APR 30 1986

Docket No. 50-322

Long Island Lighting Company
ATTN: Mr. John D. Leonard, Jr.
Vice President - Nuclear
P. O. Box 618
Shoreham Nuclear Power Station
Wading River, New York 11792

Gentlemen:

Subject: FEMA Post Exercise Report for Shoreham Emergency Exercise of February 13, 1986

Enclosed is the FEMA Region II Post Exercise Assessment of the February 13, 1986 emergency exercise issued on April 19, 1986. The most significant items are those which have been identified as deficiencies. These items are as follows:

1. Location - LERO Emergency Operations Center
   - Delay in responding to and removing a traffic impediment.

2. Location - Emergency News Center
   - Not enough copying machines in the ENC affecting two areas:
     -- Hard copies of EBS messages not provided to the media in a timely manner.
     -- Rumor control unable to answer questions because of not having up-to-date information.

3. Location - Patchogue Staging Area
   - Bus drivers dispatched late (2 hours after Site Area Emergency Declaration).

4. Location - Field Activities from Patchogue Staging Area
   - A bus driver took 2 hrs. 10 min. to get from one staging area to the transfer point. Another driver went to the wrong transfer point.

5. Location - Field Activities from Riverhead Staging Area
   - Delay in deploying Traffic Guides from the staging area to traffic control points.

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Please review the identified deficiencies, areas requiring corrective action and areas for improvement and provide a schedule for responding to and/or correcting these inadequacies at your earliest convenience. If you have any questions, please contact Mr. David Vito of my staff at 215-337-5142.

Your cooperation with us is appreciated.

Sincerely,

Original Signed By:
Thomas T. Martin

Thomas T. Martin, Director
Division of Radiation Safety
and Safeguards

Enclosure: As Stated

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POST EXERCISE ASSESSMENT

February 13, 1986, Exercise of the Local Emergency Response Organization (LERO), as specified in the LILCO Transition Plan for the SHOREHAM NUCLEAR POWER STATION at Shoreham, New York

April 17, 1986

Federal Emergency Management Agency

Region II

26 FEDERAL PLAZA / New York, NY 10278

POST EXERCISE ASSESSMENT

February 13, 1986, Exercise of the Local Emergency Response Organization (LERO), as specified in the LILCO Transition Plan for the SHOREHAM NUCLEAR POWER STATION at Shoreham, New York

April 17, 1986

Federal Emergency Management Agency

Region II
26 Federal Plaza
New York, NY 10278

PARTICIPATING GOVERNMENTS AND ORGANIZATIONS

- Local Emergency Response Organization
- Long Island Lighting Company
- Shoreham-Wading River School District
- Impell Corporation
- United States Department of Energy -- Brookhaven Area Office
- United States Coast Guard
- American Red Cross

NON-PARTICIPATING GOVERNMENTS AND ORGANIZATIONS

- New York State
- Suffolk County

ABBREVIATIONS

ANL	-	Argonne National Laboratory
ARC	-	American Red Cross
AVS	-	Automatic Verification System
BHO	-	Brookhaven Area Office
BNL	-	Brookhaven National Laboratory
DOC	-	U.S. Department of Commerce
DOE	-	U.S. Department of Energy
DOT	-	U.S. Department of Transportation
DRD	-	Direct Reading (self-reading) Dosimeter
EBS	-	Emergency Broadcast System
ECCS	-	Emergency Core Cooling System
ECL	-	Emergency Classification Level
EOC	-	Emergency Operations Center
EOF	-	Emergency Operations Facility
EPA	-	U.S. Environmental Protection Agency
EPIP	-	Emergency Plan Implementing Procedure
ENC	-	Emergency News Center
EWDF	-	Emergency Worker Decontamination Facility
EPZ	-	Emergency Planning Zone
ERPA	-	Emergency Response Planning Area
FAA	-	Federal Aviation Administration
FDA	-	U.S. Food and Drug Administration
FEMA	-	Federal Emergency Management Agency
HHS	-	U.S. Department of Health and Human Services
INEL	-	Idaho National Engineering Laboratory
KI	-	potassium iodide
LERO	-	Local Emergency Response Organization
LILCO	-	Long Island Lighting Company
LIRR	-	Long Island Railroad
MOU	-	Memorandum of Understanding
NRC	-	U.S. Nuclear Regulatory Commission
OPIP	-	Offsite Plan Implementing Procedures
PAG	-	Protective Action Guidelines
PIO	-	Public Information Officer
RAC	-	Regional Assistance Committee

