DMB

MAR 9 1984

Docket No. 50-336

Northeast Nuclear Energy Company
ATTN: Mr. W. G. Counsil
Senior Vice President - Nuclear
Engineering and Operations Group
P. O. Box 270
Hartford, Connecticut 06101

Gentlemen:

Attached is a copy of the Final Exercise Report prepared by the Federal Emergency Management Agency for the March 19, 1982, joint exercise of State and local radiological emergency preparedness plans for the Millstone Nuclear Power Station. A copy of this report has been sent by FEMA to the State of Connecticut requesting a schedule for corrective actions of offsite emergency preparedness deficiencies found during the exercise. In connection with resolution of such deficiencies, you should keep abreast of the activities taken by both State and local authorities and provide assistance to them on an as needed basis.

A report of a later exercise conducted on October 5, 1983, will be forwarded to you shortly for consideration and possible action.

If you have any questions concerning this matter, please contact Mr. Hilbert W. Crocker (215) 337-5208 of my staff.

Sincerely, original signed by

T. T. MARTIN

Thomas T. Martin, Director
Division of Engineering and
Technical Programs

cc w/encl:
J. F. Opeka, Vice President, Nuclear Operations
E. J. Mroczka, Station Superintendent
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State of Connecticut

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MAR 9 1984

bcc w/encl:
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DPRP Section Chief
W. W. Crocker
R. H. Smith

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Crocker/ch	Bellamy	Martin
2/21/84	3/6/84	3/7/84

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August 4, 1982

FINAL EXERCISE REPORT

JOINT STATE AND LOCAL RADIOLOGICAL EMERGENCY RESPONSE EXERCISE FOR THE MILLSTONE NUCLEAR POWER STATION, WATERFORD, CONNECTICUT, [redacted]2

August 1982

Federal Emergency Management Agency

Region I J.W. McCormack Post Office and Court House

Boston, Massachusetts 02109

CONTENTS

PREFACE

FEMA RESPONSIBILITIES

On December 7, 1979, the President directed the Federal Emergency Management Agency (FEMA) to assume lead responsibility for all off-site nuclear planning and response.

FEMA's immediate basic responsibilities in Fixed Nuclear Facility - Radiological Emergency Planning include:

- Taking the lead in off-site emergency planning and review and evaluation of state and local government emergency plans for adequacy.
- Determining whether the plans can be implemented, on the basis of observation and evaluation of exercises conducted by these jurisdictions.
- Coordinating the activities of volunteer organizations and other involved federal agencies:
  - Nuclear Regulatory Commission (NRC)
  - Environmental Protection Agency (EPA)
  - Department of Energy (DOE)
  - Department of Health and Human Services (HHS)
  - Department of Transportation (DOT)
  - Department of Agriculture (USDA)
  - Food and Drug Administration (FDA)
  - Department of Commerce (DOC)

Representatives of these agencies serve as members of the Regional Assistance Committee (RAC), which is chaired by FEMA.

Formal submission of emergency plans to FEMA by the states and involved local jurisdictions is, in each case, followed closely by the exercising, critiquing, and evaluation of those plans. A public meeting is held to acquaint the citizenry with contents of the plans, answer questions about them, and receive suggestions on the plans.

EXERCISE EVENT

A radiological emergency exercise was conducted on Friday, March 19, 1982, between the hours of 0500 and 1500, to assess the adequacy of the Connecticut Radiological Emergency Response Plan and state and local preparations to protect the public in the event of a radiological emergency involving the Millstone Nuclear Power Station at Waterford, Connecticut, operated by Northeast Utilities Service Company.

EXERCISE OBJECTIVES

The exercise objectives of the state and local communities were to demonstrate that their emergency response plans, their operations, and their capability for mobilizing needed resources and coordinating them with those of adjoining states are adequate to cope with an emergency at the Millstone Nuclear Power Station. A synopsis of the capabilities or operations to be exercised by the State of Connecticut and the participating local communities is as follows:

State Functions

- Adequacy and implementation of the radiological emergency response plans;
- Capability of the state to notify and activate emergency response personnel;
- Operation of the notification and communication system among the state, the towns, and the utility;
- Activation and operation of the state emergency operating center, giving consideration to space, equipment, communications, and facility security;
- Coordination of public information between the state, utility, local communities and the news media;
- Ability of the state to calculate dose projections and recommend appropriate protective actions;
- Implementation of access control procedures by the state offsite emergency response personnel;
- Deployment of and communication with radiological monitoring teams.

Local Community Functions

- Ability to identify task support needed from other than local resources;
- Adequacy and implementation of local community radiological emergency response plans;
- Capability of local community managers to notify and activate appropriate emergency response personnel;
- Capability of the towns and cities to notify and evacuate affected segments of the public within the plume exposure pathway;

- Adequacy of town and city EOC facilities;
- Ability of the towns and cities to monitor personnel for radioactive contamination, and to maintain personnel dose history records.

PARTICIPATING ORGANIZATIONS

The state organizations and local communities that participated in the Millstone Nuclear Power Station RERP exercise were:

State Organizations

Connecticut Governor's Office

Connecticut Office of Civil Preparedness (Area II in Meriden, Area III in Rocky Hill, and Area IV in Colchester)

Connecticut Department of Environmental Protection

Connecticut Department of Health Services

Connecticut State Police

Connecticut Department of Agriculture

Connecticut Department of Consumer Protection

Connecticut Department of Transportation

Connecticut National Guard

Office of Policy and Management

Private-Sector Organizations

Northeast Utilities Service Company (NUSCO), Corporate Headquarters, Berlin, Connecticut

Millstone Nuclear Power Station, Waterford, Connecticut

American Red Cross

Civil Air Patrol

Electric Boat Division of General Dynamics

Local Communities

Town of East Lyme

City of Groton

Town of Groton

Town of Ledyard

Town of Lyme

Town of Montville

City of New London

Town of Old Lyme

Town of Old Saybrook

Town of Waterford

Town of Fishers Island, New York

Plum Island and Suffolk County, New York

Wethersfield (Reception community)

Windham/Willimantic (Reception community)

EXERCISE CRITIQUE

The summary critique of the exercise (Sec. 1) was presented by the RAC chairman to the state and utility officials at 11:00 a.m. in the Thames Suite, Room 216 of the Sheraton Inn, Norwich, Connecticut, on March 20, 1982. The joint FEMA/NRC exercise critique meeting for the general public was held at 2:00 p.m. in the East Lyme High School.

EVALUATION OBJECTIVES

General objectives were to observe and evaluate the exercise by focusing on the ten functional areas listed and briefly described below. Included in these ten functional areas are approximately 75 specific criteria taken directly from Section II of NUREG-0654/FEMA-REP-1, Rev 1, which is the basic planning document on which the state and local plans have been developed, as well as the source of criteria for observing and evaluating the exercise. These ten functional areas are:

I. Emergency Operations Facilities and Resources (including working space and amenities, internal communications and displays, security, and point-to-point communications).

II. Alerting and Mobilization of Officials and Staff (including timeliness, staffing, and 24-hour capabilility for protracted operations).

III. Emergency Operations Management (including organization, direction and control, leadership, support by officials, the information flow between levels and organizations, decision making, and use of checklists and procedures).

IV. Public Alerting and Notification (including timeliness and means of notification).

V. Public and Media Relations.

VI. Accident Assessment (including adequacy of monitoring staff and equipment, technical calculations, use of protective action guides, and issuance of timely recommendations).

VII. Actions to Protect the Public (including sheltering, evacuation, reception and care, and transportation).

VIII. Health, Medical, and Exposure Control Measures (including access control, adequacy of equipment and supplies, dosimetry, use of potassium iodide (KI), decontamination, and medical treatment).

IX. Recovery and Reentry Operations.

X. Relevance of the Exercise Experience (including benefit to participants and adequacy of the scenario).

EVALUATION CRITERIA

During the exercise, the federal observers rated activities in the 10 functional categories above according to the following rating scheme:

- Capability Outstanding - During the exercise no deficiencies were noted and no improvement is needed.
- Capability Good - Capabilities displayed as implied in the plan, though minor deficiencies may have been noted.
- Capability Acceptable - The function was understood and accomplished. However, minor deficiencies were noted which could limit effective performance.
- Capability Weak - The function had significant deficiencies or the intent of the plan was not followed.
- Capability Lacking - The scenario exercised called for a specific response which was expected but not demonstrated.
- Capability Not Observed - For one reason or another, the observer was not able to establish a rating. Either the observer was not present to witness the function, or the activity was not called for in the scenario or was not applicable to the site or function. This rating does not imply that a deficiency exists.

FEDERAL OBSERVER TEAM

For the exercise, 30 federal observers were stationed at off-site locations for the Millstone exercise. These individuals, their agencies, and their exercise locations are listed below.

Observer	Agency	Location
David Sparks, Region I Director	FEMA[a]	State EOC, Hartford
Edward Thomas, RAC[b] chairman	FEMA	Media Center, Hartford
Fredrick Oleson, RAC Member, Team Leader	FEMA	State EOC, Hartford
David Hillis	FEMA/ANL[c]	State EOC, Hartford
Paul Lutz, RAC Member, Team Leader	USCG[d]	State EOC, Hartford
Byron Keene, RAC Member	EPA[e]	Utility EOF
Neil Gaeta, RAC Member	FDA[f]	Field Monitoring
Edward Lessard	DOE[g]	Field Monitoring
Kevin Merli, Team Leader	FEMA	Area III CP office, Rocky Hill & Wethersfield Reception Center
Henry Mittlehauser	FEMA/ANL	Area II CP office, Meriden
Donald Hulet	FEMA/ANL	Area IV CP office, Colchester
Carl Blomquist	FEMA/ANL	State Police (Troop E), Montville
Donald Connors, Team Leader	FEMA/ Red Cross	Wethersfield Reception Center Waterford Media Center and Quaker Hill School
Lyle Genens	FEMA/ANL	Access Control & Windham/Willimantic Reception Center
John Stepp, RAC Member	HHS[h]	Lawrence Memorial Hospital, Waterford Ambulance
Lawrence Robertson, Team Leader	FEMA	Norwich State Hospital & Department of Transportation
James Gentile, Team Leader	FEMA	Civil Air Patrol, Brainard Field, Hartford
Judy DeFelice	FEMA	Waterford EOC
Harvey Bushby	FEMA/ANL	Waterford EOC
Robert Bores, RAC Member	NRC[i]	Waterford EOC

(continued)

Observer	Agency	Location
Robert Sonnichsen, Team Leader	FEMA	Old Saybrook EOC
Thomas Baldwin	FEMA/ANL	Lyme EOC
John Lynch, Team Leader	FEMA	East Lyme EOC
Dorothy Nevitt, RAC Member	USDA[j]	New London and Plum Island EOC
Harry Takach	FEMA/ANL	City of Groton EOC
Mary Lyle	FEMA	Town of Groton EOC
Andrew Ball, Team Leader	FEMA	Old Lyme EOC
Elizabeth Dionne	FEMA	Ledyard EOC
William Driver	FEMA	Montville EOC
Richard Tinsman	USCG	Fishers Island EOC

[a]FEMA - Federal Emergency Management Agency
[b]RAC - Regional Assistance Committee
[c]ANL - Argonne National Laboratory
[d]USCG - U.S. Coast Guard
[e]EPA - U.S. Environmental Protection Agency
[f]FDA - U.S. Food and Drug Administration
[g]DOE - U.S. Department of Energy
[h]HHS - U.S. Department of Health and Human Services
[i]NRC - Nuclear Regulatory Commission
[j]USDA - U.S. Department of Agriculture

REMEDIAL ACTION PROCEDURES

Sections 3 and 4 of this report summarize the significant and minor deficiencies identified by the federal observers at this exercise. These evaluations are based on the applicable planning standards and evaluation criteria set forth in Sec. II of NUREG-0654/FEMA-REP-1, Rev 1 (November, 1980). The minor deficiencies are listed with suggested actions to improve or enhance existing capabilities.

