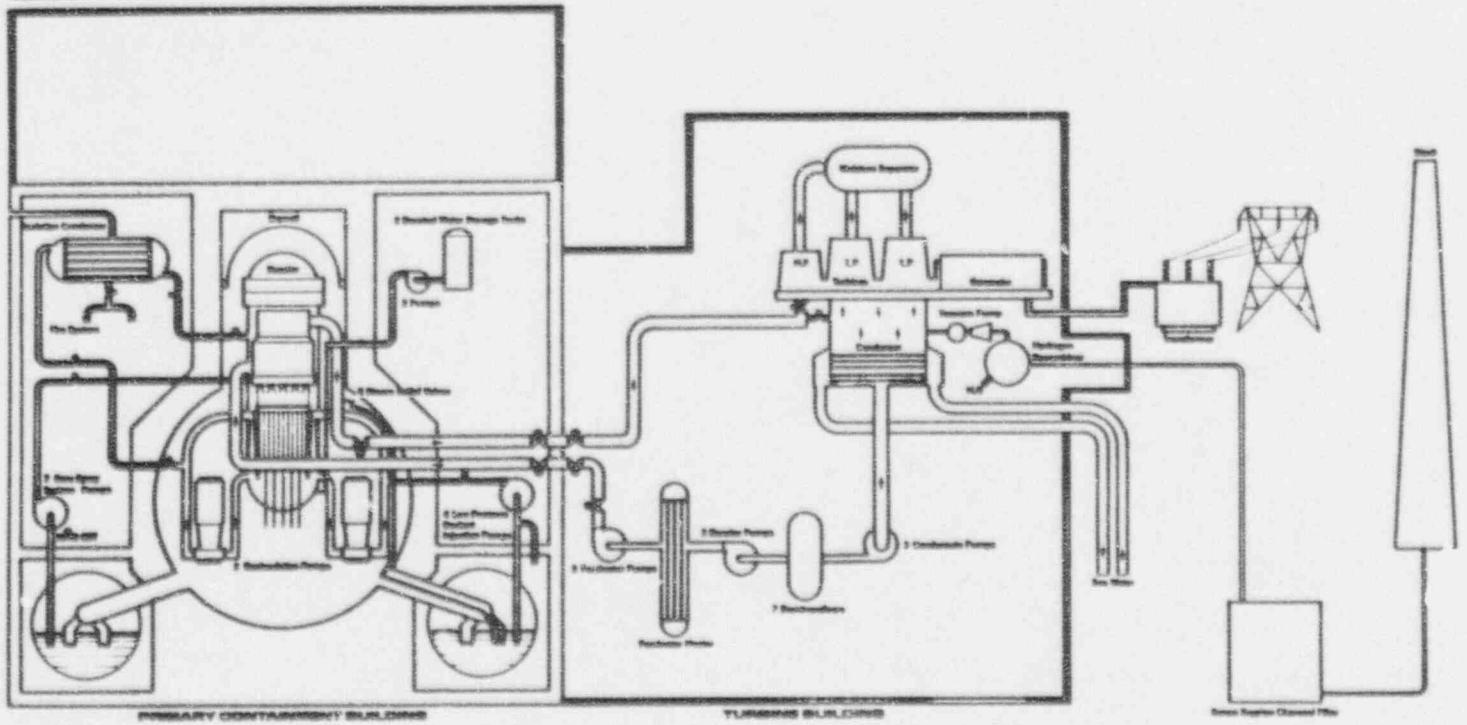
ATTACHMENT 8.F

CY PLANT



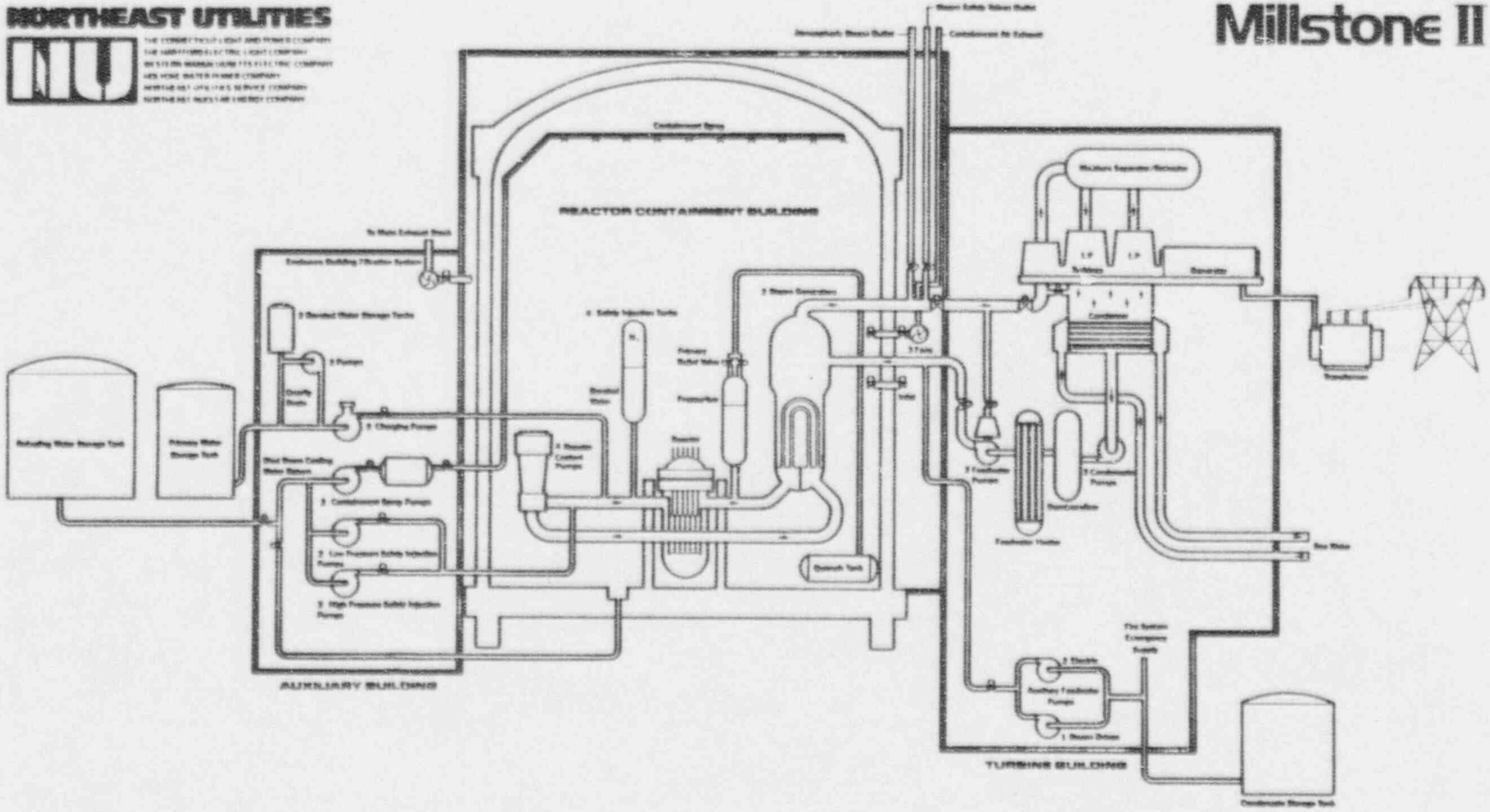
NORTHEAST UTILITIES

Millstone I



ATTACHMENT 8.H

MILLSTONE UNIT 2



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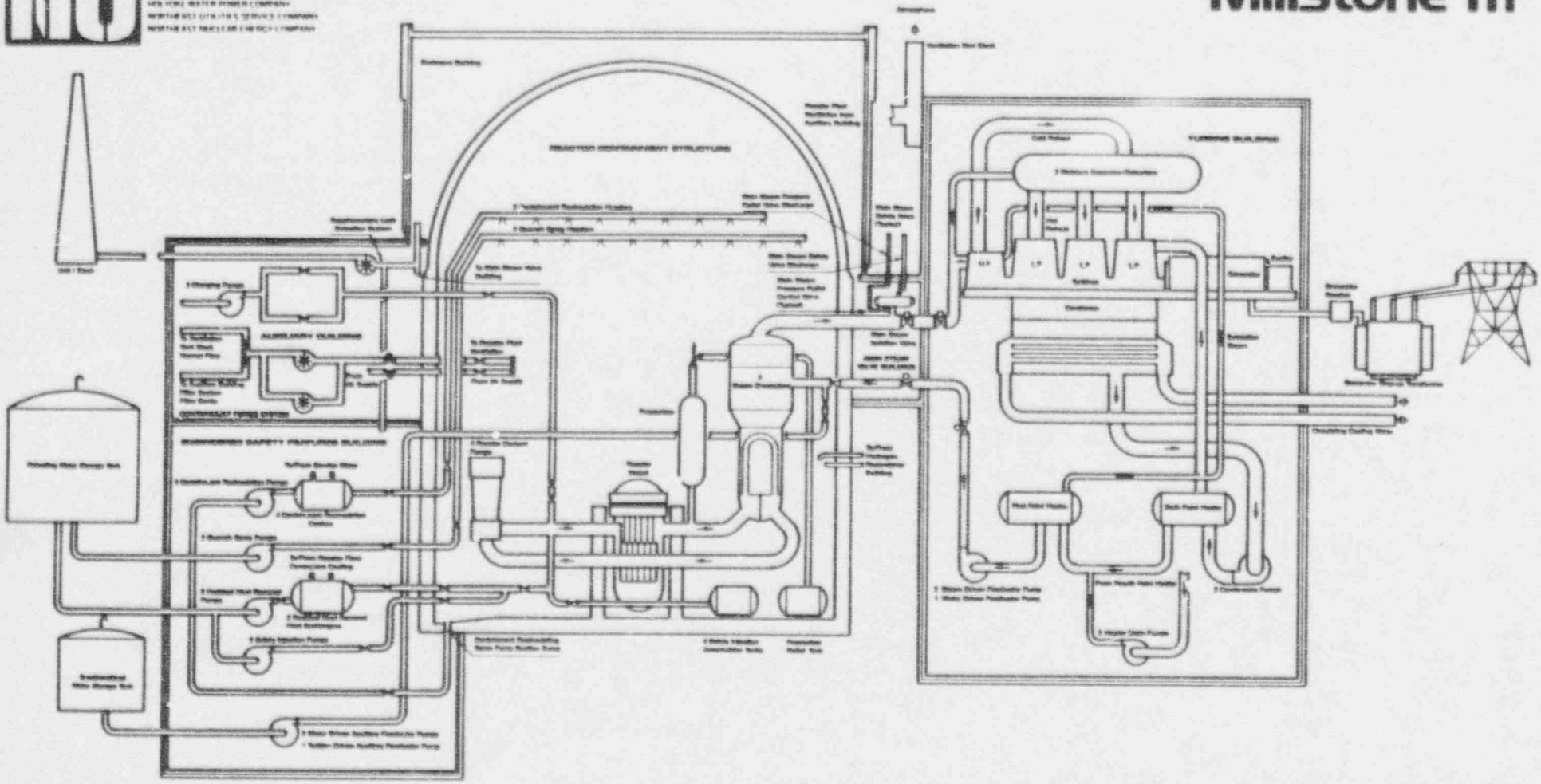
ATTACHMENT 8.I

MILLSTONE UNIT 3

NORTHEAST UTILITIES

NU

Millstone III



ATTACHMENT 8.J
IMMINENT CORE DAMAGE - WHOLE BODY DOSE ASSESSMENT

1. Noble Gas Source Term

	X	CY 6.2 E8 Ci MP1 6.8 E8 Ci MP2 9.1 E8 Ci MP3 1.2 E9 Ci	X		=	
Fraction of Core Inventory Projected To Be Released to Environment				Decay Reduction Factor		Ci(2)

Assumptions for Release From Core

100%	CLAD	=	.03
100%	OVERHEAT	=	.50
100%	MELT	=	1.0

Post Shutdown (hrs.)	Reduction Factor
0	1.0
.5	.6
2	.5
4	.4
12	.3
48	.2
72	.1

2. Projected Centerline Dose

Ground Level WB Dose Factors rem · u /Ci

Distance	A	B	C	D	E	F
S/B (500m)	4.4 E-6	4.7 E-6	1.0 E-5	2.6 E-5	3.9 E-5	7.8 E-5
2 mi	1.5 E-7	4.2 E-7	1.1 E-6	3.1 E-6	5.6 E-6	1.2 E-5