RACES	-	Radio Amateur Civil Emergency Service
RAP	-	Radiological Assistance Plan
REA	-	Radiological Emergency Area
RECS	-	Radiological Emergency Communications System
REPP	-	Radiological Emergency Preparedness Plan
RERP	-	Radiological Emergency Response Plan
SNPS	-	Shoreham Nuclear Power Station
SSO	-	Supervising Service Operator
TCP	-	Traffic Control Point
TLD	-	thermoluminescent dosimeter
TSC	-	Technical Support Center
USDA	-	U.S. Department of Agriculture

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SUMMARY

On June 20, 1985, NRC requested FEMA to conduct an exercise to test offsite emergency preparedness at the Shoreham Nuclear Power Station. In its October 29, 1985 response to NRC, FEMA recommended two (2) options for exercising the Local Emergency Response Organization (LERO), which relies upon utility employees, contractors, private organizations and the U.S. Department of Energy (DOE). These two options were as follows:

- **Option 1** - proposed that FEMA set aside all functions and exercise objectives related to issues of legal authority and State and local participation.

- **Option 2** - proposed a full-scale exercise of all functions and normal exercise objectives. This option would exercise the current version of the LERO Plan. Exercise controllers would simulate the roles of key State or local officials unable or unwilling to participate.

FEMA emphasized in its October 29, 1985 letter to NRC that "the reluctance of county and State officials to participate in such an exercise ... would place special parameters on its conduct." FEMA stipulated that "[a]ny exercise without participation by State and local governments would not allow ... sufficient demonstration [for FEMA] to reach a finding of reasonable assurance" that appropriate protective measures can be taken offsite in the event of a radiological emergency. FEMA added that "[o]bviously, the value of such an exercise in the licensing process is a determination which can only be made by NRC." On November 12, 1985, NRC requested that FEMA conduct the exercise in accordance with parameters described in Option 2.

The exercise was limited without State and local government participation. Therefore, FEMA cannot measure the capabilities and preparedness of State and local governments if called upon to respond. The legal authority concerns have been ruled on in other forums. This report constitutes FEMA's evaluation of what was actually done during the course of the exercise.

On Thursday, February 13, 1986, a team of thirty-eight (38) Federal evaluators evaluated an exercise of the Local Emergency Response Organization (LERO) as specified in the LILCO Transition Plan for the Shoreham Nuclear Power Station. This was a daytime exercise, from approximately 0530 to 1730. Following the exercise, an evaluation was made by the Federal evaluator team and a preliminary briefing for LERO exercise participants was held at the Inn at Medford in Medford, New York on Friday, February 14, 1986 at 1500; representatives of the State, Suffolk County, and the Long Island Lighting Company were also in attendance. A public briefing for the exercise participants, the public, and the media was held on February 15, 1986 at 1000 at the Holiday Inn, Ronkonkoma, New York. Subsequent to those preliminary briefings, detailed evaluations were prepared and are included in this report.

Federal evaluators evaluated the following operations:

- Local Emergency Response Organization Emergency Operations Center (LERO EOC)
- Emergency Operations Facility (EOF)
- Brookhaven Area Office (BHO)
- Emergency News Center (ENC)
- Port Jefferson Staging Area
- Patchogue Staging Area
- Riverhead Staging Area
- Emergency Worker Decontamination Facility (EWDF)
- Reception Center
- Congregate Care Centers
- Medical drill
- Bus evacuation of school children and general population
- Evacuation of institutionalized and non-institutionalized mobility-impaired
- Traffic control points
- Route alerting
- Impediments to evacuation
- Radiological field monitoring

The following is a summary of evaluations made by Federal evaluators during the February 13, 1986 exercise.

LOCAL EMERGENCY RESPONSE ORGANIZATION (LERO) EMERGENCY OPERATIONS CENTER (EOC)

The facilities and resources in the Local Emergency Response Organization (LERO) Emergency Operations Center (EOC) were very good. There was appropriate security. Displays, equipment, and supplies were available to support emergency

operations for a protracted period of time. Receipt of emergency notifications and activation and staffing of the EOC with emergency personnel were very good. The ability to maintain staffing on a twenty-four (24) hour basis was demonstrated through rosters.