When significant deficiencies are identified, state and local jurisdictions should to take remedial actions responsive, on a point-by-point basis, to the formal recommendations of FEMA as stated in 44 CFR 350, 350.9 (c). State and local jurisdictions should submit a schedule for correcting these

deficiencies. The schedule to be completed is provided in Sec. 5 of this report. The Regional Director of FEMA is responsible for certifying to the FEMA Associate Director of State and Local Programs and Support, Washington, D.C., that any significant deficiencies noted in the exercise have been corrected and that such corrections have been incorporated into the plan. Correction of minor deficiencies is also suggested to improve or enhance the existing capabilities.

1 EXECUTIVE SUMMARY

A joint state and local radiological emergency exercise for the Millstone Nuclear Power Station, Waterford, Connecticut, was conducted on March 19, 1982. This report summarizes the findings of a 30-member federal team that observed off-site emergency response actions at 14 state locations and 12 local emergency operating center (EOC) facilities. The names and assignments of these observers are listed in the Preface to this report. Overall, the state and local governments demonstrated the basic capability for protecting the public, as tested by the scenario that was exercised.

The Regional Assistance Committee noted that the State of Connecticut had taken advantage of experience gained in previous exercises to modify and substantially improve some elements of capability in the following functional areas: security at the state EOC; communications (via radio pagers) at the area CP offices; communication between agency heads at the EOC and the Governor; and accident assesment in general, and especially, the logging and communication of accident-assessment messages.

1.1 EMERGENCY OPERATIONS FACILITIES AND RESOURCES

State. Emergency operations facilities and resources, including working space, internal communications, communications, security, and displays at the state EOC ranged from acceptable to good. Security procedures at the state EOC were good. Additional radio pagers have been acquired at two of the area CP offices; communications at these offices were acceptable and good, respectively. Overall facilities at the area offices varied from weak at the Area II office to good at Area III and IV. Messages from the state to the local EOCs were infrequent, and many, particularly technical messages, were not timely.

Local. Working space, internal communications, security, and communications at the local EOCs ranged from weak to good. For example, working space and amenities in Old Lyme were good, while in New London working space was very limited. New London has plans for a new EOC, and East Lyme plans construction of an internal communications room in June 1982.

1.2 ALERTING AND MOBILIZATION OF OFFICIALS AND STAFF

State. Alerting and mobilization of officials and staff at the state and area EOCs were timely, staffing patterns were good, and shift changes for 24-hour capability were simulated in most EOCs observed. Area II did not demonstrate shift changes.

Local. Staffing levels at the local EOCs were outstanding. Demonstration of shift changes varied from town to town; however, the majority of communities had adequately considered alternative staffing. The dedication of the primarily volunteer staff in support of the emergency response exercise at the local level was exemplary.

1.3 EMERGENCY OPERATIONS MANAGEMENT

State. Emergency operations organization, control, leadership, decision making, and the use of check lists and procedures at the state EOCs were good to outstanding. Communication from agency heads to the Governor was good. Internal communications in the EOC would be improved by more frequent detailed briefings of the working staff.

Local. At the local EOCs, emergency operations management and decision making ranged from acceptable to outstanding. Most communities clearly understood their emergency roles and exhibited excellent leadership, support by officials, good decision-making capabilities, and appropriate use of emergency plans and procedures.

1.4 PUBLIC ALERTING AND NOTIFICATION

State and Local. Installation of the fixed siren system was not completed, which was a significant deficiency. The emergency broadcasting system (EBS) was activated and was rated good at both the state and the local level. However, some communities expressed a need for training in accessing local EBS stations. Thorough notification of the public via backup sirens, mobile public address systems, and door-to-door notification was observed at some of the local EOCs. Notification was timely and will be greatly enhanced when the planned sirens are installed.

1.5 PUBLIC AND MEDIA RELATIONS

State. The primary media center at the state EOC was activated, and news releases were well coordinated among the involved information sources. Well-written press releases were frequently distributed.

Local. The town of Waterford operated an independent media center early in the exercise, but most communities referred media inquiries to the primary media center in Hartford. Public and media relations at local EOCs ranged from weak to good; local news releases were appropriately coordinated. Hardcopy news releases developed at the state level could be provided to the local EOCs and media centers to enhance local releases.

As of the day of the exercise, information concerning emergency preparedness needed to be prepared and distributed to all localities within the 10-mile EPZ for their resident and transient populations. It was understood that such information was to be distributed once the siren alerting system was in place. Subsequently, information brochures have been mailed to all known mailing addresses. A second mailing will be sent advising the public of protective measures, including evacuation.

1.6 ACCIDENT ASSESSMENT

State. This function was generally considered good to outstanding. State officials were ably assisted by a competent assessment team and by volunteers from the Electric Boat Division of General Dynamics Corporation. Logging and message control were good. Performance at the state EOC in promptly recognizing the technical reasons for protective measures, and in making lucid recommendations to decision makers, was outstanding. A representative from Electric Boat Division and a nuclear engineer from the utility provided valuable assistance in explaining the radiological reasons for actions recommended to the Governor.

1.7 ACTIONS TO PROTECT THE PUBLIC

State and Local. Actions to protect the public were recommended promptly by both the state and the local EOCs. Evacuation was demonstrated quite well in Waterford, where school children were evacuated to the Wethersfield reception center, and in Groton, where evacuees were bused to

he Windham/Willimantic reception center. Registration and decontamination ran smoothly, and the reception centers and shelters were evaluated as good.

1.8 HEALTH, MEDICAL, AND EXPOSURE CONTROL MEASURES

State. Health teams need more training and equipment for control of radiation doses to emergency workers and personnel controlling access to affected areas. Lack of a clear policy on the use of potasium iodide (KI) is noted as a significant deficiency in the plan.

Local. Better distribution of dosimeters and clarification of the KI policy are needed for local emergency workers. Use of thermoluminescent dosimeters and film badges was not observed at the local level.

1.9 RECOVERY AND REENTRY OPERATIONS

State and Local. Recovery and reentry procedures were exercised at both the state and local level. These procedures should be expanded in the plan and explored further in future exercises. Future exercises should allow for a more complete demonstration of recovery and reentry, and special drills should be conducted.

1.10 RELEVANCE OF THE EXERCISE EXPERIENCE

The exercise provided the participants with appropriate response training and enhanced their decision-making capability. The scenario escalated to a General Emergency classification early in the day, which allowed about one hour at the end of the exercise for participants to practice reentry and recovery procedures. Participation by numerous local volunteers, the Red Cross, and the Civil Air Patrol was outstanding, and contributed greatly to the overall success of the exercise. The exercise was beneficial to the participants and proved to be an excellent training tool.

2 DESCRIPTION OF OBSERVATIONS

2.1 INTRODUCTION

The Millstone Nuclear Power Station consists of two operating units and a third unit still under construction. The power station is located on Long Island Sound, near the town of Waterford in southeastern Connecticut. Millstone I is a boiling-water reactor that has been in operation since 1971; it is licensed at 660 megawatts (MWe) net electric output. Millstone II is a pressurized-water reactor that has been in operation since 1975; it is licensed at 830 MWe output. Parts of Connecticut and New York lie within the 10-mile emergency planning zone (EPZ). The communities within the 10-mile EPZ include East Lyme, Fishers Island (NY), Groton (both the City and the Town), Ledyard, Lyme, Montville, New London, Old Saybrook, Plum Island (NY), and Waterford. Part of the states of Connecticut, Rhode Island, and New York lie within the 50-mile EPZ.

Exercise Scenario

In order to exercise all participants comprehensively and concurrently, a detailed sequence of events was developed to represent an abnormal operating condition that gradually degrades through the various emergency categories. The primary exercise lasted approximately eight hours, with a recovery and reentry phase of approximately one hour. The approximate time and sequence of events that composed the scenario for the exercise follow:

Scenario Time	Clock Time	Event
0500	0500	Exercise starts. Unit 1 turbine generator trips, reactor scrams, and loss of normal power results. Diesel generator fails to start.
0502	0502	Isolation condenser put in service.
0503	0503	Transformer explosion and fire in the Unit 1 transformer yard reported.
0506	0506	Unusual Event declared, on the basis of loss of normal power and the transformer fire.
0516	0516	Level I radio pager notification of Unusual Event.

Scenario Time	Clock Time	Event
0520	0520	Gas turbine trips off line, resulting in a station blackout.
0530	0530	Alert declared on the basis of loss of off-site and on-site power.
0545	0545	Level II radio pager notification of Alert.
0550	0550	Site Area Emergency declared on the basis of loss of off-site and on-site power for more than 15 minutes.
0615	0615	Isolation condenser trips on "high flow" while being throttled.
0620	0620	Level II radio pager notification of Site Area Emergency. Notification delayed by Exercise Controller, to allow for FEMA requirement for declaration of all emergency incidents.
0635	0635	Reactor pressure increases. A safety relief valve opens and begins to blowdown to the torus.
0637	0637	Isolation condenser returned to service.
0640	0640	Pressure in the reactor vessel continues to drop. Acoustic monitor and torus level indicates that the safety relief valve failed to close completely.
0645	0645	Isolation condenser secured to minimize coolant shrinkage.
0652	0652	Reactor water level near the top of the core and falling.
0700	0700	General Emergency* declared on the basis of a loss-of-coolant accident and failure of the emergency core cooling system (ECCS).
0704	0704	Reactor water level reaches 2/3 of core height.
0715	0715	Level II radio pager notification of a General Emergency.
0724	0724	Low-pressure ECCS begins injecting water into the reactor vessel. Torus-to-drywell vacuum breakers indicated open.
0810	0810	Diesel generator returned to service. Blackout terminated. Reactor water level still dropping.

*The Connecticut emergency classification scheme has two categories (Bravo and Alpha) for the FEMA/NUREG class of "General Emergency"; this loss-of-coolant accident was called a "Bravo incident" in the Connecticut scheme. The disparity in emergency categories has been identified as a deficiency in the state plan: see Sec. 3.

Scenario Time	Clock Time	Event
0814	0814	Core covered.
0815	0815	Level II radio pager update of General Emergency.
0816	0816	Torus and drywell pressure peak at 20 psig.
0820	0820	Torus area radiation monitor off scale. Drywell area radiation monitor reads 3.5×10^5 R/hr.
0830	0830	Torus spray actuated.
0835	0835	Increasing radiation levels indicated by the reactor building area monitors. Monitors have alarms. The reactor-building-to-torus vacuum relief piping has cracks due to thermal stresses.
0840	0840	Gas turbine returned to service.
0840	0840	High-range stack-radiation monitor indicates an increasing rate of radioactive gas releases. RBVE radiation monitors indicate above trip-setpoint of 11 mR/hr. Stack monitor off scale.
0915	0915	Level II radio pager update of General Emergency.
0930	0930	Emergency monitoring technicians (EMTs) measure 10 R/hr at site boundary.
0940	0940	General Emergency declared, on the basis of stack monitor off scale.*
0955	0955	Level II radio pager notification of a General Emergency.
1055	1055	Level II radio pager update of General Emergency.
1155	1155	Level II radio pager update of General Emergency.
1255	1255	Level II radio pager update of General Emergency.
1800	1315	EMTs measure 400 mR/hr at the site boundary.
1805	1320	Site Area Emergency declared on the basis of less than 1 R/hr whole body dose rate at the site boundary.
1820	1335	Level II radio pager notification of a Site Area Emergency.
1825	1340	Activate recovery organization at the station EOF.
Day 2	Day 1	
1350	1350	Radioactive noble gas release rate has decreased. Low-range stack monitor reads 10^4 counts per second.

*This second "General Emergency" announcement was called an "Alpha incident" in the Connecticut classification scheme. See Sec. 3.

Scenario Time	Clock Time	Event
1400	1400	Alert declared on the basis of whole body dose rate of less than 50 mR/hr at site boundary.
1400	1400	Reentry operations initiated.
1415	1415	Level II radio pager notification of an Alert. Termination of the emergency phase.
	1500	Recovery phase terminated.

2.2 OBSERVATIONS

A summary of the performance of 14 state facilities and 12 local emergency operating centers during the Millstone exercise is presented in the following sections.