5 mi	5.8 E-8	6.1 E-8	1.7 E-7	8.1 E-7	1.6 E-6	3.3 E-6
10 mi	2.3 E-8	3.6 E-8	5.6 E-8	2.7 E-7	6.4 E-7	1.7 E-6

Distance	Source Term Ci		rem · u /Ci		u = WS033 m / sec		NG Mix Dose Equivalent DCF Correction		Dose rem
S/B (500m)		X		÷		X		=	
2 mi		X		÷		X		=	
5 mi		X		÷		X		=	
10 mi		X		÷		X		=	

(1) Projections are made for ground level releases

(2) Release rate calculation for State of Connecticut

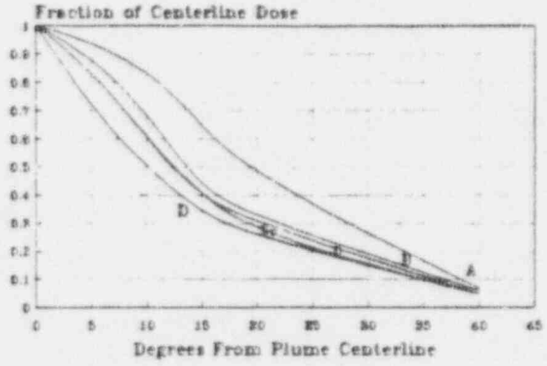
	÷		=	
Noble Gas Ci		Release Period Seconds		NG Ci/sec

Post Shutdown (hrs.)	DCF Correction
0	1.0
.5	.88
1	.79
2	.70
4	.53
12	.20
24	.10
48	.06
72	.05

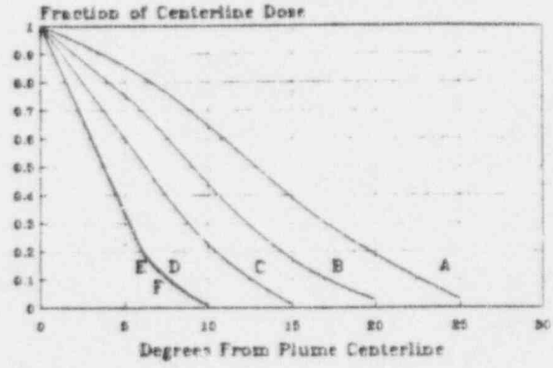
ATTACHMENT 8.K

PLUME PROFILE OFF CENTERLINE - ELEVATED RELEASE

SITE BOUNDARY PLUME PROFILE
Elevated Release

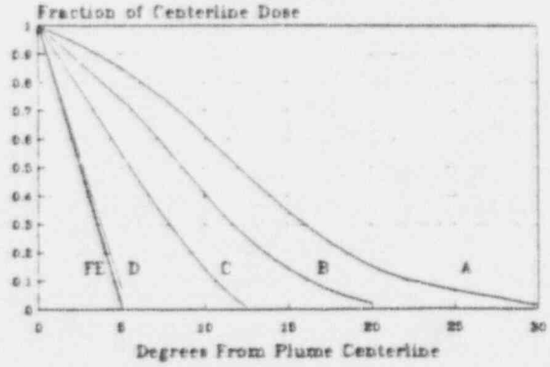


2 MILE PLUME PROFILE
Elevated Release

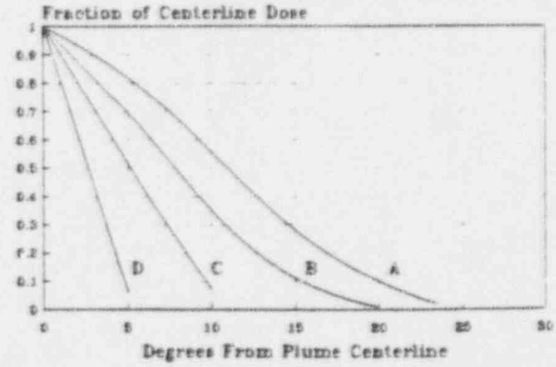


Location	DR centerline	° Off Centerline	Fraction of DR centerline	DR off centerline
SB (500m)				
2 miles				
5 miles				
10 miles				