All primary and backup LERO communications systems were operational and functioned well. Dedicated telephones and radios linked the LERO EOC with the Emergency Operations Facility (EOF), Brookhaven Area Office (BHO), Emergency News Center (ENC), Emergency Broadcast System (EBS) station (WALK-FM), and the Port Jefferson, Patchogue, and Riverhead Staging Areas. Telecopiers were available for the transmission and receipt of hard-copy information. However, there was some confusion regarding the proper method of contacting the Federal Aviation Administration (FAA) and there were no procedures for notification of the Long Island Railroad.

Internal communications within the LERO EOC were generally clear and efficient. However, the dose projection status board in the accident assessment room should be improved so that it can better accommodate radiological field team data provided by both the LILCO and DOE RAP field teams. In addition, critical information was omitted from the LERO message forms relating to the two (2) impediments to evacuation. Concise and accurate briefings were frequently conducted by the Manager of Local Response. These briefings enhanced the flow of information within the LERO EOC.

The overall management of LERO was good. Staff mobilized expeditiously and demonstrated the knowledge and capability to respond effectively to most scenario events. The LERO Director was in command and coordinated the decision-making process, including making protective action recommendations.

Actual testing of public alerting and notification systems was limited since most activities including activation of sirens and tone alerts, airing EBS messages, and other public information initiatives were either simulated or not demonstrated. Prior to the exercise, LILCO management made the decision that the siren system would not be sounded as part of this exercise. Activation of the siren system needs to be actually tested in the future.

Accident assessment objectives were partly met. LERO officials were responsible for overall coordinated accident assessment and protective action recommendations. These functions were fulfilled and the Director of Local Response was able to make timely decisions based on these recommendations. In all cases, State and county simulators were briefed on the status of the emergency. Communications were established and demonstrated to all organizations and locations, including field personnel and DOE RAP field monitoring teams. The ability to obtain, receive, and interpret dose projections and plant status was demonstrated, as was the ability to determine appropriate protective actions consistent with emergency conditions. However, a mistake in recording data reported by one of the field monitoring teams led to an initial miscalculation of thyroid doses. Also, projected data were posted as actual measurements on the dose assessment status board. During one briefing held at the LERO EOC, the Health Services Coordinator incorrectly announced that the EPA PAG requires mandatory evacuation at a projected thyroid dose of five (5) Rem.

The public information area at the LERO EOC was activated in a timely manner by trained and knowledgeable staff. Communication between the LERO EOC and the Emergency News Center was good. EBS messages were coordinated in advance with the county PIO (simulator). All EBS messages were aired within fifteen (15) minutes of each protective action decision as prescribed by FEMA's guidance.

Evacuation management procedures and the internal flow of information regarding evacuation issues must be improved. While evacuation personnel were well trained with respect to established procedures to ensure appropriate equipment, resources and the utilization of evacuation routes, there is a need for greater communication and more efficient sharing of information. There were delays in verifying and removing impediments on evacuation routes, rerouting traffic, and coordinating evacuation decisions with other LERO personnel.

Emergency medical services were provided effectively as ambulances, ambulettes, and special buses were dispatched to evacuate the homebound mobility-impaired and persons in special facilities in a timely and efficient manner. Briefings and instructions to Ambulance and Ambulette Drivers about their routes were adequate. The drivers successfully completed their routes. Dosimetry and potassium iodide (KI) distribution and instructions on the use of dosimeters and KI were also adequate. However, the Ambulette Driver did not know what action he should take at different exposure levels, when to take his KI, or who could authorize exposure in excess of general public Protective Action Guidelines (PAGs).

- At the Alert Emergency Classification Level (ECL), the Shoreham-Wading River High School demonstrated an early dismissal of schools. Notification was received via commercial telephone. Simulated movement of students occurred at two (2) schools. Two (2) buses were actually dispatched to run routes for school children. A LERO bus was dispatched to one (1) of these schools which was outside the Shoreham-Wading School District. The Shoreham-Wading River School District demonstrated one of its own buses. Written procedures and instructions were properly used by the response staff including bus company and school district employees. However, dosimetry and instructions on emergency worker radiological exposure control had not been made available to the Bus Drivers used for school evacuation nor have these drivers received adequate training in its use.

EMERGENCY OPERATION FACILITY (EOF)

The LILCO EOF staff was well trained. The Response Manager was in command and control at all times. Frequent staff conferences were held and situation reports given.

Status boards, maps, and diagrams were wall-mounted in the command center and dose assessment area. The radiological status board displayed both projected and measured dose data.