2.2.1 Connecticut State Functions

I. Emergency Operations Facilities and Resources. The utility emergency operating facility (EOF) at Millstone is an outstanding facility. It is in a new building with ample space, its own power generator, a filtered, recirculated air supply, and radiation shielding of four feet of concrete. The state had a separate office used by the State Police liaison, and a desk for the Department of Environmental Protection (DEP) representative, located in the operations room about five feet from the emergency director's position. This made for easy and natural face-to-face communication. In addition, pertinent oral information received by either individual was easily heard by the other, obviating the need for repetition. Equipment for communication with the state emergency operations center (EOC) was outstanding, with a direct automatic-ring line to the EOC and a dimension phone set for the exclusive use of the DEP representative.

The status board in the EOF was not always updated promptly. It is suggested that the off-site radiation readings be displayed on a plot in the operations room, as discussed by the utility's emergency director and plant manager during the exercise. Maps showed sampling points and other necessary information. Security was thorough, efficient, and rapid.

Overall, the facilities and resources at the state EOC were evaluated as good. The EOC is located in the Hartford Armory, about two blocks north of the state capitol. The EOC (exclusive of the media center) covered an area of about 8000 square feet; the situation room itself covered about 1200 ft^2. There were contiguous, separate rooms for communications (radios plus telephone backups), a "Governor's Office" for high-level conferences, and another large room for general support functions. A section of the situation room was partially partitioned off to provide a semi-private area for radiological assessment functions. The walls of the situation room were covered with maps, displays, and message boards. Security was effective without being constricting. It was noted by observers in a local EOC that communications between the state EOC/Area CP offices and local EOCs were weak. Messages from the Area CP offices to local EOCs were infrequent and often not timely, particularly in the case of technical messages. It is recommended that more telephones be installed in the main operations room since many tables had only one telephone. Finally, to avoid delays in contacting AMTRACK, the Boston office should be notified instead of the Washington office, since the Boston office actually controls the trains through the area.

Facilities and resources at the Waterford media center were good overall. The media center (intended as a backup to the one at the state EOC) occupied the library of the Cohanzie school, and was about 500 square feet in area. Communications facilities consisted of dedicated telephones with backups. Security measures were excellent. No maps or other displays were in evidence.

The State Police EOC was located at the State Police Troop E Headquarters, adjacent to the northbound lanes of the Connecticut Turnpike between Norwich and Montville. Security was outstanding: access to the facility was through a locked door controlled by the dispatcher, and identification was required for entry. The operations room was about 17 x 34 ft, and had two large tables and a number of chairs. A small kitchen and dining area, along with sufficient toilet facilities, were available.

The radio pager for emergency notification was located in the dispatcher's room, but was moved to the EOC after that was manned. A dedicated telephone line was installed in the EOC for the exercise, and a multi-line

telephone was also available. These two phones were overloaded, but 17 telephone jacks are scheduled to be installed in the EOC, which will alleviate the problem. Additional telephones were located in other parts of the building. A portable radio was used to communicate with troopers on patrol, but not all of them could be reached with this equipment. The main radio in the dispatcher's office was used to contact all field personnel. The short distance between the EOC and the dispatcher caused slight delays in sending and receiving radio messages. The EOC was connected to the building's central PA system and one of the EBS radio stations. A hard-copy state police message system was available in another section of the building.

No status board or other maps showing the relocation centers, shelters, or population distribution were evident. One small-scale map marked with concentric circles every mile within the 10-mile EPZ was displayed, but it was difficult to read. A plastic overlay was used to mark access control points and to record current meteorological data. Before the declaration of the General Emergency, a map showing the evacuation routes was displayed. It is recommended that a status board be used, and additional maps be displayed, especially a large-scale map of the 10-mile EPZ. An overall evaluation of good was given to the facilities.

Overall, the facilities and resources at the Civil Air Patrol (CAP) Headquarters were good. Space was adequate, and internal and external communications good. Security, carried out by CAP cadets, was good. State and local maps were available in case search-and-rescue operations were necessary.

Emergency operations facilities and resources at the Area II CP Office received an overall evaluation of weak. The room itself is very small (15 x 15 ft), and the resulting noise problem caused important messages to be missed. A large map of the 10-mile EPZ was displayed, but maps of evacuation routes, relocation areas, and shelter areas were not available. Communications at this EOC are provided by an amateur radio operator, who brought in his own radio because the one owned by the Area II office was not functional; further, the office has no emergency power source. Although this office had a relatively low level of responsibility in this exercise, under higher activity levels these deficiencies would be more significant; participants in the exercise suggested that this responsibility could be better discharged, in view of the present facility's weaknesses, by moving the Office and its function to the Meriden EOC, which was considered a better facility.

The Area III CP Office communication systems were good; however, the backup radios were brought in by the Communications Officer. A dedicated system for this purpose would be an improvement. The working space was small, with a high noise level. Separate rooms for radios and for briefings are desirable. The displays were acceptable, but did not include directions to relocation centers.

The Area IV CP Office demonstrated a good level of overall preparedness, and good security. The working space comprised two small rooms over the State Police Headquarters. One of the rooms contained the two amateur radios and the CP radio and telephone, all operating at the same time. The noise level at times made it difficult to keep communications flowing; a larger work area should be provided.

The functions of decontamination, reception, and sheltering in the Windham/ Willimantic reception area were controlled from a facility in the Willimantic Fire and Police Station. The facility had good working space and was well organized. Internal communications were very good since rooms were linked by a special telephone line that could be activated by the emergency director. The only map, however, showed the decontamination center and the four shelter areas. A map showing evacuation and reentry routes is recommended. Commercial telephones and amateur radios were available for outside communication. During this exercise, all communications with Area IV CP headquarters and other shelters were by telephone. Security was outstanding: all persons entering the facility were required to sign in and were checked for contamination.

At the Wethersfield reception center, overall operations were evaluated as good. Working space was acceptable; displays were good. Internal communications were outstanding. Constant communication was maintained between the town manager and the CD radio operator in police headquarters via a hand-held radio maintained by the communications officer at the reception center.

The Norwich State Hospital is a state mental hospital located on Route 12; it will be used for decontamination and treatment of emergency workers. Because the hospital occupies a large area and consists of many separate buildings, contaminated workers may have a difficult time finding the right building; some provision, such as signs on the hospital grounds, should be

made for this problem. The space provided for personnel decontamination appears to be adequate for state emergency workers. Internal communications for the decontamination area were handled by message runners. No rating was assigned to this facility.

The Southeast Area Transit (SEAT) District Garage will be used for decontamination of emergency vehicles. In addition, buses could be provided from the garage to assist in the evacuation. The garage is a good facility for vehicle decontamination, since it has an automatic bus washer. At present, there is no radio communication between buses and the garage, but a radio system will be installed within the next year.

II. Alerting and Mobilization of Staff and Officials. The officials and staff at the utility EOF were alerted and mobilized rapidly by means of radio pagers. A capability to man the facility on a 24-hour basis was not observed.

Two state field monitoring teams were observed during the exercise. The teams, one of which was composed of a state employee and an employee of the Electric Boat Division of General Dynamics Corporation, and the other of two Electric Boat employees, arrived at the police barracks in a timely manner, within about 45 minutes of the notification of alert status.

Mobilization of the state EOC was good. Staffing was timely and effective; most posts were manned by 0700, and the center was fully operational by shortly after 0800. A change of shift, indicating capability for continuous 24-hour operation, was simulated by some sections of the staff and actually demonstrated by others. There were fewer assigned personnel present than in previous exercises, but they seemed to work more efficiently. Security measures had been streamlined to eliminate delays at the entrance to the EOC. The participants had been aware of the date of the exercise, but were surprised at the early starting hour.

Personnel at the Waterford media center were notified by telephone. By 0700 the center was fully staffed, with state, local, and utility representatives available. Overall capability was good.

The State Police have a dispatcher on duty 24 hours each day, so the initial emergency alerting capability is outstanding. On being notified of the "Unusual Event" status at the Millstone power station, the Troop E headquarters contacted the State Police Headquarters in Hartford to initiate the alerting of state personnel. It appeared that state emergency response personnel had been instructed to report to the EOC by 0600 hours, instead of being notified by the alerting procedure. The State Police have regular mobilization testing, and most Troop E personnel can be reached within 30 minutes; State Police in the rest of the state can be notified within 1.5 hours. A 24-hour operational capability is achievable with two 12-hour shifts. Staffing of the EOC was outstanding, with assigned personnel for all tasks. Hence, alerting and mobilization of officials and staff were considered outstanding.

Alerting of staff and manning of the CAP headquarters was timely. Twenty-four hour capability was described by the squadron commander. Participants were cooperative, interested, and appeared qualified for their assignments.

Key personnel in the Area II CP Office were mobilized promptly; notification was by phone. Should the phones fail, the State Police would notify people personally. Reserve personnel are not pre-designated: the director would obtain additional personnel through the state CP office, as necessary. If such additional, undesignated personnel should be untrained, emergency operations in the area office could be hampered. Communications with the state were generally good, but problems of message clarity occurred: for example, the statement "radiation level insignificant" was interpreted as "radiation level is significant". Amateur radio was the only link with the medical facilities, via a radio-phone link through New Haven. The performance of the amateur radio operator was good: messages were clear and precise.

Alerting and mobilization of staff for the Area III CP Office was good, but could have been improved if the coordinator and his assistant had radio pagers. This office should have alerted the Hartford and East Hartford host communities as a precautionary measure, but did not do so in a timely manner. A shift change, to allow continuous 24-hour operation, was demonstrated.

The coordinator of the Area IV CP Office was notified by radio pager, and he called the other six emergency staff members. All of the staff were at the CP office in a timely manner. A shift change was not demonstrated; however, a list of second-shift personnel was available.

At the Windham/Willimantic reception center and shelter, alerting and mobilization of officials and staff were evaluated as good. Twenty-four hour initial alerting capability at this facility was outstanding, because the fire station is a 24-hour operation. A shift change was performed during the exercise. Communications with fixed and mobile medical facilities were outstanding. The shelter began activation promptly after the notification was given and was fully operational by the time the first evacuees arrived.

At the Wethersfield reception center and the SLAT garage, alerting and mobilization of officials and staff were not observed.

Alerting and notification of the Lawrence Memorial Hospital and Ambulance Service were outstanding. The fire department, ambulance service, and hospital were all notified promptly, and all have round-the-clock coverage.

At the Norwich State Hospital, the switchboard is operated 24 hours per day. Personnel from other departments of the Office of Emergency Medical Services would be utilized to provide communication, liaison, and personnel decontamination. No rating was given this facility.

III. Emergency Operations Management. The management of emergency operations at the utility EOF was good. Information interchange between the DEP representative at the EOF and the utility personnel making the dose assessments was very good, as was that between the DEP representative and the Director of Station Emergency Operations. The DEP representative also kept the State Police liaison officer informed of the progress of the accident, and provided him explanations of the significance of events and off-site findings and their potencial impacts on State Police operations. The DEP representative seemed to be accepted as a vital member of the EOF team. Information flow between the EOF and the EOC was smooth, voluminous, and detailed. The emergency classification system was the only deficiency noted in this category; it was not consistent with that of NUREG-0654. The written procedures that were used to advise the state to consider or to take precautionary measures were well prepared. Briefings were given the staff at about half-hour intervals.

Management at the state EOC was good. Responsibilities and chains of command were clear. State support functions were integrated into the overall plan. The Governor and other top officials participated personally in the exercise. The decision-making process has been streamlined and greatly improved, probably as a result of experience gained in a previous exercise. The Connecticut emergency classification system was used, instead of that specified by NUREG-0654. Internal communications at the EOC could be improved, as the participants were not always apprised of what others were doing. However, the state EOC functioned effectively in this exercise, and basically in accordance with the plan.

Organization and management at the Waterford media center were evaluated as good. Leadership and control were displayed by the coordinator. Although there was minimal message flow during the time the facility was being observed, what there was went smoothly.