5 MILE PLUME PROFILE
Elevated Release



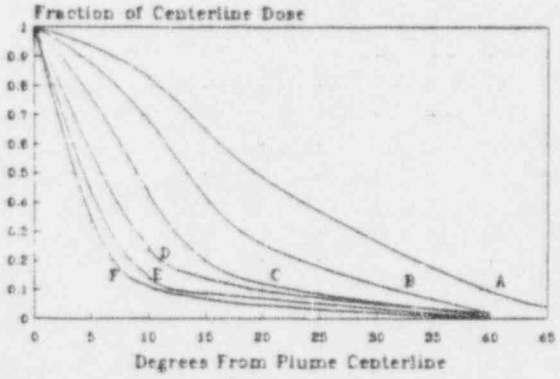
10 MILE PLUME PROFILE
Elevated Release



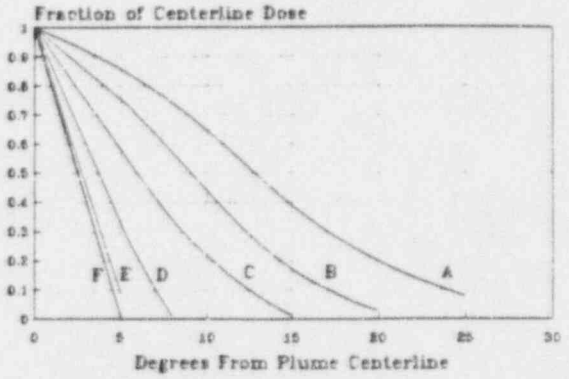
ATTACHMENT 8.L

PLUME PROFILE OFF CENTERLINE - GROUND RELEASE

SITE BOUNDARY PLUME PROFILE
Ground Release

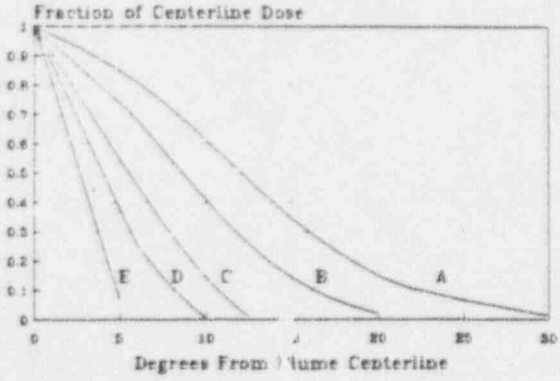


2 MILE PLUME PROFILE
Ground Release

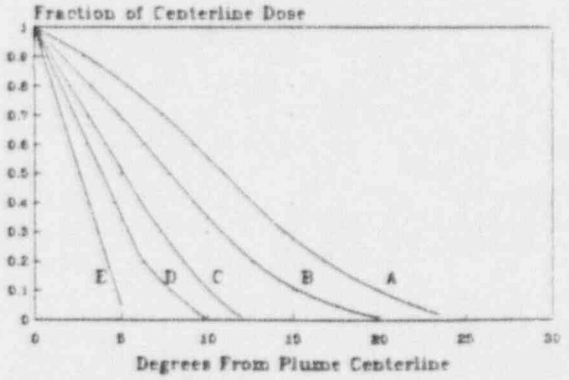


Location	DR centerline	^{0} Off Centerline	Fraction of DR centerline	DR off centerline
SB (500m)				
2 miles				
5 miles				
10 miles				

5 MILE PLUME PROFILE
Ground Release



10 MILE PLUME PROFILE
Ground Release



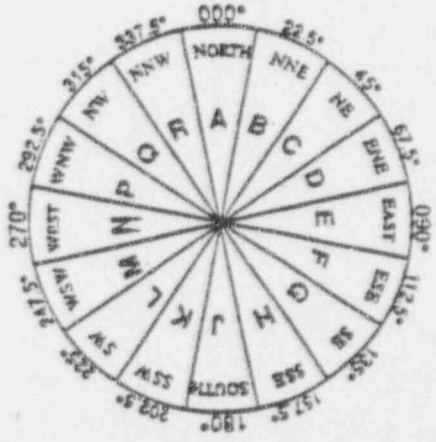
ATTACHMENT 8.M

WEATHER (METEOROLOGICAL) STATUS

___ Connecticut Yankee
___ Millstone Station

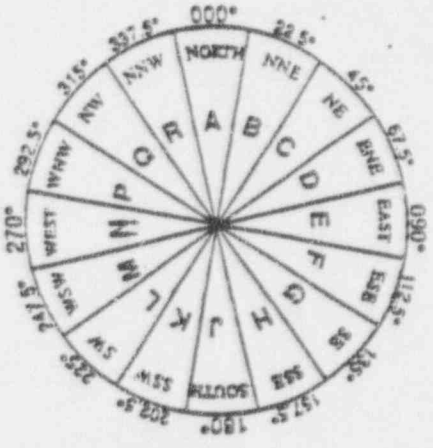
Current Date: _____
Current Time: _____

Current site wind - wind speed ___ mph: Data from _____ foot level.



Forecast site wind - wind speed ___ mph: Data from _____ foot level.

The wind is expected to shift at: _____ hours.



INSTRUCTIONS:

1. Draw a bold arrow completely through the **CURRENT SITE WIND** Compass Rose in the down wind direction.

2. Draw a bold arrow completely through the **FORECAST SITE WIND** Compass Rose in the forecasted down wind direction.

CORPORATE ORGANIZATION FOR NUCLEAR INCIDENTS (CONI) PROCEDURE

CONI 4.08

ACCIDENT DOSE ASSESSMENT MODEL

THIS PROCEDURE CHANGE IS APPROVED, AND APPROPRIATE 10CFR50.54(q) ACTIONS HAVE BEEN TAKEN.

R L Rodgers

Lead Manager, Radiological Consequence Assessment

REVISION 10

EFFECTIVE DATE March 15, 1993

CONCURRENCE R L Rodgers

Corporate Nuclear Emergency Plan Coordinator

CORPORATE ORGANIZATION FOR NUCLEAR INCIDENTS (CONI) PROCEDURE

CONI 4.08

ACCIDENT DOSE ASSESSMENT MODEL

1.0 PURPOSE

To estimate iodine concentrations and whole-body and thyroid doses in a ten mile radius around the Millstone and Haddam Neck Nuclear Power Stations for unplanned airborne releases. This procedure provides an acceptable method to calculate doses under emergency conditions. Since all possible emergency conditions cannot be anticipated by procedure, deviations from this procedure are allowed.

2.0 APPLICABILITY

This procedure applies to airborne releases of radionuclides from Millstone Nuclear Power Station or Haddam Neck Plant.

3.0 REFERENCES

3.1 CONI Procedure 4.03, "Estimating Post Accident Release Rates."

3.2 ADAM Model Documentation Package (Corporate EOC, Rad Consequence Work Center).

3.3 ADAM Program Operator Manual (Corporate EOC, Rad Consequence Work Center).

3.4 MPDOSE User's Manual (Corporate EOC, Rad Consequence Work Center)

3.5 CYDOSE User's Manual (Corporate EOC, Rad Consequence Work Center)

3.6 Reference Binder with Copies of EPIP 1.5-7 and EPIP 4201 (Corporate EOC, Rad Consequence Work Center)

4.0 DEFINITIONS

4.1 **PC** - Personal Computer.

4.2 **ADAM** - Accident Dose Assessment Model. The ADAM program is a gaussian puff model that simulates the atmospheric transport and dispersion of plumes from multiple release points. Plumes are approximated by a series of discrete overlapping "puffs" that are transported according to the prevailing wind speed, direction, and atmospheric stability. Concentration or dose at a point depends on the number of puffs near that point and the total amount and distribution of radioactive material in each puff.

Each release is governed by site and release specific parameters such as release height, exit velocity, etc. Plume rise and terrain effects are taken into account. The source term can be either a specified mix of noble gases and iodines or a calculated mix based upon time since reactor shutdown. Effects from noble gas daughters, are included and decay in plume transit is considered.

4.3 **RMP** - Radiation Monitoring Points. These are a set of predefined, site-specific monitoring locations. See Reference 3.2.

4.4 **Definition of ADAM Polar Grid Points**

Figure 7.1 depicts the grid used by ADAM. The gridwork is set up as follows:

4.4.1 **0 to 1 Mile Radius** - the sectors are divided in half with one point at the midpoint at .5 and 1.0 mile radial distances. These points are 22.5° apart.

4.4.2 **1 to 2.5 Mile Radius** - the sectors are divided into three parts with points located 11.25° apart at 1.5, 2.0, and 2.5 mile radial distances. The points on the output are listed counterclockwise. On ADAM output, looking out from the center of the grid, the rightmost point is listed first.

4.4.3 **2.5 to 10.0 Mile Radius** - the sectors are divided into four parts using three points located 7.5° apart in one-half mile radial increments out to 10 miles. These points are also output counterclockwise - with the rightmost point in the sector listed first, with the midpoint second, and the leftmost point last.

5.0 RESPONSIBILITIES

5.1 The Corporate Manager of Radiological Consequences Assessment (CMRCA) maintains training in this procedure.

5.2 The Radiological Assessment Engineer (RAE) and Radiological Work Center Coordinator (RWCC) maintains training in this procedure.

5.3 The CMRCA directs the completion of this procedure. The RAE (or another trained, qualified designee of the CMRCA) completes this procedure after initiation by the CMRCA. Both the CMRCA, RWCC, and the RAE are responsible for interpreting the results of this procedure.

5.4 The RAE collects the following information required to operate the ADAM model:

5.4.1 Time of reactor shutdown

5.4.2 Release point(s)

5.4.3 Release rate of noble gases and iodine

5.4.4 Individual radioisotopic percentages, when available

5.4.5 Meteorological conditions for the release period

NOTE: Attachment 8.E is provided as a reference to determine atmospheric stability class from a Differential Temperature (DT) measurement from the 196' level on the Connecticut Yankee tower and 142' and 374' level on the Millstone tower.