Protective action recommendations based on both plant status and dose assessments were made in a timely manner, announced to EOF staff and communicated

to the LERO EOC. DOE RAP field team data was received in a timely fashion. The LILCO EOF staff provided complete information and timely briefings; there was adequate working space and communication equipment to accommodate State and county participation if it is to be provided.

BROOKHAVEN AREA OFFICE (BHO)

The Brookhaven Area Office (BHO) is located at the Department of Energy's (DOE) Brookhaven National Laboratory site in Upton, New York.

The Duty Officer at the Brookhaven Police Headquarters received the initial emergency notification telephone call at the Alert ECL. BHO staff were mobilized and the BHO was operational in a timely manner, within seventy (70) minutes after the initial notification. There was a roster indicating relief personnel who would be assigned to a second shift.

Equipment and supplies were adequate to support emergency operations. A dedicated telephone serves as the primary communication link between the BHO and the LERO EOC. Several commercial telephones also are available.

Security measures were excellent. Brookhaven National Laboratory is a Federally-owned facility, with the Brookhaven National Laboratory Police providing its own guard force.

Messages were accurately transmitted and were properly logged, the status board was maintained, and briefings were held as appropriate. The Radiological Assistance Plan (RAP) Team Captain was in charge and in control of the dose assessment function assigned to the BHO. Communications with the field were via a secure (scrambled frequency) radio system, and were successful.

The BHO demonstrated the ability to project radiation dosage to the public via plume exposure, based on plant data and field measurements. Appropriate protective measures were recommended by the BHO staff to the LERO EOC.

The radiological field monitoring teams were mobilized and deployed in a timely manner. Upon arrival at the BHO, team members checked their equipment and were briefed. Both teams had the appropriate equipment and were knowledgable of the procedures for determining ambient radiation levels.

The appropriate equipment and procedures for measurement of airborne radioiodine concentrations as low as 0.1 picocuries/cc in the presence of noble gases were demonstrated by both of the DOE RAP field teams.

The field team members demonstrated the ability to continuously monitor and control emergency worker radiological exposure with frequent readings of their DRDs. Each team member was issued simulated KI and simulated ingestion of the KI tablet when they were directed to do so by the Team Captain. All of the team members understood that the Team Captain could authorize exposure in excess of the 3 Rem limit authorized for DOE RAP team members.

EMERGENCY NEWS CENTER (ENC)

The LERO public information staff at the ENC kept in close contact with the EOC, briefed the press, and distributed copies of the LERO news releases and EBS messages to media representatives. Due to the malfunction of copying machines and other problems with distribution, news releases and EBS messages were not copied and distributed to PIO staff, the press, and rumor control personnel in a timely manner. This also affected the effectiveness of the rumor control staff.

PORT JEFFERSON STAGING AREA

Implementation of the LILCO Transition Plan was generally well organized and effective at the Port Jefferson Staging Area.

The staging area facility had adequate space, supplies, equipment and parking area to support emergency response operations. Activation was initiated promptly following notification of the Alert ECL. The Staging Area Coordinator and other key staff arrived quickly and set up the physical arrangements and equipment needed to make the facility operational. Security checkpoints were established at the Alert ECL and maintained throughout the exercise. At the Site Area Emergency ECL, a full complement of field personnel were activated using pagers and telephone call lists. Rosters were presented showing twenty-four (24) hour staffing capability.

Communications and message handling were generally timely and efficient. All radio and telephone systems were successfully demonstrated, although radio communications with traffic control points (TCPs) sometimes were difficult. The flow of information throughout the staging area was facilitated by prompt forwarding of messages and periodic status briefings given over the public address system.

As field personnel arrived, they were systematically briefed on dosimetry procedures and on their specific assignments. Briefings were clear and very thorough. Dispatch of field personnel was generally accomplished in a timely manner.

The Port Jefferson Staging Area Coordinator demonstrated excellent leadership in the assignment of personnel, briefing of staff, and implementation of procedures.

The field activities dispatched from the Port Jefferson Staging Area were generally well organized and implemented, although some problems were identified. A Route Alert Driver was dispatched to alert the public following a simulated siren failure. The alerting route was correctly identified and correct procedures were followed; however, the time required to complete the route was excessive. Two (2) general population evacuation buses were demonstrated. Both buses were dispatched promptly and drivers were provided with dosimetry, maps, and instructions pertaining to their routes. Both Bus Drivers completed their assigned routes in a timely manner, followed the correct routes, and arrived promptly at the Reception Center. Both drivers were well briefed on dosimetry procedures. However, one of the Bus Drivers neglected to read his direct reading dosimeter (DRD) at any time during the seventy-five (75) minutes he was working in the 10-mile EPZ. All Bus Drivers should be trained to read their DRDs every fifteen (15) minutes as described in the LERO Procedures.