Emergency operations management at the State Police EOC was outstanding. A Task Force Commander with the rank of major was in charge of EOC operations. He was assisted by his alternate, a lieutenant, plus the Troop E station commander, another lieutenant.

The commanding officer for emergency service, a lieutenant, was in charge of radiological activities, i.e., issuance of dosimeters, exposure determination and record keeping, contamination monitoring, etc. Name tags, rank, and personal recognition clearly identified the EOC leaders. Decision making was timely and decisive. Checklists were not evident, but written procedures were available and were referred to. A National Guard officer was present to assist the State Police, and he simulated the mobilization of guardsmen to assist with traffic control during the evacuation. A police sergeant assisted with operations, and a trooper handled the telephone communications in an outstanding fashion. Messages were all recorded and an operations log was maintained. There were no formal staff briefings, but discussions were held on required actions, such as appropriate traffic control points and routing. Periodic oral briefings on the emergency situation were given, but additional sessions would be desirable. Communications with the State Police representative at the state EOC and at the EOF were conducted at appropriate times. The Task Force Commander held a pre- and post-exercise

briefing for all the emergency response staff. The NUREG-0654 emergency classification system was used, but the Connecticut system (Alpha, Bravo, etc.) was more prevalent.

Organization and control at the CAP was outstanding. Responsibilities and chains of command were clearly defined. Leadership and support were displayed by all participants. Checklists were given to each team so that standard performance would be maintained.

Management of the Area II CP Office was good. No problems existed in lines of authority, although no written procedures exist. The follow-up discussions of who talked to whom broke down when things got busy, and consequently the 5-mile evacuation notice was missed by key officials. The area CP director, on his own initiative, contacted Area III directly to resolve a confusing situation concerning evacuees. On another occasion he asked the state to issue a message over amateur radio to all EPZ communities when Area IV was having communication problems. This capability for independent actions indicates the worth of Area CP offices during radiological emergencies.

The three-man staff of the Area III CP Office was clearly directed by the area coordinator, but additional staff personnel would improve operations. There was a good flow of internal information, but message taking may have been a problem, as it was understood by the director that the Waterford school was to be evacuated at 0738 hrs, whereas in reality that occurred at 0900.

The overall management, organization control, and leadership at the Area IV CP Office was demonstrated to be good. The coordinator did a good job of making all the decisions, and the protective action guides were continually used throughout the exercise. It is suggested that additional phones, with lights and less noisy bells, be installed.

Demonstration of emergency operations management at the Windham/Willimantic reception center and shelter received an overall evaluation of good. At the outset, some confusion existed among the CP director, the Fire Chief, and the acting director of the Red Cross as to who was in the leadership role, but this confusion was soon resolved, and the Fire Chief assumed the leadership role. He subsequently held frequent discussions with the CP director and the rest of the staff before carrying out any actions. Checklists were also used to help the staff carry out their functions.

At the Wethersfield reception center there were good organization, control, leadership, and support by local officials. There was outstanding flow of information from the assistant town manager to his staff.

For the Lawrence Memorial Hospital and Ambulance Service, emergency operations management was well handled. The control and chain of command were followed quite well.

At the Norwich State Hospital, emergency operations management was acceptable. The Department of Health needs to discuss what the roles and responsibilities of the hospital staff would be during a radiological emergency.

The SEAT garage is well equipped to decontaminate emergency vehicles but the staff at the facility need to be trained.

IV. Public Alerting and Notification. Public alerting and notification is primarily a local function, and was not evaluated at the state EOC. It was noted, however, that good use was made of the EBS by the State for dissemination of information to the public.

These functions were not fully evaluated at the Area III CP Office, but it was noted that notification messages to local EOCs were timely and were confirmed.

During the exercise at the Area IV CP Office, messages pertaining to the use of sirens were sent out and received. Messages to the local EOCs, via amateur radio, instructed them to stand by and be ready to evacuate their towns. The town of Old Lyme activated sirens at 1335 hrs. Groton simulated the use of sirens, as theirs were not operational at the time. No overall rating was assigned because these functions were not fully observed.

Public alerting and notification were not required of the utility EOF, the field monitoring teams, Waterford media center, State Police, CAP, Area II CP Office, Windham/Willimantic reception center and shelter, Wethersfield reception center, Norwich State Hospital, Lawrence Memorial Hospital, and the SEAT garage, and hence were not observed.

V. Public and Media Relations. The media relations observed at the state EOC were outstanding. Press releases were frequent, timely, and well written. The operation was well coordinated, with all relevant information readily available. The Governor's press secretary did an outstanding job. Use of the media and rumor-control centers was simulated. In an actual emergency, the media center would be located in a large room directly over the EOC. The press was excluded from the EOC except for a brief period when they were permitted inside only to take pictures. Evidence of prior dissemination of information to the public was not observed.

Although the Waterford media center was well organized and prepared for media interactions, no news personnel had arrived by the time the observer left at 0800 hrs. Evidence of prior dissemination of information to the public and news media was not observed; this might not be a function of a secondary media center such as the one at Waterford.

Public and media relations at the Wethersfield reception center were outstanding. Media personnel were allowed to observe and take pictures; the town manager was the media contact person.

Public and media relations were not required of the utility EOF, the field monitoring teams, State Police, CAP, Areas II, III, and IV CP Offices, Windham/Willimantic reception center and shelter, the Lawrence Memorial Hospital, the Norwich State Hospital, and the SEAT garage, and were therefore not observed.

VI. Accident Assessment. Accident assessment operations went very smoothly at the utility EOF. The EOC kept the DEP representative in the EOF informed of EOC activities, and the DEP representative transmitted this information to the utility personnel; he also apprised the DEP representative in Waterford of the field situation. This interchange seemed to encourage the utility to make recommendations for future action before required, i.e., they anticipated necessary actions related to the continuing deterioration of plant conditions.

The EOF had a separate area for receipt and evaluation of off-site field-team reports; this area contained maps with the readings and a blackboard showing the locations of the teams. One error in radiation monitoring

was noted, when a reading at the base of the stack was misinterpreted as originating from the high-range stack monitor. This resulted in an erroneous value for the stack release rate and an incorrect dose projection. However, the state representatives at the EOF, the state EOC, the Waterford EOC, and dose assessment personnel at the power station all questioned these results. Their skepticism was substantiated and the projections were corrected when the error in interpretation was discovered.

The field monitoring teams had adequate equipment and written procedures and checklists. They had portable radiation survey instruments and air samplers for the measurement of airborne particulates and of radioiodines in the range of 1×10^{-7} Ci/cc. The equipment was checked carefully by the team members and found to work well. Both direct-reading and permanent (TLD) personal dosimeters were used. The teams had appropriate respirators, and they appeared to know how to use them. The teams simulated tracking the plume from point to point satisfactorily.

The team members from Electric Boat Division were well trained for monitoring. The state employees performed acceptably as driver and communicator, but needed more training in the terminology of radiation monitoring.

Some improvements in the monitoring procedures were suggested by the observers: communication with monitoring teams would be simpler and more reliable if the teams talked directly with the EOC, instead of having messages relayed, sometimes through two intermediates. The teams should be given more latitude to leave the radiation cloud to count air samples or to reduce their radiation doses. Data were often gathered in bunches, especially external exposure rate data. The reporting forms helped to organize the required documentation. Transmitting data back to the EOC in bunches should be avoided, as evidenced by several failed attempts by one of the team members. It was decided that the best procedure was to read one row of data from the report sheet, have it repeated back, and then read the next line of data.

Accident assessment was evaluated as good at the state EOC. The radiological assessment function was carried out by the Department of Environmental Protection (DEP), in an area partially partitioned off from the EOC

situation room. A dedicated telephone line to the utility EOF was manned (at the EOC) by a qualified utility representative. A total of eight field monitoring teams (including two for ingestion pathway sampling) were dispatched from the state EOC by three state agencies. Accident assessment was prompt, and recommendations for protective measures were quickly communicated to responsible state officials. Accurate dose projections, however, were delayed because of a utility error in interpreting simulated source-strength readings at the exhaust stack.

At the CAP, a CDV-777 kit of monitoring equipment was available, and could have been utilized to monitor the plume by air. Overall capability was rated good.

Accident assessment was not required of the State Police, the Waterford media center, the Area II, III, and IV CP Offices, the Wethersfield reception center, Norwich State Hospital, Lawrence Memorial Hospital, the SEAT garage, and the Windham/Willimantic reception center and shelter, was not observed at these sites.

VII. Actions to Protect the Public. Actions at the state EOC were good. Decisions were promptly made and decisively executed. It is questionable whether the evacuation centers specified for this exercise could have handled the number recommended to be evacuated.

The State Police have only a limited function in evacuation, sheltering, reception, and care of the public. Troop E personnel manned access-control points and assisted local police with traffic control during evacuation activities. Requests for assistance from other State Police Troops were simulated. At the request of the New London Police Department, six troopers were dispatched (in simulation) to help control looting; after all available State Police personnel were committed to tasks, the National Guard representatives were asked to supply guardsmen to assist in traffic control.

The CAP demonstrated aerial monitoring of evacuations, traffic patterns, and the like.

The actions of the Area III CP Office to protect the public were acceptable, but arrangements should have been made to escort the caravan of school

buses through this area on the way to the Wethersfield reception center: the buses were delayed because of wrong turns.

Communications constantly flowed to and from the Area IV CP Office regarding actions to protect the public. Good communications between Area IV and the state EOC, the between Area IV and the local EOCs, were provided by amateur radio operators.

Actions to protect the public at the Windham/Willimantic reception center and shelter received an overall evaluation of good. Evacuees consisted of 26 elderly people; they were monitored for contamination and then registered. Blankets, cots, food, etc. were available at the shelter, with health care and special supplies available through the Red Cross emergency nurse and the hospital.

The evacuation of students and teachers from the Quaker Hill School to the Wethersfield reception center received an overall evaluation of good. In order to conform to the school schedule, the evacuation was demonstrated between 0900 and 1430, and hence was not synchronous with the exercise. A four-bus convoy was to transport the evacuees to Colchester, where they were to be transferred to other buses and taken to the reception center; the initial buses were then to return to the school for more evacuees. However, the school at the transfer point had not been notified, and the second set of buses was not available. Nurses rode with the students in case any emergencies occurred enroute. Three different radio nets were used for communication with the convoy, and although this was effective, it was felt that communication would be simpler if an amateur radio operator dealt directly with the CB radio in the first bus. The bus drivers had inadequate maps; consequently, they got lost and had to ask directions. The reception center operations for this drill were good, but more space and staff would be needed in an actual emergency. The evacuation was well planned (except for the omission of the transfer to new buses), but it is not clear whether it could have been as efficient had it begun unannounced.

Actions to protect the public were not required of the utility EOF, the field monitoring teams, Waterford media center, the Area II CP Office, Norwich State Hospital, and the SEAT garage, and were not observed.

VIII. Health, Medical, and Exposure Control Measures. Overall capability at the utility EOF was outstanding. The decision to authorize the use of potassium iodide (KI) was made by the medical director of NUSCO. Dose readings were made frequently for the emergency workers, and their dose records were maintained by a designated crew on a 24-hour basis.

Connecticut does not have a policy (though one is reported to be in preparation) for protecting emergency workers with KI; there are no plans for distributing KI to the general population. The field monitoring teams had no KI in their kits. The teams monitored their exposure histories adequately, read their dosimeters regularly, and recorded the data in a running log.

The primary function of the State Police in health, medical, and exposure control measures is access control. From the state EOC it was observed that the State Police demonstrated access control by setting up roadblocks on I-95. Patrol cars were sent to six locations in a timely manner. Control point No. 1, at the Niantic River Bridge, was occupied at 0704 hrs, and the last post was manned at 0755. The Department of Transportation supplied drums for roadblocks to each of the access control points. All troopers were knowledgeable about their functions, had CDV-777-1 radiological monitoring kits, and wore two dosimeters. Each trooper knew how to zero and check for proper operation of the detectors in the monitoring kit. Radiation dose records were kept on all State Police emergency-response personnel. The radiological defense officer kept track of the total dose received by each individual, and was prepared to rotate personnel out of an area when it appeared that they were approaching the maximum permissible dose level of 25 rem whole body. All returning patrol cars were checked for contamination; any contaminated equipment would be sent to the SEAT garage for decontamination. The State Police also responded to a request to deliver dosimeters to the community of Groton.