6.0 INSTRUCTIONS

6.1 Attachment 8.A - 8.D (ADAM site-specific data sheet), should be completed by the CMRCA or his designee from information available from the plant and other involved groups. Special care should be taken to ensure that the units of the information requested are as indicated on these attachments. This information must be available to the staff member running the ADAM model.

6.2 Use Reference 3.3 to call up the program and execute the ADAM program in WINDOWS on a PC.

6.3 Care must be taken when entering in release rate data.

6.3.1 ADAM does not calculate an iodine release rate based on an input noble gas release rate. A method like the one in Reference 3.1 should be used to estimate the iodine release rate, if not specifically known.

6.3.2 Ensure corresponding release information is placed in correct release categories (e.g., noble gas and iodine release rates for the main stack are entered in the main stack position on the screen as denoted).

6.5 Output Options

At the end of each time step, a number of options are available to view or print program output. ADAM stores all present and past output data. Each step is sequentially numbered. For hardcopy output, select the print option from the Results Viewer Window under "File."

6.5.1 RMP File

Selecting this option will let the user view the whole-body dose rate, integrated whole-body dose, I-131 DEQ concentration and thyroid dose at all Radiation Monitoring Points (RMP) and plume centerline points.

6.5.2 Grid File

Selecting this option will let the user view the whole-body dose rate, integrated whole-body dose, I-131 DEQ concentration and thyroid dose at the polar grid receptor locations.

6.5.3 Graph File.

The high resolution color graphics include a complex geopolitical map showing town boundaries, rivers, lakes, and roads out to 10 miles overlaid with a detailed dose profile mosaic depicting dose ranges. The graphic has zoom capability, special interest points like schools and hospitals, and the ability to obtain dose information anywhere within the 10-mile EPZ. Requesting a print will give you a hardcopy color output. However, be aware that the print option can take as much as 5 minutes to print.

6.6 Determine the maximum site boundary, 2-, 5-, and 10-mile distant whole body dose rates and iodine concentrations and report any findings to the RWCC and CMRCA. To determine the appropriate site boundary distances corresponding to each sector for each site, see Attachment 8.F.

6.7 As an alternative to ADAM, the following dose assessment methods may be used.

6.7.1 The MPDOSE or CYDOSE program may be run using the TRS-80 computer. Use Reference 3.4 or 3.5 as appropriate.

6.7.2 Reference 3.6 may be used to manually perform the calculations done by computer in paragraph 6.7.1.

7.0 FIGURES

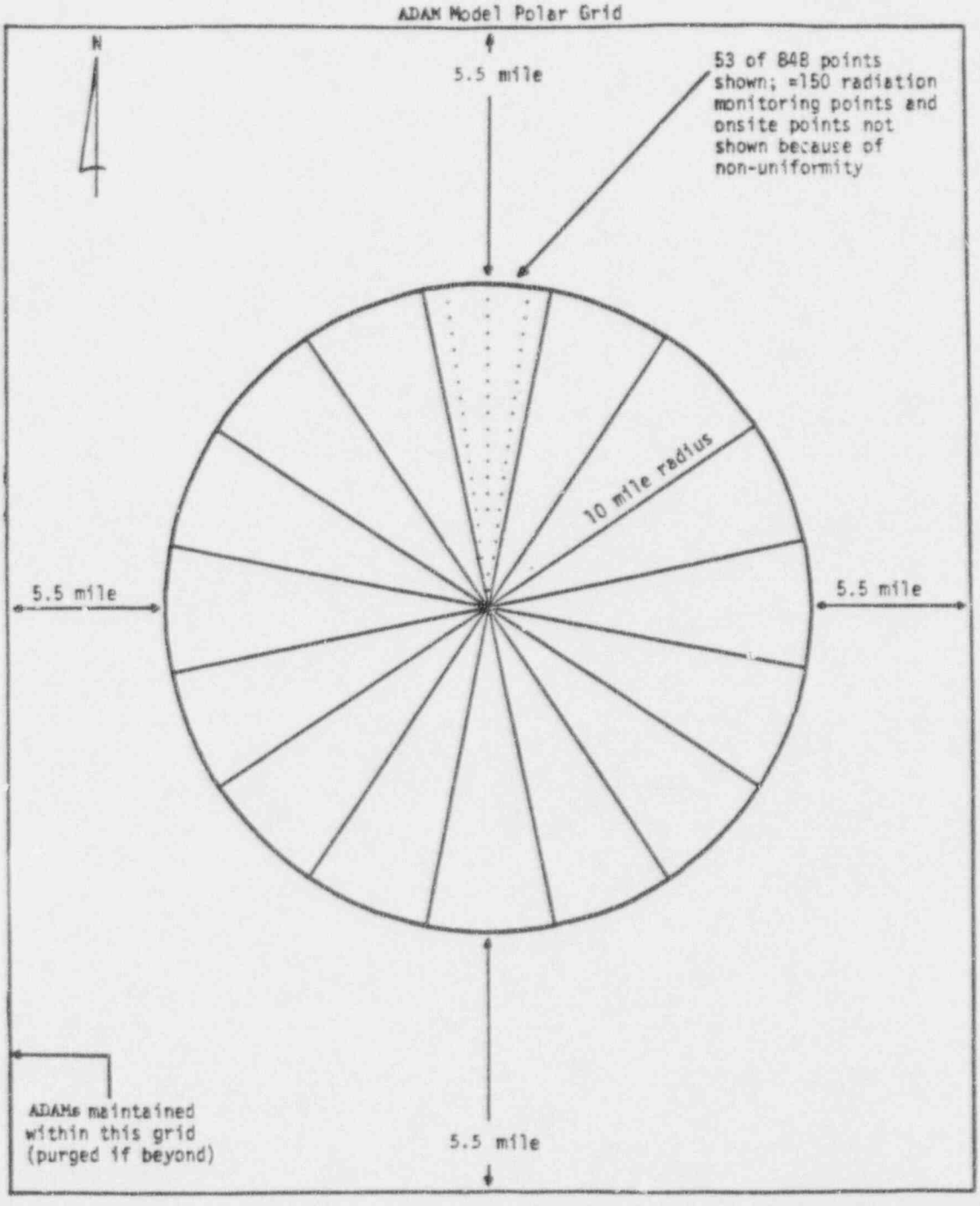
Figure No.	Figure Title
7.1	ADAM Model Polar Grid

8.0 ATTACHMENTS

Attachment No.	Attachment Title
8.A	Connecticut Yankee ADAM Data Sheet
8.B	Millstone Unit 1 ADAM Data Sheet
8.C	Millstone Unit 2 ADAM Data Sheet
8.D	Millstone Unit 3 ADAM Data Sheet
8.E	Stability Class Determination
8.F	Wind Directions and Distances To Nearest Land and Site Boundary

FIGURE 7.1

ADAM MODEL POLAR GRID



ATTACHMENT 8.A
CONNECTICUT YANKEE ADAM DATA SHEET

TIME STEP

1st Step ONLY

Start: _____ (mm/dd) _____ (hh mm)

Reactor Shutdown: _____ (mm/dd) _____ (hh mm)

End: _____ (hh mm)

Release Point(s) / Rate (s)		(Ci/sec)	Isotopic (Y/N)	Isotopic %
1. Stack	NG			
	I			
2. S. G. Safeties	NG			
	I			
3. Steam Dump	NG			
	I			
4. Terry Turbine	NG			
	I			
5. Containment/ Ground	NG			
	I			

MET DATA

Ground			Rooftop/Elevated		
AT033 (°C)	WD033 (From)	WS033 (m/sec)	DT196 (°C)	WD196 (From)	WS196 (m/sec)

Conversion Formulae: Mph = M/sec x 2.24
DT(°F) = DT(°C) x 1.8

CONI 4.08

Completed by: _____

Date: _____ Time: _____

Rev. 10
Date: March 15, 1993

ATTACHMENT 8.B
MILLSTONE UNIT 1 ADAM DATA SHEET

TIME STEP

1st Step ONLY

Start: _____ (mm/dd) _____ (hh mm)

Reactor Shutdown: _____ (mm/dd) _____ (hh mm)

End: _____ (hh mm)

Release Point(s) / Rate (s)			(Ci/sec)	Isotopic (Y/N)	Isotopic %
1	Stack	NG			
		I			
2.	Reactor Bldg/	NG			
	Ground	I			

MET DATA

Ground			Rooftop			Elevated		
AT033 (°C)	WD033 (From)	WS033 (m/sec)	DT142 (°C)	WD142 (From)	WS142 (m/sec)	DT374 (°C)	WD374 (From)	WS374 (m/sec)

Conversion Formulae: Mph = M/sec x 2.24
DT(°F) = DT(°C) x 1.8

CONI 4.08

Completed by: _____

Date: _____ Time: _____

Rev. 10
Date: March 15, 1993

ATTACHMENT 8.C
MILLSTONE UNIT 2 ADAM DATA SHEET

TIME STEP

1st Step ONLY

Start: _____ (mm/dd) _____ (hh mm)