Health, medical, and exposure control measures at the Windham/Willimantic reception center and shelter were demonstrated to be good. Medical services were acceptably provided by a trained Red Cross emergency nurse in a separate area of the shelter. A local hospital was readied to accept personnel and provide additional supplies. Contamination monitoring capability was

good. All police and fire vehicles were equipped with CDV-777-1 radiation monitoring kits, and the staff has received training in their use. A separate, outside area for decontamination was also provided.

At the Lawrence Memorial Hospital and Ambulance Service, the monitoring of an onsite victim for contamination was done by utility personnel, although ambulance personnel have the equipment and the training to handle this. Lawrence Memorial Hospital did not fully participate in the exercise, but did receive the patient and provided a nurse. A conference room with an adjacent shower served as a decontamination room; however, some consideration should be given to radioactive waste disposal. The activities at this location received an overall rating of acceptable.

Health, medical, and exposure control at the Norwich State Hospital received an overall rating of good. However, it was noted that there is a need to define the function of the hospital personnel in this area.

At the SEAT garage, the scenario called for activation of a vehicle decontamination center, but this capability was not demonstrated because the personnel at the SEAT garage were unaware of their roles. The facility has the potential capability, but planning and training are needed.

Health, medical, and exposure control measures were not required of the Waterford media center, the Area II, III, and IV CP Offices, and the Wethersfield reception center and shelter, and were not observed.

IX. Recovery and Reentry Operations. The reentry decision process was demonstrated (with a greatly compressed time scale) at the state EOC. The Governor's stand-in, relevant agency heads, and the utility representative participated in a realistic execution of the scenario. Priorities were established and responsibilities assigned.

There were no observed recovery and reentry operations by the State Police. However, they would not allow access to an evacuated area until the local community had fire and police personnel available to support the reentry. In addition, the State Police required state authorization for reentry.

Recovery and reentry operations at the Area III CP Office were not fully evaluated, but it was noted that their responsibilities were to pass on recovery and reentry messages from the state to the local EOCs.

The Area IV CP Office received the following recovery and reentry message from the state EOC: "The state EOC will provide reentry instructions from the media center over EBS. The State Police will control reentry operations. Target reentry time will be at 10:30 a.m., 3/21/82". These instructions were relayed by this office to all chief executives at local EOCs. Overall capability for recovery and reentry operations was considered good.

At all other areas, the scenario was not long enough to permit recovery and reentry to be demonstrated.

X. Relevance of the Exercise Experience. This exercise was an excellent experience for the participants at the utility EOF. The unexpectedly fast-developing accident scenario demonstrated well the ability of the state to react rapidly. The exercise was an excellent test of the working relations between the DEP representative and the utility staff at the EOF.

The scenario showed that the state field monitoring teams were adequate in a short exercise, but no 24-hour staffing capability was demonstrated. The scenario also showed that direct communication between the field teams and the state EOC was needed.

Relevance at the state EOC was judged to be good. The participants, including the Governor and his cabinet, participated enthusiastically, and appeared to learn from the exercise. Briefings to the Governor were to the point, and recommendations were quickly understood and accepted. The scenario emphasized the need for good field monitoring teams, and for instruments designed to read both high and low gamma radiation levels, and also iodine concentrations, accurately.

The Waterford media center was not observed long enough to allow a judgment on relevance of the exercise. The participants expressed the opinion that the drill was needed, and said they were looking forward to the day's activity.

The exercise tested the capabilities of the State Police for emergency notification, access control, and assistance during evacuation and reentry. The scenario should have allowed a longer time period for reentry. The State Police troopers felt they had learned a minimal amount about their equipment, and were interested in becoming more knowledgeable.

At the CAP the exercise enabled the participants to become more familiar with the procedures and with the use of the radiological monitoring equipment.

The exercise had limited benefit to the AREA II CP Office, as their responsibility was limited to communications with only one town (Old Saybrook). It did, however, allow a test of the communications facilities and pointed up the weak resources provided to this area office.

The exercise was a good experience for the Area III CP Office, as it tested all applicable phases of a radiological emergency.

The exercise was outstanding at providing Area IV CP Office participants with the experience of an incident at a nuclear plant. The scenario was good, although there was not enough exercise of reentry.

At the Windham/Willimantic reception center and shelter, the Wethersfield reception center, the Norwich State Hospital, and the Lawrence Memorial Hospital and Ambulance Service, it was felt that the exercise was a good experience for the participants. It was a good test of the resources of these locations, and performance of actual evacuations instead of simulations enhanced the exercise experience.

However, at the SEAT garage, the exercise experience was a weak test of the participants, primarily because they did not know what their function in the exercise was. This area needs to be addressed by the state DOT staff.

2.2.2 Local Functions

East Lyme

The emergency operations facilities and resources for the town of East Lyme were good. The working space was acceptable, but will be more effective when the new communication system, scheduled for completion in June 1982, is operating in a separate room. Likewise, internal communications are presently acceptable, but the new communication system will make more telephones available. Some problems were created in receiving the "General Emergency" message by an apparent malfunction of the tape-recorded message at the nuclear plant. Also, Area IV neglected to advise the EOC the Governor had ordered an evacuation of the 2-mile EPZ, but the message was eventually

received from Waterford. Displays were good and well positioned, but a population map is needed. Finally, security was outstanding: a local policeman was stationed at the only unlocked door.

Alerting and mobilization of officials and staff were good and were accomplished in a timely manner via radio pagers and telephone calls. This capability will be upgraded with the completion of the new communication system. Staffing was outstanding, since all department heads were present; 24-hour capability was also outstanding, with several backup persons for each position.

Emergency operations management was good. The First Selectman was definitely in charge and made all decisions after discussions with the appropriate agency directors. Decision making was good, with final decisions made by the First Selectman after using checklists and the plan. A question was raised during the exercise concerning whether the Governor or the local officials authorize evacuation of an area. This question should be clarified soon.

Public alerting and notification were weak because the new siren system was still being installed. There are 18 mobile public address systems on town vehicles, and it is estimated that it would take about one hour to notify all people within the 5-mile EPZ.

Public and media relations were largely unobserved because the media center for the communities of East Lyme, New London, and Waterford is located in Waterford.

Accident assessment and health, medical, and exposure control measures were not observed, but it was reported by the radiological defense officer that radiological monitoring equipment and dosimeters were in short supply at the EOC.

Actions to protect the public were not observed at this EOC, since sheltering, evacuation, and transportation were all simulated.

Recovery and reentry operations were acceptable. Technical questions raised by the First Selectman were not answered to his satisfaction by the utility EOF, so he elected to be conservative: he waited until the emergency was downgraded to "Alert" status before permitting reentry.

The exercise was beneficial to the participants in that it pinpointed areas that are weak and need to be upgraded. Participants felt that the scenario was a good test of their capabilities, but they would have liked to see a wind change in the scenario that would have placed East Lyme in the plume, so that more of their capabilities would have been tested.

Town of Groton

The emergency operations facilities and resources for the town of Groton were good. Both primary and secondary communications worked well. A courier shuttled messages between the main part of the EOC and the communications command-post located upstairs. Apparent problems with the taped messages at the EOF were noted by observers at Groton (and at some other EOCs). The EOC working space was outstanding. It was located in a new facility housing the police station and firing range; there was plenty of space, furniture, lights, etc. Security was tight: those entering were required to show identification and to sign in. Maps showing evacuation routes and population distribution were available in the plan, but they should be enlarged for wall display.

Alerting and mobilization of officials and staff at the EOC were good. Emergency response personnel were very conscientious and 12-hour shifts were scheduled to provide for a 24-hour continuous capability. The personnel at the message table demonstrated a shift change.

Emergency operations management was also good. The town manager was clearly in charge and had good support from the CP Director and other staff members. Checklists were used regarding procedures to be followed for each emergency classification. However, although the emergency classification system is uniformly used and understood in Connecticut, it differs from the system listed in NUREG-0654, and could confuse non-Connecticut personnel; it has been identified as a significant deficiency in the state plan.

Public alerting and notification were weak, because the sirens were not in operation. The fire and police departments tested their vehicular PA systems, but this method should be used only as a backup. Calls to notify the EBS station were timely.

Public and media relations were mostly not observed, but facilities for press releases appear to be adequate and a spokesperson has been designated for media contact. Public information concerning emergency planning is currently not available, but a brochure is forthcoming from the utility and will be mailed to all affected residents.

Accident assessment activities were not performed by personnel at this EOC and hence were not observed.

Actions to protect the public were generally good. Although the town was outside the 5-mile evacuation zone, 25 senior citizens were evacuated by bus to a host area to test the town's evacuation capability; this demonstration appeared to work well. However, the EOC does not have a list of deaf and mobility-impaired citizens, nor does it have special transportation plans for evacuation of the mobility-impaired. This situation needs to be rectified. The police department did an outstanding job of traffic control, and evacuation routes were adequately designated.

Health, medical, and exposure control measures were good. The emergency workers have had 20 hours of training in radiological health and are well prepared to use the necessary equipment. However, low-range dosimeters are needed; the State Police were able to provide the EOC only with high-range dosimeters. For emergency medical services, the EOC has a communication link with the Groton Clinic, which ties into the New London Hospital. The hospital is prepared to treat contamination victims.

Due to the time compression of the scenario, recovery and reentry operations were not observed, but the Town Manager held a staff discussion on the subject and the appropriate local response. More planning needs to be done, however, for the dissemination of information to the returning evacuees.

The exercise was beneficial to the participants, in that it prompted them to become familiar with the plan and their individual responsibilities. By moving quickly in the beginning, the scenario was a good test of the mobilization of staff and resources and of the response time of the staff. The participants themselves generally rated the scenario positive.

City of Groton

The emergency operations facilities and resources for the City of Groton were good. Their communications systems were good. There were initially some problems with noise in the EOC, but the staff set up partitions as noise barriers. More electrical outlets are needed in the EOC. More outside antenna connections would improve radio reception. Maps and displays were good. The staff is to be commended for their quick response in changing evacuation routes when a change in wind direction caused the plume to cross the planned route. The only item lacking at the EOC was security. Although the location of the EOC in an out-of-way cellar made it unlikely to attract the attention of people with no need to be there, some form of security control should be implemented.

Alerting and mobilization of officials and staff at the EOC were good. All key staff personnel knew their roles and worked effectively.

Emergency operations management was outstanding. Departmental responsibilities were clearly assigned, and the staff worked together effectively. The mayor and emergency coordinator worked well together.

Public alerting and notification are acceptable, but deficiencies were noted with respect to the plan and equipment. The utility company is installing sirens, which should improve public alerting. The current plan for notification showed flaws upon demonstration, which were recognized and will be modified.

Public and media relations were acceptable. Attention should be given to rumor control; no procedures were apparent.

Accident assessment capability at the EOC was outstanding: both monitoring equipment and personnel to staff two teams were provided by Electric Boat Division.

Actions to protect the public were acceptable, but the capability for evacuating senior citizens in the city should be addressed: no transportation is available for them.

Health, medical, and exposure control measures were good. The medical staff and radiological monitoring capability is outstanding. Access control points were manned quickly. However, dosimeters were not available. This problem is recognized by the staff, and should be rectified.

Time compression in the scenario made recovery and reentry operations a little confused, but the EOC staff exhibited good planning and had good resources available. Overall, recovery and reentry operations were outstanding.

The exercise was an outstanding learning experience for all involved. The team was very conscientious, and discussed specific issues needing attention during lulls in the exercise.

Lyme

Overall, emergency operations facilities and resources were acceptable. Displays showing evacuation routes, relocation centers, and sampling points would improve existing operational assessments. A population distribution map is suggested to improve evacuation planning. A more suitable antenna for the amateur radio backup communication system would improve capabilities. Security measures were acceptable; a log of visitors was used to monitor access to the EOC.