Reactor Shutdown: _____ (mm/dd) _____ (hh mm)

End: _____ (hh mm)

Release Point(s) / Rate (s)		(Ci/sec)	Isotopic (Y/N)	Isotopic %
1. Stack	NG			
	I			
2. S. G. Safeties	NG			
	I			
3. Steam Dump	NG			
	I			
4. MP2 Vent	NG			
	I			
5. Reactor Bldg/ Ground	NG			
	I			

MET DATA

Ground			Rooftop			Elevated		
AT033 (°C)	WD033 (From)	WS033 (m/sec)	DT142 (°C)	WD142 (From)	WS142 (m/sec)	DT374 (°C)	WD374 (From)	WS374 (m/sec)

Conversion Formulae: Mph = M/sec x 2.24
DT(°F) = DT(°C) x 1.8

Completed by: _____

Date: _____ Time: _____

ATTACHMENT 8.D
MILLSTONE UNIT 3 ADAM DATA SHEET

TIME STEP

1st Step ONLY

Start: _____ (mm/dd) _____ (hh mm)

Reactor Shutdown: _____ (mm/dd) _____ (hh mm)

End: _____ (hh mm)

Release Point(s) / Rate (s)		(Ci/sec)	Isotopic (Y/N)	Isotopic %
1. Stack	NG			
	I			
2. S. G. Safeties	NG			
	I			
3. Steam Dump	NG			
	I			
4. MP3 Vent	NG			
	I			
5. Aux. Feed Pump	NG			
	I			
6. Reactor Bldg/ Ground	NG			
	I			

MET DATA

Ground			Rooftop			Elevated		
AT033 (°C)	WD033 (From)	WS033 (m/sec)	DT142 (°C)	WD142 (From)	WS142 (m/sec)	DT374 (°C)	WD374 (From)	WS374 (m/sec)

Conversion Formulae: Mph = M/sec x 2.24
DT(°F) = DT(°C) x 1.8

CONI 4.08

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Completed by: _____
Date: _____ Time: _____

ATTACHMENT 8.E

STABILITY CLASS DETERMINATION

Connecticut Yankee

DT 196

Measurement	Stability Class
DT ≦ -1.0	A
-1.0 < DT ≦ -0.9	B
-0.9 < DT ≦ -0.8	C
-0.8 < DT ≦ -0.3	D
-0.3 < DT ≦ 0.7	E
0.7 < DT	F

Millstone

DT 142

Measurement	Stability Class
DT ≦ -0.7	A
-0.7 < DT ≦ -0.6	B
-0.6 < DT ≦ -0.5	C
-0.5 < DT ≦ -0.2	D
-0.2 < DT ≦ 0.5	E
0.5 < DT	F

DT 374

Measurement	Stability Class
DT ≦ -2.0	A
-2.0 < DT ≦ -1.8	B
-1.8 < DT ≦ -1.6	C
-1.6 < DT ≦ -0.6	D
-0.6 < DT ≦ 1.6	E
1.6 < DT	F

ATTACHMENT 8.F

WIND DIRECTIONS AND DISTANCES TO NEAREST LAND AND SITE BOUNDARY

Wind Direction Is From	Down Wind Direction	Down Wind Sector	CY Releases		MP1, MP2 Ground & MP2 Mixed		MP3 Ground & Mixed		MP1 Stack	
			Nearest Land	Nearest Site Boundary	Nearest Land	Nearest Site Boundary	Nearest Land	Nearest Site Boundary	Nearest Land	Nearest Site Boundary
169° - 191°	349° - 11°	A (N)	630 m	630 m	1,138 m	1,138 m	924 m	924 m	1,695 m	1,695 m
192° - 213°	12° - 33°	B (NNE)	690 m	690 m	997 m	997 m	1,550 m	1,550 m	813 m	813 m
214° - 236°	34° - 56°	C (NE)	710 m	710 m	620 m	620 m	841 m	841 m	496 m	496 m
237° - 258°	57° - 78°	D (ENE)	1,240 m	1,240 m	1,070 m	620 m	602 m	602 m	1,101 m	496 m
259° - 281°	79° - 101°	E (E)	1,970 m	1,510 m	1,600 m	620 m	1,300 m	602 m	1,410 m	496 m
282° - 303°	102° - 123°	F (ESE)	1,970 m	1,370 m	1,900 m	620 m	1,690 m	602 m	1,640 m	496 m
304° - 326°	124° - 146°	G (SE)	1,300 m	340 m	31,700 m	620 m	33,000 m	602 m	31,700 m	496 m
327° - 348°	147° - 168°	H (SSE)	890 m	230 m	12,390 m	620 m	22,200 m	631 m	12,390 m	496 m
349° - 11°	169° - 191°	J (S)	740 m	150 m	13,100 m	620 m	16,100 m	602 m	13,100 m	496 m
12° - 33°	192° - 213°	K (SSW)	700 m	120 m	14,500 m	620 m	18,300 m	602 m	14,500 m	496 m
34° - 56°	214° - 236°	L (SW)	580 m	120 m	3,430 m	620 m	3,380 m	602 m	3,660 m	496 m
57° - 78°	237° - 258°	M (WSW)	580 m	130 m	3,100 m	620 m	3,050 m	602 m	3,270 m	496 m
79° - 101°	259° - 281°	N (W)	620 m	170 m	2,830 m	620 m	2,700 m	602 m	3,050 m	496 m
102° - 123°	282° - 303°	P (WNW)	550 m	310 m	2,550 m	620 m	2,310 m	602 m	2,660 m	649 m
124° - 146°	304° - 326°	Q (NW)	550 m	550 m	1,930 m	620 m	684 m	602 m	997 m	710 m
147° - 168°	327° - 348°	R (NNW)	510 m	510 m	915 m	915 m	694 m	694 m	1,029 m	1,029 m

NOTE: For "Nearest Land" sectors on riverside, the distance to the opposite side of the river is given.

NOTE: Nearest Site Boundary is given as 620 m from the MP2 stack for water sectors (sectors D through Q).

NOTE: Nearest Site Boundary is given as 602 m from the MP3 ventilation vent for water sectors (sectors D-G and J-Q).

NOTE: Nearest Site Boundary is given as 496 m from the MP1 stack for water sectors (sectors D through N).

CORPORATE ORGANIZATION FOR NUCLEAR INCIDENTS (CONI) PROCEDURE

CONI 4.10

ON-CALL RADIOLOGICAL ASSESSMENT STAFF TELEPHONE LIST

THIS PROCEDURE CHANGE IS APPROVED, AND APPROPRIATE 10CFR50.54(q) ACTIONS HAVE BEEN TAKEN.

R L Rodgers

Lead Manager, Radiological Consequence Assessment

REVISION 20

EFFECTIVE DATE March 15, 1993

CONCURRENCE R L Rodgers

Corporate Nuclear Emergency Plan Coordinator

CORPORATE ORGANIZATION FOR NUCLEAR INCIDENTS (CONI) PROCEDURE

CONI 4.10

ON-CALL RADIOLOGICAL ASSESSMENT STAFF TELEPHONE LIST

1.0 PURPOSE

This procedure provides convenient listings of personnel and telephone numbers. It includes the Radiological Assessment staff, Meteorological Team and Environmental Team members, and other potentially useful numbers.

2.0 APPLICABILITY

Radiological Assessment staff.

3.0 REFERENCES

None

4.0 DEFINITIONS

None

5.0 RESPONSIBILITIES

The Radiological Assessment staff is to be aware of this procedure.

6.0 INSTRUCTIONS

The Manager of Radiological Consequence Assessment or designee will call out personnel using Attachments 8.A and 8.B.

7.0 FIGURES

None

8.0 ATTACHMENTS

Attachment No.	Attachment Title
8.A	Radiological Assessment and Support Staff Phone Numbers
8.B	Meteorological Team, Environmental Team, and Other Phone Numbers

ATTACHMENT 8.A

RADIOLOGICAL ASSESSMENT AND SUPPORT STAFF PHONE NUMBERS

INDIVIDUAL*	WORK	HOME
R. C. Rodgers (CMRCA)	5655	666-1728
R. J. Schmidt (CMRCA)	3720	828-0803
J. H. Argazzi	5983	828-5292
L. A. Bowen	3757	568-4948
R. A. Crandall (CMRCA)	5863	563-3359,
W. J. Eakin (RWCC)	5246	267-0562
T. L. Drake (RAE)	5260	635-9869
D. M. Flick	5336	569-7432
C. A. Flory (RAE)	3592	344-1642
L. J. Landry (RWCC)	3593	633-5562
D. W. Marzilli (RWCC)	3005	346-5245
D. W. Miller (RAE)	5992	269-0596
E. J. Molloy (CMRCA)	3588	659-0300
D. G. Aloi (CMRCA)	3746	635-3940
M. E. Birch (FTDC)	3749	345-8298
C. Borea (FTDC)	3752	529-3858
W. H. Buch	3502 CY	434-8763
T. J. Dembek	5494 MP	442-9676
G. J. Kelly (FTDC)	3747	646-3395/647-8636
W. T. McCance	5384 MP	464-6758
J. G. McHugh (RAE)	3058	447-9897
L. M. DeLuca (FTDC)	3753/609 CY	632-9264
T. J. Reyher (FTDC)	5785	349-0439
H. W. Siegrist (CMRCA)	3591	563-3468
I. L. Haas (RWCC)	3598	721-8164
A. S. Klotz (FTDC)	3750	389-9811
T. E. Quattrochi (RAE)	3595	683-1450
S. M. Torf (RAE)	5814	285-0006
B. Kreiling	3756	429-7328
G. H. Baskette	6084/7050	646-1186
C. J. Scully (FTDC)	3640	746-9417
J. P. Carta	6082	347-7784
R. D. Hinkle (FTDC)	3697	529-9325
C. A. Diaz	6083	871-7107
J. J. Hawxhurst	5279	563-4712
K. D. Morgan	6080	347-9273
W. R. Koste (RWCC)	5838	659-2874

*CMRCA = Corporate Manager of Radiological Consequence Assessment
RAE = Radiological Assessment Engineer
FTDC = Field Team Data Coordinator
RWCC = Radiological Work Center Coordinator

ATTACHMENT 8.B

METEOROLOGICAL TEAM, ENVIRONMENTAL TEAM, AND OTHER PHONE NUMBERS

	WORK	HOME
Meteorological/EDAN		
H. L. Chamberlain	4631	633-0344
H. L. Conway	4622	346-0244
J. W. Leavitt	4634	684-4925
R. T. Myers	4635	875-6573
S. L. Ragland	4643	443-4392
EDAN Room	4980, 4976	
Met Work Station	3972	667-4413
Weather Services Corporation:	-	617/275-8860
		617/275-8861
		617/275-8862
National Weather Service:		
Bradley Field	-	623-3888, 2353
Bridgeport	-	378-2344
Production Operation Services Lab	1-638-3173	-
(Exempt)		
G. Martel	8-304-3175	564-8239
R. Parker	8-304-3178	859-1541
D. Struthers	8-304-3177	563-2032
P. T. Staehly	8-304-3021	526-3423
R. C. Marchinkoski	8-304-3173	635-4547
(Non-Exempt)		
R. D. Bedard	8-304-3181	569-6333
G. J. Buyce	8-304-3172	224-4219
N. A. Corsi	8-304-3171	529-6198
R. B. Laffins	8-304-3171	546-6971
A. W. Love	8-304-3174	564-8233
W. A. McDermott	8-304-3172	635-2104
R. E. Nejfelt	8-304-3171	739-9043
D. S. Oliva	8-304-3174	267-4924
J. J. Quinn	8-304-3173	872-3324
R. Waggoner	8-304-3173	873-9957
J. T. Remkiewicz	8-304-3173	688-1891
P. H. Crete	8-304-3181	346-7931

ATTACHMENT 8.B

METEOROLOGICAL TEAM, ENVIRONMENTAL TEAM, AND OTHER PHONE NUMBERS

		WORK	HOME
Hot Line - EOC Office to Middletown		PLAR (Auto Ring - no extension to dial)	
Berlin EOC			
Berlin EOC Phones		666-3397 extension 3805	
Work Center Extension		667-2274, 667-8026	
		5199	
Environmental Laboratories			
a. Teledyne		201/664-7070	
	J. David Martin		201/391-1676
	Hewitt Jeter		201/767-3359
b. State of Connecticut	Governor's Office	566-4840	
	State DEP Office	566-5134	
	State OEM Office	566-2074/3180	
	State DEP-EOC	524-5359	
	Telecopier	247-0664	
	DEP Telecopier	566-6413	
c. Yankee Atomic Environmental Lab		508/779-6711	
	Dave McCurdy	X2504	
	Estella Laurenzo	X2501	
	Mark Kralian	X2525	
	Jane Reilly	X2507	
Millstone (Tie Line 8-711-)		447-1791	
Control Room - Unit 1		4252, 4260	
Control Room - Unit 2		4352, 4360	
Control Room - Unit 3		4322,6200	
Chem. Lab.		4220, 4576	
MP1 HP		4222	
MP2 HP		4555	
MP3 HP		4265	
EOC Extension - RCA Manager		443-8549	
		X4525	

ATTACHMENT 8.B

METEOROLOGICAL TEAM, ENVIRONMENTAL TEAM, AND OTHER PHONE NUMBERS

	WORK	HOME
Conn. Yankee (Tie Line 8-713-3)	267-2556	
Control Room	211,212	
D. J. Ray	693	
W. F. Nevelos	506	
M. D. Quinn	583	
Chem. Lab.	510, 544	
HP	503	
EOC Extension - (Tie Line 8-714-3	Dose Assessment	
or Direct 344-3 EXT)	X-205 or 227	
	RCA Manager X-225	
	DEP X-232 or X-233	

Local Nuclear Facilities

For HP support from other nuclear power plants (i.e., Vermont Yankee) contact INPO (404) 953-0904. They will contact other utilities.

Bureau of Radiological Health HOT LINE	(518) 474-2886	
Lawrence B Czech	(518) 474-2846	
Empire State Plaza,		
Albany NY 12237		
General Dynamics - Electric Boat	433-5960	
ABB/CE	688-1911	
U. S. Coast Guard	(617) 223-8444 (Boston)	
	442-4471 (New London)	
Convex	628-4781	
Test Department	665-6000	
John Kosciuk (Cellular Phones)	5077	235-5412
	800-512-9955 (Beeper)	
Environmental Lab - Boat Crew		
John Swenarton	4534	535-2902
Greg Decker	5261	739-9177
Don Landers	5062	739-8407

CORPORATE ORGANIZATION FOR NUCLEAR INCIDENTS (CONI) PROCEDURE

CONI 10.04

EXERCISE PREPARATION

THIS PROCEDURE CHANGE IS APPROVED, AND APPROPRIATE 10CFR50.54(q) ACTIONS HAVE BEEN TAKEN.

E Edward J Molloy
Supervisor, Emergency Preparedness

REVISION 1

EFFECTIVE DATE March 15, 1993

CONCURRENCE R L Rodgers
Corporate Nuclear Emergency Plan Coordinator

CORPORATE ORGANIZATION FOR NUCLEAR INCIDENTS (CONI) PROCEDURE

CONI 10.04

EXERCISE PREPARATION

1.0 PURPOSE

This procedure provides a method to prepare full-participation and partial-participation graded exercises.

2.0 APPLICABILITY

This procedure applies to the Emergency Preparedness Department, the Scenario Development Group, the Exercise Planning Committee, the Management Conceptual Review Group and the Logistics and Support Working Group.

3.0 REFERENCES

3.1 Millstone and Haddam Neck Site Emergency Plans (in particular, section 8.2 - "Tests, Drills and Exercises")

3.2 10 CFR 50, Appendix E (NRC regulation on Utility Exercises).

3.3 44 CFR 350 (FEMA regulation on State/local Exercises).

3.4 Memo from E. J. Mroczka to NEO Supervisor dated October 24, 1988, subject "Level of Effort."

4.0 DEFINITIONS

None

5.0 RESPONSIBILITIES

5.1 The Director of Emergency Preparedness or his designee is responsible for the implementation of this procedure and assessing the role of Exercise Coordination.

5.2 The Scenario Development Group is responsible for the development of exercise event sequence, all technical data, mock-ups, controller scripts and messages, and the training of controllers.

5.3 The Exercise Planning Committee is responsible for resolving all logistics problems and establishing appropriate interfaces with local and state officials.

5.4 The Management Conceptual Review Group is responsible for reviewing the scenario sequence of events and associated technical data.

5.5 The Logistics and Support Working Group is responsible for preparing exercise facilities and for informing station and corporate personnel of exercise development status.

6.0 INSTRUCTIONS

6.1 The Director of Emergency Preparedness will establish the following Exercise Development Groups (see Figure 7.1) and will assign specific personnel to each position:

6.1.1 **Exercise Coordinator** - The Director of Emergency Preparedness or his designee.

6.1.2 **Scenario Development Group** - Consists of a lead person from the Emergency Preparedness Department, a Station Emergency Preparedness Coordinator, SRO, NUSCO Radiological Engineering, Reactor Engineering, station HP, and other appropriate technical disciplines. Purpose: Develop the Sequence of Events and technical data for both the exercise and rehearsal.

6.1.3 **Exercise Planning Committee** - Consists of a station, local, corporate and state representative. Purpose: Ensure exercise logistics and establish appropriate governmental interfaces.

6.1.4 **Management Conceptual Review Group** - Consists of key Nuclear Engineering Department representatives and Station Management. Purpose: reviews the sequence of events of the scenario to ensure that they are technically defensible and logical.