Alerting and mobilization of officials and staff was effective and timely. Additional radio pagers and other equipment would enhance overall notification capability. Capability for continuous 24-hour operation was acceptable. Training of additional personnel would improve capabilities in the event of extended operation of the EOC.

Emergency operations management was good overall. Acceptable leadership and control were demonstrated over an extended period of time. Additional formal and on-the-job training about the local plan, the standard operating procedures, and the protective action guides would improve management of emergency operation.

Sirens for public alerting and notification are being installed, but were not operational for the exercise; therefore this capability was considered weak. The local EOC staff is familiar with the alerting and notification procedures; however, the general and transient populace would require additional information in the event of an actual incident. Such information will be distributed to the public once the sirens are installed. EBS messages were prepared and properly cleared through the state media center, but provisions for disseminating information through the local radio station via a centralized EBS mechanism was not clear to the EOC staff.

Public and media relations at the Lyme EOC were handled by the EOC director. No media facility was established since all media releases from the Lyme EOC were placed through the state media center for dissemination through the EBS. However, provisions for rumor control need to be instituted.

Accident assessment activities were not performed by the staff at the Lyme EOC. Nevertheless, appropriate actions were discussed. Two more low-level dosimeters would improve the existing personnel monitoring capability.

Actions to protect the public were also not required at the Lyme EOC since it was located outside the plume pathway. However, it was evident that protective measures, including protection of mobility-impaired persons, were understood and could be acceptably performed in an actual emergency.

Although health, medical, and exposure control measures were not demonstrated, control of access to evacuated areas could be carried out acceptably should an actual emergency arise.

Recovery and reentry activities were also not exercised, again because Lyme was outside the plume EPZ.

The relevance of the exercise was good at the Lyme EOC; personnel benefitted from the exercise of the activities they performed, and they would benefit further from exercising evacuation, health and exposure control, and recovery and reentry procedures.

Old Lyme

Overall, the emergency operations facilities and resources at the Old Lyme EOC were good. The working space was a dedicated area for emergency

operations, with good maps, displays, and primary and backup communication equipment. An activity log and population distribution map should be added; on-the-job training is suggested to improve information flow between the local EOC and the Area IV CP office. Security measures were outstanding; a State Trooper checked identification and controlled access to the EOC.

Radio pagers were used to alert and mobilize the selectman and civil defense directors and were outstanding for the purpose. Additional on-the-job training may be necessary for personnel who did not participate in the exercise. Staffing was acceptable for 24-hour capability, but additional equipment such as cots and kitchen facilities may be necessary in an actual emergency.

Emergency operations management was good, with specific individuals given defined roles. The First Selectman was clearly in charge. Some additional on-the-job training and review of the emergency response plan and procedures by all participants would improve the flow of information.

The public alerting and notification sirens were not in place. Additional on-the-job training is suggested for the EOC staff to reduce confusion regarding their role in public alerting and notification. Messages for the emergency broadcast system (EBS) were developed but not transmitted. Reorganization of the plan and additional on-the-job training are necessary to reduce confusion regarding information that should be given to the EBS. The overall capability for public alerting and notification was acceptable.

A media spokesperson and appropriate points of contact have been designated for media relations. However, dissemination of information to the public has not been completed, and a public information program for transient persons has not been established. The overall capability for public and media relations was acceptable.

Accident assessment capabilities were not observed at the Old Lyme EOC. State information on accident assessment would be transferred to the EOC, and recommended state actions would be followed.

Actions to protect the public were acceptable, however, it is suggested that additional on-the-job training and review of the plan be undertaken to

clarify procedures for notifying and evacuating the population, including mobility-impaired and institutionally confined persons and school children.

Exposure control equipment and supplies were available, procedures were known, and capabilities appeared to be acceptable, even though these activities were not fully tested by the exercise. Decontamination facilities do not exist at present but plans are being made to correct this situation.

Recovery and reentry operations were not tested in the exercise.

The exercise provided the participants an opportunity to become aware of problems and develop corrective actions, and was evaluated as acceptable.

Fishers Island, New York

The Fishers Island EOC is located in the town fire station, and is well organized and equipped for emergency response operations. Displays, working space, and amenities were acceptable. A possible problem of overloaded phones could be solved by using amateur radios as a backup system. Security measures already in place at the fire station provide outstanding protection. Overall, emergency facilities and resources were good.

The alerting and mobilization of officials and staff were accomplished through radio pagers, Fire Department sirens, and the telephone system. Continuous, 24-hour emergency response capability exists, and communication among the community's citizens is outstanding. The Fire Department emergency response vehicles including a 36-ft boat, are equipped with appropriate equipment for communication with medical facilities. The overall capability for alerting and mobilization was good.

Overall, emergency operations management was good. Appropriate organizations were established, a specific individual was in charge, the emergency classification system was understood, and effective coordination of activities was observed. Additional on-the-job training would improve these capabilities.

The siren and PA system were not tested. Once the siren is fully operational, capabilities for alerting the public would appear to be acceptable. Questions were raised at the EOC concerning coordination of the sirens with EBS messages. There is a backup power system for the siren system.

Media relations did not occur at the Fishers Island EOC. Information has not been disseminated to the public, but is expected to be in April, 1982. A media spokesperson was designated, and appropriate arrangements were made for press briefings, even though they were not tested.

The overall accident assessment capability was acceptable, but additional training, both on the job and formal, and additional equipment would improve this capability. Specifically, it is suggested that the EOC staff receive training in field monitoring and use of radiological equipment.

No actions to protect the public were taken by the local EOC. Discussions on sheltering and evacuation options took place. It was evident that plan clarification is necessary to resolve questions regarding alternative evacuation routes and ability to evacuate a large population during the summer months.

Health, medical, and exposure control measures were considered acceptable overall. Additional training for dosimeter reading and record maintenance is suggested. Knowledge of decontamination procedures was good; again, additional on-the-job training would improve capability. Acceptable capability was observed for transportation of accident victims to medical facilities.

Recovery and reentry operations were not observed.

The exercise experience was good; it presented an opportunity for the participants to test most emergency response activities. Relevant questions were asked, and in most cases suitable responses were provided. Participants became aware of future needs and gained valuable experience from the exercise.

New London

At the New London EOC, the emergency operations facilities and resources were good. The EOC was located in a police station, and security was very tight. Everyone entering was required to show a photo ID. Working space could have been larger, and more telephones were needed. Some confusion and noise were created by people entering and leaving the EOC. These deficiencies should be taken care of once the new police station is built, since it will have a separate EOC room. Internal communications were good: staff briefings were held often, and a status board was clearly displayed. It is recommended that place cards be used to identify the key personnel. Maps

showing evacuation routes and access control points were displayed, but should have legends to facilitate their use. There were no maps showing sampling points, relocation centers, shelter areas, and population distribution.

Alerting and mobilization of officials and staff were outstanding. Because the EOC is in a police station, the capability exists for prompt initial alerting at any hour, and lists of backup personnel are available to assure capability for continuous 24-hour operation. The EOC was activated in a timely manner by the city manager and civil preparedness director at 0600; the remaining staff were then notified, and all arrived by 0800. Communication equipment used for alerting personnel were telephones, radio pagers and a radio. All fire department personnel have radio pagers, and ambulances were ready for use.

Emergency operations management was good. The city manager showed good leadership. His decisions were made after discussions with the appropriate staff members. Staff briefings were held after a change in emergency classification, a change in wind direction, and other unexpected happenings. Each organization had assigned responsibilities and carried them out in a timely manner. A few employees were unaware of their part in the exercise, but more on-the-job training should eliminate this problem. The deputy manager arrived at the EOC in late morning to show support for the exercise.

Public alerting and notification were carried out via sirens and EBS messages. Both EBS test messages at 0815 advising shelter and at 1015 advising evacuation were handled outstandingly. The sounding of sirens was simulated at 0830 and demonstrated at noon, and worked very well. A police patrol was also available to give information to the public. Public alerting and notification received an overall evaluation of outstanding.

Public and media relations were not observed at the New London EOC.

Accident assessment capability received an overall evaluation of good. The radiological defense officer (RDO) sent monitoring teams with Geiger counters to three locations around the town to determine radiation levels. No water or air samples were collected. In addition to the RDO, several firemen were knowledgeable in the area of radiological monitoring.

Actions to protect the public consisted of evacuating some elderly persons, some handicapped persons, and patients in convalescent centers to shelters. The state sent buses that are normally used for senior-citizen

services to carry out the evacuation. Police and Public Works personnel evacuated the people in a smooth and efficient manner. Accidents and traffic tie-ups were simulated enroute to the shelter, but they were immediately taken care of to avoid long delays. A radio message was used to inform potential evacuees who had no transportation to go to the mall for pick-up by bus, but the location of the shelter was not mentioned. Overall, actions to protect the public received an evaluation of good.

Health, medical, and exposure control were good. Firemen, policemen, and Public Works employees had dosimeters, and a decontamination area for emergency workers was set up at the Public Works Department building. The decontamination center lacked cleaning supplies and plastic bags for disposal of contaminated clothing. The police directed traffic during the evacuation and did an outstanding job handling simulated accidents and traffic jams. Police cars and ambulances were available for transporting injured emergency workers to medical facilities. Potassium iodide (KI) was distributed for emergency workers and EOC staff. Supplies were obtained by the Health Department from a drug store.

Recovery and reentry operations were also handled very well. The EOC director waited until the wind shifted before allowing reentry, even though the utility had declared that reentry was possible before then. The police directed traffic to insure a smooth reentry. A hotline was established for concerned citizens during reentry. The water reservoirs were also tested for contamination of the drinking water. However, more time is needed in the scenario to test the recovery and reentry capability fully.

The exercise provided a good opportunity for the townspeople to test their emergency plan for the first time. The participants felt that the exercise was useful in helping them to prepare for any disaster, such as might occur at a nearby chemical plant or nuclear submarine yard. However, it was felt that more time should have been set aside for reentry.

Plum Island, New York

The observations and comments about the Plum Island EOC were made on the basis of a telephone discussion with the Safety Officer, who is also Director of Emergency Operations. Since the observer did not actually witness the EOC operation, no rating could be assigned. Plum Island is occupied by a

USDA Laboratory that carries out veterinary research on diseases of cattle and other livestock, and therefore the entire island is provided with security.

The EOC is located in the Safety Officer's office. The office has a status board to record all actions, in addition to the record kept on paper. There is a radio pager and telephone system, and the guards at the office have a radio. Problems arose while contacting the nuclear plant, so the Safety Officer contacted the Suffolk County Department of Emergency Preparedness for an update.

Concerning alerting and mobilization of officials and staff, Suffolk County (NY) contacted the guards (who rotate shifts to provide continuous 24-hour service) at 0530 about the emergency situation at the nuclear power station. The guards contacted the Safety Officer and the Assistant Director of Plum Island. These same people were again notified at 0630 about the update on the emergency. The Safety Officer arrived at 0700 and notified the Engineering Plant Manager, the labs, and the bus drivers of the situation.

Emergency operations management was under the direction of the Safety Officer, who contacts necessary personnel and is the chief decision maker.

Public alerting and notification consisted of keeping employees sheltered in buildings, placing bus drivers on standby in case of an evacuation, and telling the Plant Manager to be prepared for shutdown. All notification was done by telephone.

Public and media relations were not applicable at this EOC.

Radiation monitoring was handled by a laboratory employee, who was alerted and ordered to stand by.

Actions to protect the public would be handled by Suffolk County, which would distribute a change of clothing in case of radioactive contamination.

The observer did not have an opportunity to talk to the Safety Officer again; consequently no comments can be made concerning recovery and reentry operations or benefit of the exercise to the participants.

Montville

The emergency operations facilities and resources at the Montville EOC were acceptable. The working space was a 40-by-40-ft area upstairs in the

firehouse, and its amenities were acceptable. Better lighting was needed and, for operations of more than 24 hours, better furniture would be needed. Only one telephone was in the EOC, but the fire dispatch net was available downstairs, and other radios were available if needed. Auxiliary power was also available. A pager system was used effectively from the nuclear facility, but the local EOC needs a radio in the operations room itself, and more telephone lines. The internal communications were acceptable, but could be improved by the use of a larger emergency log board, and by posting more information on the status of messages, e.g., whether they were logged, recorded, posted, etc. The security was weak, consisting only of a sign posted on the entrance door: "Authorized Personnel Only." The displays showed only the sampling points, but the evacuation routes, relocation centers, shelter areas, and population distribution were available in the plan.

The alerting and mobilization of officials and staff were good. The officials and staff were notified and responded rapidly to an alert message through the 24-hour fire dispatch system. A roster was published showing two 12-hour shifts, which demonstrated the ability to maintain a 24-hour emergency operation. The procedures and equipment for alerting and notification of the emergency response personnel were outstanding: pagers, the fire dispatch network, telephones, etc.

The management of emergency operations was good. It followed the town plan, with the First Selectman in charge. Other duties were divided among the various officials. The staff was very cooperative; many were volunteers. The EOC needs improved message-handling procedures and displays, and more detailed checklists and procedures for the department heads. They made acceptable decisions and had good discussions. Operations at this EOC were dependent on local plans, organizations, and resources. Integrated operation with adjacent towns in the EPZ requires better communications, more basic information, and more state coordination than was evident during this exercise. The observer believed that information flow from the town to the Area IV CP office to the state, and the reverse, was not sufficient for officials to make effective decisions about sheltering and evacuation.

Public alerting and notification were acceptable. Four sirens are installed on the firehouses, but more are needed to obtain proper coverage of the town. The use of the sirens was simulated. Vehicles with public address systems were available for use on 14 routes, which could be covered in about 30 minutes. Instructional messages to the public were prepared by the Selectman and the PIO, who phoned them in to the media center and the EBS.

The relations with the public and media were acceptable. No press facilities were noted, but news releases were provided by the media center in Hartford, for release through the EBS. Some press releases about the exercise were in the local newspapers, but probably more are needed. The press releases issued through the Selectman and PIO were good. The rumor control arrangements were good; the PIO called the media center and the EBS, and the rumor control personnel were briefed frequently to keep them informed.

The accident assessment capability was good. Two radiation monitoring teams were dispatched from the firehouse, which was the central point for receipt of data. The equipment was good and in working order, but one or two more monitoring kits should be considered for this effort. The members of the teams performed acceptably, but they would benefit from more training. Two staff members were very knowledgable about radiation hazards and their consequences and about protective actions.

The actions taken to protect the public were good. Instructions for sheltering were given by the EBS and the mobile public address vehicles. Relocation was not required, but it was discussed. Twenty or more buses were available, and private and public transportation was thought to be adequate to meet the need.

Health, medical, and exposure control measures were acceptable. Potassium iodide was not available, and its use was not discussed. Control points for access to evacuated areas were established. These would be operated by State Police, constables, and fire personnel. The two monitoring teams kept dose records. More dosimeters should be provided, and the teams should be given more training in decontamination. The medical facilities were not observed, except for ambulances that are available in each fire station.

The EOC's capability for recovery and reentry operations was considered good overall. An excellent discussion was held on the security, transportation, and medical aspects of reentry.

The relevance of the exercise experience was good. The scenario called into play most of the resources of the town. The basic elements of the town's capability were exercised, and the benefits to the participants were outstanding: they acquired an increased awareness of their emergency needs and of their response capability.

Ledyard

Overall, the emergency operations facilities and resources at the Ledyard EOC were acceptable. It is a former bomb shelter in the basement of the high school, and is totally self-contained: it has water and sewage facilities, generators, cots, blankets, and two decontamination showers. The space is small, however. The communications systems were acceptable, consisting of a telephone, backed up by the local fire department dispatch system and a local amateur radio operator. More direct communications are needed with the town agencies. A base radio station for this purpose has been requested from the town council. The system for communication to the nuclear power station was acceptable, although the EOC experienced some difficulty in receiving messages from the utility. Local resources are acceptable for supporting federal assistance, but additional training in radiological monitoring should be provided, as both the Civil Defense Director (CDD) and the Radiological Defense Officer (RDO) are new to their jobs and inexperienced. Internal communications were good, and the status boards and maps were kept current. Security measures were good, and were handled routinely. No maps showing the relocation centers, sampling points, or shelter areas were displayed. The map showing the evacuation routes and access control points was well done.

The alerting and mobilization of officials and staff were good, overall. Key officials were notified immediately and responded within 15 minutes. The radio pager link to the utility, on the whole, was good. Messages from the utility appeared to be communicated too fast to allow them to be written down, and calls to the utility often got busy signals. There was a malfunction in the phone line during one of the calls to the utility. It appears that it will be possible to staff the EOC on a 24-hour basis, either in 8- or 12-hour shifts. The town has the capability to contact fixed and mobile support facilities through the volunteer fire service.

The management of emergency operations was shown to be good. The EOC personnel, though inexperienced, were aware of their responsibilities. Information flow between organizations was smooth, and support by public officials was good. The new CDD and the new RDO were aware that they needed formal and on-the-job training. The CDD exhibited leadership qualities and had the exercise under very good control. All the elected town officials who were able to take the time off from work participated, and the others would have participated, had it been necessary. The Mayor represented the Town Council.

The quality of the public alerting and notification operation was good, but it was not fully exercised. The towns of Ledyard and Gales Ferry both had sirens to be sounded for evacuation, and the utility is installing six additional sirens in the area. The use of the EBS was demonstrated. Good means were available for notifying the resident and transient populations through EBS, local radio and television, amateur radio, and door-to-door contact.

Public and media relations for the Ledyard EOC were handled through the state media center as there were no press facilities at Ledyard. There was also no evidence of a public information program, such as publications or posted notices, for either the permanent or transient population.

The radiological monitoring capability was acceptable; the emergency plan and protective action guides were adhered to, but no monitoring was done. The RDO had two monitoring instruments, a CDV-777 and a CDV-777-2. He checked the dosimeters and handed them out to the EOC personnel.

Actions to protect the public, and health, medical, and exposure control were not observed. There are no hospitals, nursing homes, or other residential institutions in Ledyard. However, since Ledyard is on an evacuation route from Groton, they discussed access control and the use of the EOC as a decontamination and sheltering area. The local emergency service has two ambulances and a volunteer network of 30 people on 24-hour call.

Recovery and reentry operations were not demonstrated.

The participants seemed to think that the scenario was good. It brought out their weaknesses, answered some of their questions, and emphasized their need for training. The scenario was very effective in bringing together the local emergency personnel and the available resources. It proved that they could put together a coordinated effort to protect the public.

Old Saybrook

The facilities and resources for emergency operations at the Old Saybrook EOC were good. The working space was evaluated as good. A room separate from the main operations room housed the communications equipment. The communication operators (members of the civil preparedness team) were familiar with the use of the equipment. The voice pager system at the facility worked well. Security was tight and well supervised by a uniformed officer. There was only one map, which displayed the 5-, 10-, and 50-mile zones, the evacuation routes, and access control points. Larger maps are needed at this EOC to display population distributions near the facility, evacuation routes, etc.

The EOC had good ability to alert and mobilize officials and staff in a reasonable time. The 24-hour police radio system and the radio pager system at the EOC provided good communication capability for 24-hour operation. However, more trained staff will be necessary to man round-the-clock emergency response operations.

The emergency operations were good. The First Selectman took charge during the entire exercise. The CP director and the radiological health officer formed a team of advisers to the First Selectman, who made decisions and promptly communicated them to EOC staff.

There were some problems in alerting and notifying the public. The town siren system is not yet operational; hence, the EOC sent out police cars with "voice sirens" to inform the public to stay indoors, turn on the radio, and tune in EBS for more information. The EOC staff was uncertain how to access the local EBS station and whether to coordinate notification messages with other nearby towns, since sirens from other towns could be heard by some residents of Old Saybrook. More training is needed for this activity. Alerting the transient population in summer camps may become a problem. There are three police boats with radios and voice sirens, but their use was not demonstrated. Overall, public alerting and notification were considered acceptable.

As regards public and media relations, the Old Saybrook EOC was in contact with the radio station and news media, and provided information about the exercise. However, this capability was considered to be weak mainly

because the public information pamphlet has not been issued yet. It should be available some time in the near future. Posted notices to inform the transient population were also not seen.

The EOC has one qualified radiological health officer on its staff to perform accident assessment, supervise field operations, and issue timely recommendations. Overall accident assessment capability was good.

It appeared that actions to protect the public were good, and could be carried out in case of an emergency, but this capability was not tested because evacuation and sheltering at relocation centers were not part of the scenario.

If there were an occasion for health, medical, and exposure control activities, the EOC could perform such functions acceptably; however, these functions were simulated, not demonstrated. The radiological health officer is competent to measure and record dosimeter readings and to handle decontamination of emergency personnel, although supplies for decontamination were not available. Training additional personnel for round-the-clock manning of this activity would be useful.

Recovery and reentry operations were not demonstrated.

The exercise was acceptable and provided the participants with an opportunity to test their knowledge and training and to interact with each other in carrying out the EOC's functions.

Waterford

The Waterford EOC was well equipped to carry out emergency communications, and internal communications were outstanding. Displays, status charts, and message logs were used, but no maps of population distribution were available. Security was good. A policeman was posted at the entrance. All individuals signed in and received badges. Overall, emergency operations facilities and resources were acceptable.

Officials and staff at the EOC were alerted and mobilized in a timely manner to man stations and to carry out the emergency response functions. The EOC was evaluated as good in carrying out this part of the exercise.

Emergency operations management was demonstrated in an outstanding fashion. The First Selectman showed good leadership, holding discussions with his staff and making decisions based on the information provided him. Staff and other officials at the EOC were duly informed of such decisions.

Three notification systems were used to alert the public to the emergency situation: the voice siren, which did not appear adequate to cover this area; the public address systems in police vans, which were good; and a "Paul Revere" system of house-to-house notification, which seemed acceptable. Printed instructions were delivered to each house by this method. Local EBS messages were prepared by the First Selectman and were aired at appropriate frequencies on the local EBS station.

Waterford media center served as the focal point for public and media relations and is evaluated with other state functions in Sec. 2.2.1. Observers in the Waterford area, however, found no indication of any program to inform transients of what they should do in the event of an emergency.

Overall accident assessment capabilities were acceptable. Waterford monitoring teams, at the request of the DEP, provided direct radiation measurements of the plume. These data were reported to the state EOC and to the utility EOF at regular intervals, so as to assist in the overall accident assessment. The DEP provided a liaison to the Waterford EOC to assist in independent radiological assessment. The role of this liaison is not defined in the emergency plan, and needs to be addressed in the state emergency plan and procedures for Waterford.

Actions to protect the public were demonstrated by evacuating students by bus to the Wethersfield reception center. Traffic control points were set up, and impediments and bottlenecks along the evacuation routes were considered and resolved. A helicopter was requested from the state to observe the traffic flow and identify problems.

Health, medical, and exposure control measures were acceptable. Access controls were maintained around evacuated areas, and patrols were organized to safeguard property. Waterford EOC requested KI from the state but was unable to get it. Pocket dosimeters were used to estimate exposure of emergency personnel; permanent dosimeters to record exposure were not available. Waterford demonstrated good capability for monitoring and decontaminating

personnel and facilities, but criteria for decontaminating personnel were not available. The levels of contamination monitored were not recorded. Decontamination supplies such as towels and replacement clothing would be supplied under an agreement with Lawrence o. Memorial Hospitals in New London.

Although the participants actively discussed recovery and reentry operations for the evacuated students, this aspect of the exercise was not demonstrated.

The scenario, as structured, provided a good opportunity to demonstrate most of the activities related to the emergency response operation: alerting and notification, evacuation, traffic and access control, radiological monitoring and assessment, decontamination of personnel and vehicles, reentry planning, etc. As far as these aspects were considered, the participants benefited from the exercise.