6.1.5 **Logistics and Support Working Group** - Consists of the Station Emergency Preparedness Coordinator (EPC) and Assistant. Purpose: Ensure that facilities are prepared and station/corporate personnel are informed.

6.2 With the aid of 10 CFR 50, Appendix E and the six-year Exercise Objectives Schedule, the Station Emergency Preparedness Coordinator and the Scenario Development Group Leader shall develop a list of "draft objectives" approximately five months before the tentative exercise/drill date. Include in the objectives any findings from the previous exercise as well as any NRC open items. Have the objectives approved by the Director of Emergency Preparedness, Station Management, and the Exercise Planning Committee.

6.3 Concurrently with objectives development, the Scenario Development Group Leader shall prepare a list of personnel types (e.g., Senior Reactor Operator (SRO), Radiological Engineering, Plant Health Physics, Plant Chemistry, Plant Security, Plant Maintenance, Plant Engineering, Reactor Engineering, Generation Civil/Mechanical/Electrical Engineering, Environmental Engineering, and POSL) for scenario technical development. Also, prepare a suggested list of participants and controllers for the exercise and rehearsal.

6.4 The Scenario Development Group Leader shall call all appropriate discipline supervisors and request their assistance in accordance with Reference 3.4. Once approval has been granted, proceed with the issuance of a memo to appropriate managers, formally requesting assistance. As an alternative, an annual commitment of response shall be obtained.

6.5 The Exercise Coordinator shall:

6.5.1 Prepare a weekly meeting schedule approximately 120 to 150 days prior to the exercise date to ensure that the Scenario Development Group can meet to discuss exercise details. Minimize personnel time commitments by restricting attendance to the necessary disciplines.,

6.5.2 Conduct monthly Exercise Planning Committee meetings for all exercises having off-site official involvement to discuss status and resolve problems. Initiate this approximately 120 days prior to the exercise date.

6.5.3 Conduct a Management Conceptual Review Group meeting following the preparation of the Sequence of Events and prior to detailed data development.

6.5.4 Develop and distribute a project schedule to all scenario developers. A generic exercise schedule is listed for reference purposes in Figure 7.2. Modify this schedule for the exercise under consideration. Enter dates for the exercise and rehearsal. The schedule program will determine all other dates.

6.5.5 Ensure that meeting notes are prepared and circulated confidentially following each scenario development meeting.

6.5.6 Have the State of Connecticut OEM issue a letter to each off-site community indicating that they will be contacted concerning scenario development and requesting them to name a controller.

6.5.7 Ensure training of local and state officials commences at least eight (8) weeks prior to the exercise.

6.5.8 Ensure that a meeting place is arranged for the local/state Post-Exercise Critique and that invitations are sent out.

6.5.9 Schedule the controllers/evaluators to perform a walk-through of the exercise prior to the exercise and the rehearsal. Send a letter to the off-site controllers inviting them to a walk-through of the controller's package about one (1) week prior to the exercise.

6.5.10 Schedule a critique following the exercise and assign the updates of the station, corporate, and state/local commitment follow lists to include all critique items with priority for resolution. This should include NRC/FEMA critique items.

6.5.11 Prepare "Thank you" letters to be sent to all controllers (on site and off site) and to local Chief Executive Officers expressing appreciation for their assistance.

6.5.12 Ensure that the critique items are circulated to appropriate disciplines for implementing corrective actions.

6.5.13 Place the master and one copy of the exercise controller manual along with the exercise project book in the appropriate Emergency Response filing system. The project book should include schedule information, project personnel listings, assignment handouts, completed assignments, meeting notes, Telecons and all written correspondence. One complete copy of the exercise controller manual is to be sent to Nuclear Plant Records for permanent storage.

6.6 The Scenario Development Group shall follow the scenario preparation guidance listed in Attachment 8.A.

7.0 FIGURES

Figure No.	Figure Title
7.1	Exercise Development Group
7.2	Generic Exercise Schedule

8.0 ATTACHMENTS

Attachment No.	Attachment Title
8.A	Emergency Plan Exercise Scenario Guidelines

FIGURE 7.1

EXERCISE DEVELOPMENT GROUP

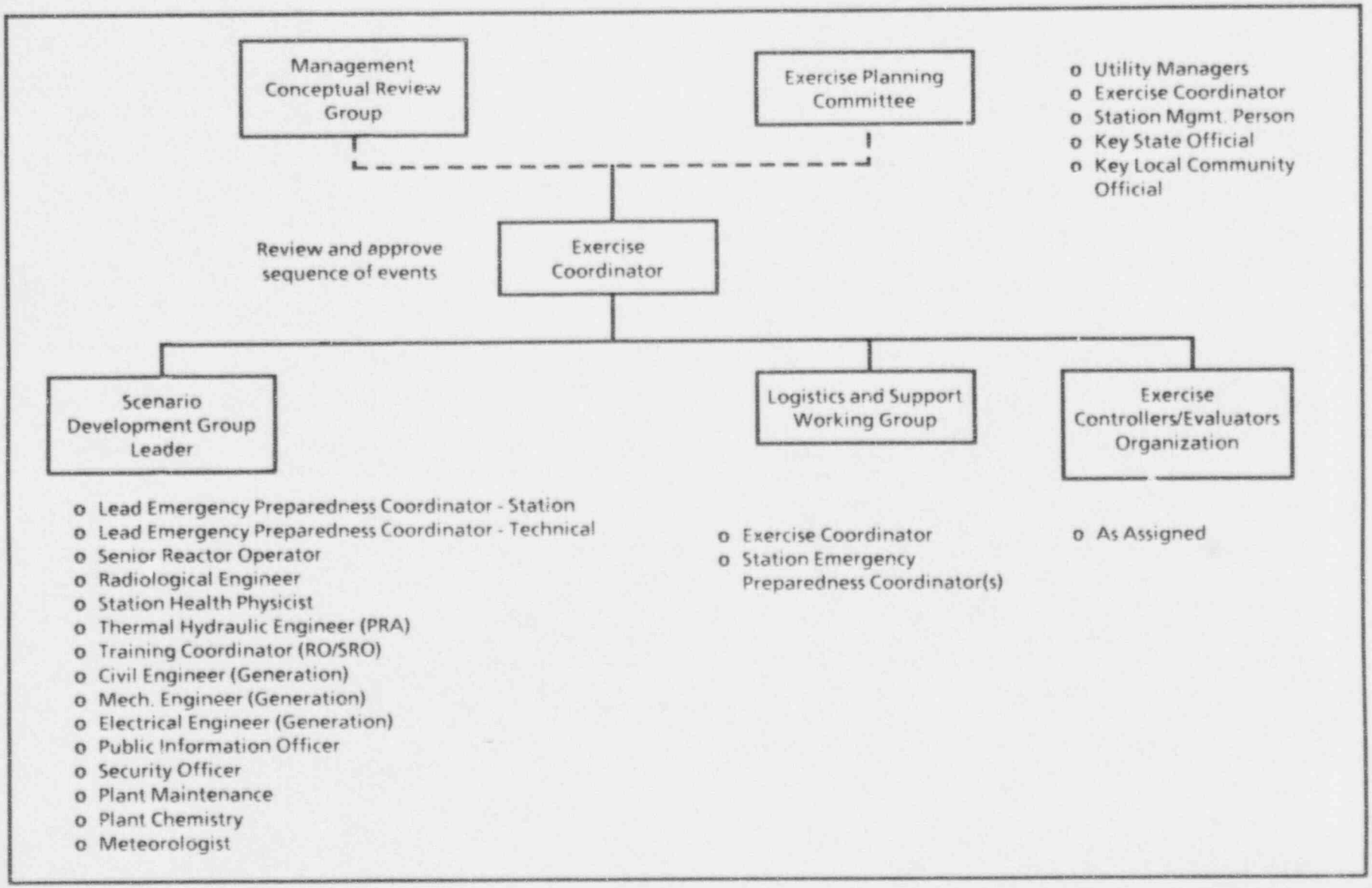
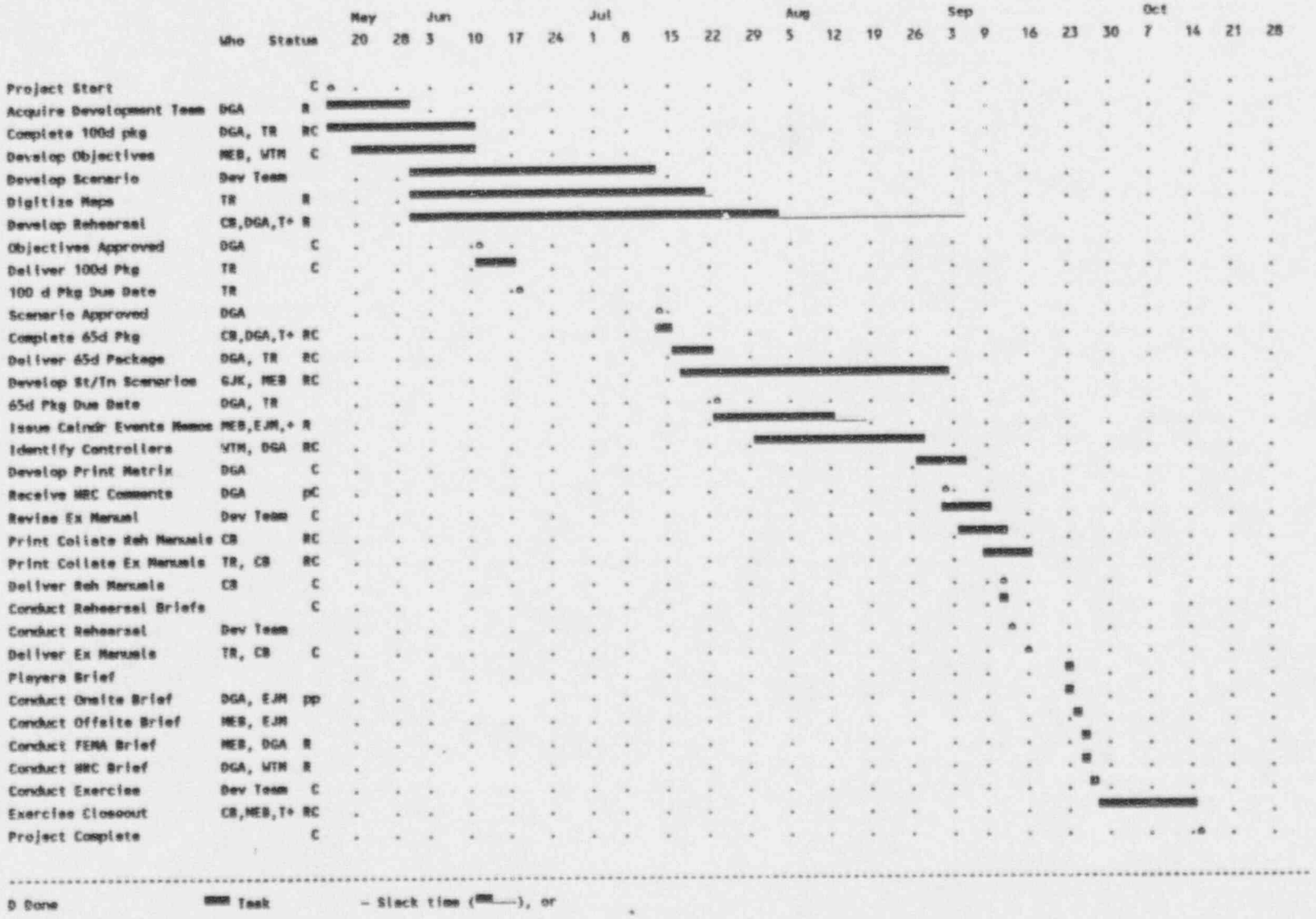