3 SUMMARY OF SIGNIFICANT DEFICIENCIES

3.1 STATE FUNCTIONS

The following capabilities have been determined to be deficient in of the March 19, 1982, exercise and are in need of correction at the state level.

1. Public alerting sirens or other acceptable means of primary notification need to made operational and tested. (Reference: NUREG-0654, II. E.6)
2. Communications between the state EOC/Area CP offices and local EOCs need to be improved. Message flow from the state to local EOCs was infrequent and in some cases not timely, particularly technical messages. (Reference: NUREG-0654, II. F.1.b)
3. The Connecticut system for accident classification needs to be made compatible with the NUREG/FEMA classification in order to eliminate confusion for agencies not familiar with the Connecticut System. Subsequently, the state has agreed to eliminate the dual classification system in favor of a single system as supported in NUREG-06564. The change is expected to be completed by September 30, 1982. (Reference: NUREG-0654, II. D.3 and Appendix 1)
4. The state position on the administration of KI to emergency workers needs clarification in order to eliminate the confusion regarding its use which was evidenced during the exercise. Subsequently, in the most recent revision of the state plan, KI may be issued as a precautionary measure to emergency workers who may remain in the affected area. (Reference: NUREG-0654, II. J.10.e)

3.2 LOCAL EOCS

No significant deficiencies in emergency preparedness were identified at the local level. Minor deficiencies noted are summarized for each locality in Sec. 4.2.

4 SUMMARY OF MINOR DEFICIENCIES

4.1 STATE FUNCTIONS

1. The state EOC should notify the Boston office of AMTRACK, instead of the Washington office, since the Boston office actually controls the trains. (NUREG-0654, II.F.1.c)

2. The state EOC should have more telephones in the main operations room. (NUREG-0654, II.H.3)

3. Additional maps and displays are needed at several locations to make this operation more effective. The recommendations include:

   (1) A status board; maps showing relocation centers, shelters, and population distribution; and a large-scale map of the 10-mile EPZ should be available at the State Police Troop E headquarters. (NUREG-0654, II.J.10.a,b)

   (2) Maps showing evacuation routes and relocation/sheltering centers are needed at the Area II and Area III CP Offices. (NUREG-0654, II.J.10.a)

   (3) Maps showing evacuation and reentry routes should be present at the Windham/Willimantic reception and shelter center. (NUREG-0654, II.J.10.a)

4. A larger facility is needed for the Area II CP Office. Although this office had a relatively low level of responsibility in this exercise, under higher activity levels these deficiencies would be more significant. (Reference: NUREG-0654, II. H.3)

5. Backup communication capability could be improved by installing a dedicated backup system at the Area III CP Office, instead of bringing in radios each time. (NUREG-0654, II.F.1.b)

6. Space could be increased and noise levels reduced at the Area III CP Office by having separate rooms for radio communications and staff briefings. (NUREG-0654, II.H.3)

7. A larger working space at the Area IV CP Office would help reduce noise levels and improve efficiency. (NUREG-0654, II.H.3)

8. Directions should be provided at the Norwich State Hospital (perhaps signs on the hospital grounds?) so that contaminated emergency workers can go directly to the correct building for decontamination (NUREG-0654, II.L.1,3)

9. Reserve personnel at the Area II CP Office should be predesignated and trained so that smooth continuous operations can be assured. (NUREG-0654, II.A.4)

10. State communications with the Area II CP Office should be clarified, so that messages are not misinterpreted. (NUREG-0654, II.E.1)

11. Pocket radio pagers should be issued to key personnel at the Area III CP Office to improve alerting and activation of these locations. (NUREG-0654, II.E.2)

12. The Area III CP Office should alert the Hartford and East Hartford host communities at the appropriate time, so that they can prepare to receive evacuees. (NUREG-0654 II.E.1)

13. Internal communication at the state EOC should be improved, so that all participants are aware of the overall situation. (NUREG-0654, II.F)

14. Additional telephones with lights and less noisy bells are needed at the Area IV CP Office. (NUREG-0654, II.F)

15. Department of Health officials should discuss the personnel decontamination function of the Norwich State Hospital with the hospital staff, to improve operations. (NUREG-0654, II.A.1.a)

16. The responsibilities of personnel at the SEAT garage for decontamination of vehicles, and their training for this function, should be addressed. Personnel at the garage were not aware of their roles; there are currently no standard operating proceures in the Connecticut RERP about vehicle decontamination. (NUREG-0654, II.A.1.a, K.5)

17. At the Area III CP Office, additional staff personnel should be provided and better message-taking practices should be instituted to improve the overall operation. (NUREG-0654, II. H.3)

18. Information concerning emergency preparedness plans should be prepared and distributed to all localities within the 10-mile EPZ for their resident and transient populations. It is understood that such information will be distributed once the siren alerting system is in place. (NUREG-0654, II., G.1.2)

19. Several improvements in the performance of the field monitoring teams are recommended:

    (1) Teams should have a direct communication link with the state EOC. (NUREG-0654, II.F.1.d)

    (2) Field teams should leave the radiation plume to count air samples, in order to reduce their exposure time. (NUREG-0654, II.K.3.b)

20. Several improvements in the evacuation of children and teachers from the Quaker Hill School are recommended:

    (1) The number of radio nets for communication between buses should be reduced. (NUREG-0654, II.J.10.g)

    (2) Arrangements with Area III CP Office should be made to provide an escort for the buses to the reception center (NUREG-0654, II.J.10.g)

    (3) Bus drivers should be given adequate maps, so they can find the reception center without delay. (NUREG-0654, II.J.10.g)

    (4) More space and staff are needed at the Wethersfield reception and shelter center. (NUREG-0654, II.J.10.g)

21. Arrangements should be made to distribute the dosimeters available at the Area III CP office to local EOCs. (NUREG-0654, II, K.3.a)

22. The role of the State DEP liaison at the Waterford EOC should be addressed in the state plan/procedures if this concept is to be continued. (NUREG-0654, II, A.1.b, 2.a)

23. More time in the scenario was needed for exercising recovery and reentry by all state operation centers (NUREG-0654, II, N.1, M.1)

24. It is suggested that the utility EOF update the status board in a more timely fashion. (NUREG-0654, II.D)

25. There should be a display of off-site radiation readings on a plot in the operations room of the utility EOF. (NUREG-0654, II.H.2)

4.2 LOCAL EOCs

1. Large maps showing evacuation routes, shelters, relocation centers, and population distributions around the nuclear facility within the 10-mile EPZ are needed at the East Lyme, Town of Groton, Lyme, Old Lyme, New London, Ledyard, Old Saybrook, and Waterford EOCs. (NUREG-0654, II. J.10.a,1)

2. Security should be tightened at the City of Groton and Montville EOCs. (NUREG-0654, II. A.2.a, 0.4.d)

3. Specific facilities should be improved: more electric outlets and an outside antenna to improve radio reception at the City of Groton; a more suitable amateur radio antenna at the Lyme EOC; an amateur radio backup system at the Fishers Island EOC; place cards indicating designation of key personnl and more telephones at the New London EOC; better lighting, furniture, and more telephones at the Montville EOC; and more floor space at the Ledyard EOC. (NUREG-0654, II.F.1.d, H.3)

4. More trained staff should be available to man the EOCs around the clock at Lyme and Old Saybrook. (NUREG-0654, II.A.4)

5. The staff's uncertainities, at the East Lyme EOC, as to whether the Governor or the local officials authorize evacuation should be resolved promptly. (NUREG-0654, II. A.2.a)

6. A few officials at the New London EOC were unaware of their roles in the exercise. More on-the-job training is suggested. (NUREG-0654, II.A.2.a)

7. Staff at the Old Lyme EOC should be provided with more on-the-job training and should review the emergency response plan procedures to improve the flow of information. (NUREG-0654, II. O.1.b, 4, 5)

8. Some special procedure for notifying workers in the larger industries in the City of Groton should be implemented since the factory public address systems are inadequate. (NUREG-0654, II.E.6)

9. Improvements are suggested at the Montville EOC in terms of message handling procedures, procedures for key individuals, and better information flow from the town to the Area IV CP office and the state, and the reverse. (NUREG-0654, II., A.2.a, F.1.b, H.3)

10. An information program for transients should be established in Old Lyme, Ledyard, and Old Saybrook. (NUREG-0654, II, G.2)

11. Questions concerning access to EBS stations or coordination of EBS information with the activation of the sirens should be clarified at Old Lyme, Lyme, Fishers Island, and Old Saybrook. (NUREG-0654, II., E.5)

12. Rumor control measures should be provided at the City of Groton and Lyme. (NUREG-0654, II.G.4.c)

13. Additional low-range and high-range dosimeters are needed to improve monitoring at Lyme, Montville, the Town of Groton, East Lyme, and the City of Groton. (NUREG-0654, II. I.8)

14. Training should be provided for monitoring and supervising field teams at Fishers Island. (NUREG-0654, II. I.8)

15. Additional radiation monitoring kits should be considered for the Montville EOC. (NUREG-0654, II, H.7)

16. The City of Groton should address the capability to transport evacuees, especially the senior citizens in the city. (NUREG-0654, II.J.9,10.g)

17. The Town of Groton should maintain a list of deaf and mobility-impaired citizens for evacuation and assure that special transportation needs are met. (NUREG-0654, II. J.10.d)

18. Old Lyme EOC personnel need additional on-the-job training and review of local plans to clarify procedures to evacuate citizens. (NUREG-0654, II. J.9)

19. Cleaning supplies and plastic bags for disposal of contaminated clothing should be provided at New London. (NUREG-0654, II. K.5.b)

20. A decontamination center, decontamination supplies, and decontamination training are needed at Old Lyme, Old Saybrook, and Montville, respectively. (NUREG-0654, II. K.5.b, O.5)

21. More training should be provided for the Civil Defense Director and Radiological Defense Officer in Ledyard, since both are new to the job and inexperienced. (NUREG-0654, II, O.1.b, 4,5)

22. Consideration should be given to methods of disseminating information to evacuees returning to the Town of Groton. (NUREG-0654, II, M.1)

5 CORRECTIVE ACTION FOR DEFICIENCIES

Sections 3 and 4 of this report summarize significant and minor deficiencies based on the findings of the federal observers of this exercise. These evaluations are based on the applicable planning standards and evaluation criteria set forth in Section II of NUREG-0654/FEMA-I, Rev 1 (November, 1980). Correction of the minor deficiencies noted is suggested for improved operations.

Both the state and local jurisdictions should submit to the RAC the measures they have taken or intend to take to correct significant deficiencies. If remedial actions cannot be instituted immediately, then a detailed plan, including dates of completion, for scheduling and implementing remedial actions should be provided.

The Regional Director of FEMA is responsible for certifying to the FEMA Associate Director, State and Local Programs and Support, Washington, D.C., that any significant deficiencies noted in the exercise have been corrected and that such corrections have been incorporated into the plan.

Schedule for the Correction of Significant Deficiencies

The State of Connecticut provides herewith a schedule for correcting the significant deficiencies that were identified in the "Exercise Report: Joint State and Local Radiological Emergency Response Exercise for the Millstone Nuclear Power Station, Waterford, Connecticut, March 19, 1982."

Only minor deficiencies in emergency preparedness were identified at the local level. These are summarized for each locality in Section 4.2.

Significant Deficiency	Correction Date
1. Public alerting sirens or other acceptable means of primary notification need to be made operational and tested. (Reference: NUREG-0654, II. E.6)	

Significant Deficiency	Correction Date

2. Communications between the state EOC/Area CP offices and local EOCs need to be improved. Message flow from the state to local EOCs was infrequent and in some cases not timely, particularly technical messages. (Reference: NUREG-0654, II. F.1.b)

3. The Connecticut system for accident classification needs to be made compatible with the NUREG/FEMA classification in order to eliminate confusion for agencies not familiar with the Connecticut System. (Reference: NUREG-0654, II. D.3 and Appendix 1)

4. The state position on the administration of KI to emergency workers needs clarification in order to eliminate the confusion regarding its use which was evidenced during the exercise (Reference: NUREG-0654, II. J.10.e)