FIGURE 7.2

GENERIC EXERCISE SCHEDULE



ATTACHMENT 8.A

EMERGENCY PLAN EXERCISE SCENARIO GUIDELINES

1. Allow adequate time between changes in emergency classification to allow state and locals to implement and demonstrate their emergency plan requirements, such as public notification, protective action decision making, implementation of protective actions, etc. The minimum time between changes in emergency classification should be about sixty to seventy-five minutes. If we intend to have a scenario that moves faster, that should be on an infrequent basis and the scenario should be advertised as a fast-moving scenario (realism in meteorology can be included in these cases).

2. The number of arbitrary unrelated failures of station equipment should be limited to avoid mindsets or frustration on the part of operators and emergency responders. Such failures result in very low probability events that stretch credibility. Hence, these unrelated failures should be separated in time by about 20 minutes, and this provides reasonable challenge to allow for information flow, less confusion, and the OSC/TSC to demonstrate their functions.

3. The mindset that every exercise should result in a General Emergency with evacuation should be avoided. For exercises other than full-participation, take more probable events with Site-Area Emergency as the highest classification. Discuss alternatives to full-participation exercises with the NRC for similar realistic scenarios that end at GENERAL EMERGENCY-Bravo.

4. The initiation of evacuation or take shelter protective actions in the scenario should occur for off-site radiation doses that are at the more appropriate EPA guidelines, i.e., evacuation should not occur until the five rem whole body dose is projected or is occurring at the site boundary.

5. Scenarios that result in exceeding the 10-mile EPZ planning basis should be avoided; i.e., no plume protective actions (evacuation, take shelter) beyond the 10-mile EPZ.

6. Controller intervention to delay the start of equipment, closure/opening of valves, etc. should be realistic; i.e., if it would take 15 minutes to close a valve then do not exceed this time. If you fail meters/breakers to close valve then repair times should be realistic.

7. Discipline staff assigned to serve on the Scenario Development Group should have explicit instructions to have their Supervisor/Manager review and sign-off their input to ensure quality control.

8. Confidentiality of scenario development and processing of documents for NRC/FEMA submittal should be stressed (e.g., Nuclear Licensing staff review processing and fielding NRC questions should disqualify them from participation). Have Nuclear Licensing staff designated in advance to handle material.

9. Rapid shifts in wind direction are not recommended for full-participation exercises as routine conditions. If rapid changes in meteorology are intended, advertise that this is what will occur in exercises (see #1 above).

10. Ensure that a state individual is involved in the scenario preparation and reviews it for compatibility with state emergency response capabilities and objectives.

CORPORATE ORGANIZATION FOR NUCLEAR INCIDENTS (CONI) PROCEDURE

CONI 10.05

MANAGEMENT OF DRILL AND EXERCISE CRITIQUE ITEMS

THIS PROCEDURE CHANGE IS APPROVED, AND APPROPRIATE 10CFR50.54(q) ACTIONS HAVE BEEN TAKEN.

E David McElroy

Supervisor, Emergency Preparedness

REVISION 1

EFFECTIVE DATE March 15, 1993

CONCURRENCE R L Rodgers

Corporate Nuclear Emergency Plan Coordinator

CORPORATE ORGANIZATION FOR NUCLEAR INCIDENTS (CONI) PROCEDURE

CONI 10.05

MANAGEMENT OF DRILL AND EXERCISE CRITIQUE ITEMS

1.0 PURPOSE

To ensure that annual Emergency Plan drill and exercise critique items are resolved in a timely fashion.

2.0 APPLICABILITY

This procedure applies to the Emergency Preparedness Department.

3.0 REFERENCES

3.1 Millstone and Haddam Neck Site Emergency Plans.

3.2 NUREG 0654/FEMA-REP-1, Rev. 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants."

3.3 INPO Emergency Preparedness Drill and Exercise Manual/INPO 88-019.

4.0 DEFINITIONS

None

5.0 RESPONSIBILITIES

5.1 It is the responsibility of the Lead Station Emergency Preparedness Coordinator (EPC) to identify and assemble all on-site drill and exercise critique items for review and prepare a Commitment Follow List.

5.2 It is the responsibility of the Supervisor of Emergency Preparedness - Off-Site Programs, to assemble a Commitment Follow List for state and local town critique items.

5.3 It is the responsibility of the Director of Emergency Preparedness to advise the appropriate levels of management of their need to address problems and commitments within their area of responsibility.

6.0 INSTRUCTIONS

6.1 After each Emergency Plan drill or exercise critique, the Lead Station EPC and the Supervisor of Emergency Preparedness - Off-Site Programs will list critique comments. They will then review them to determine their appropriate resolution at a separate meeting with the Director of Emergency Preparedness and the appropriate level of management (e.g., Station Directors, Manager of General Nuclear Training, etc.).

The State and local town list will be reviewed with the State Office of Emergency Management (OEM).

6.2 At these meetings, due dates will be assigned for each approved commitment based upon its priority and the resources necessary to accomplish the cited action. A person will be assigned to accomplish each commitment follow item.

6.3 Commitment Follow Lists (CFL) will be generated by the Supervisor of Emergency Preparedness - Off-Site Programs and the Lead On-Site EPC, who will track each commitment's progress and ensure that the appropriate discipline assistance is obtained to meet the due dates. The CFL Form (Figure 7.1) may deviate in layout to allow for computerization.

6.4 The Supervisor of Emergency Preparedness - Off-Site Programs and the Lead On-Site EPC will update the Commitment Follow Lists (one for each site, corporate, and state/local) as needed; but, at least twice per year.

7.0 FIGURES

Figure No.	Figure Title
7.1	Post Drill/Exercise Commitment Follow List

8.0 ATTACHMENTS

None

FIGURE 7.1

POST DRILL/EXERCISE COMMITMENT FOLLOW LIST

CF CODE = Responsible Individual(s)

CF #	Description	CF Code	Due Date	Action Complete	Response