Several TCPs were evaluated. All Traffic Guides had the correct route maps and equipment, as well as dosimetry and simulated KI. All traffic control personnel demonstrated that they were well trained in their procedures, including advice and guidance to motorists, and emergency worker radiological exposure control procedures. Demonstration of the Port Jefferson Staging Area's resources for dealing with impediments to evacuation could not be evaluated. Prestaging of equipment and personnel according to the LERO Procedures was demonstrated when several Road Crews and tanker trucks were requested by the Road Logistics Coordinator at the LERO EOC. However, their performance in the field could not be evaluated, since delays at the LERO EOC caused the Road Crew to miss its rendezvous with the Federal evaluator.

PATCHOGUE STAGING AREA

The Patchogue Staging Area was promptly opened and efficiently set up after the declaration of the Alert ECL. All personnel were properly notified and mobilized. Individuals were cleared through security checks, briefed upon arrival, and issued dosimetry for field assignments. Staffing rosters indicated a twenty-four (24) hour response capability. The Patchogue Staging Area had adequate space, parking, equipment, and supplies. Operations were well organized and clearly defined by functional areas. Communications were effective and messages were properly recorded, both to the LERO EOC and to emergency workers in the field. However, security measures need to be strengthened at the Patchogue Staging Area and some of the security measures demonstrated were not the same as those described in the LERO procedures. Messages were properly transmitted, status boards were well maintained, and all personnel were advised of developments by periodic briefings. Direction of emergency personnel in the field proceeded smoothly, but the dispatch of Bus Drivers out of the staging area was too slow.

Field activities originating from the Patchogue Staging Area included route alerting, traffic control, general population evacuation bus routes, removal of an impediment to evacuation, bus transfer points, evacuation of the non-institutionalized mobility-impaired, and evacuation of schools. The Route Alert Driver was deployed in a timely manner and drove his route without any difficulty. However, the required time for route alerting was excessive. Fourteen (14) Traffic Guides were evaluated at nine (9) TCPs. These individuals were familiar with their specific assignments with regard to guiding the traffic and deployed the planned equipment, but they need training on how to properly answer motorists' questions.

Four (4) general population evacuation bus routes were dispatched from the Patchogue Staging Area. The abilities of the drivers to drive their routes as planned varied greatly. The two (2) drivers reporting to the Brookhaven National Laboratory Transfer Point understood how to use their dosimetry, but one (1) of them omitted a small part of his assigned evacuation route. Both of the two (2) drivers reporting to the Middle Island Shopping Center Transfer Point had difficulties in completing their assignments that resulted in a deficient demonstration. One (1) of the drivers took over two (2) hours to get to the Middle Island Shopping Center Transfer Point because he initially went to the wrong bus garage after being dispatched from the staging area. The

other driver initially went to the wrong transfer point and was dispatched on a bus route by a Transfer Point Coordinator who did not double-check whether the bus had come to the correct transfer point, perhaps because OPIP 3.6.4 does not require this to be verified. The driver was able to complete his route only after being prompted by the Federal evaluator. Both Bus Drivers need more training to correct these deficiencies, and OPIP 3.6.4 should be revised.

The demonstration of a response to an impediment to evacuation was affected by a communications problem originating in the LERO EOC. The equipment which was dispatched in response to the free play message would only have been able to handle part of the impediment described in the message. One element of the necessary corrective action is to train the staging area personnel to request more information from the LERO EOC concerning impediments to evacuation when they are encountered.

Bus transfer points were easily recognized, had free access, and were controlled by competent Transfer Point Coordinators. However, one (1) Transfer Point Coordinator misdirected the driver of a bus for the non-institutionalized mobility-impaired to the EWDF, rather than to the Reception Center, as had been directed by the Bus Dispatcher.

Buses also were dispatched from the Patchogue Staging Area for the evacuation of a school and for the non-institutionalized mobility-impaired persons confined at home. The school evacuation was successfully completed, but additional bus dispatch staff is necessary to reduce the excessive time consumed in sending the Bus Driver out of the staging area. The demonstration of evacuation of the non-institutionalized mobility-impaired revealed that, although the Bus Driver was knowledgeable, he had difficulty locating the residences of some of the mobility-impaired. It is necessary to improve the quality of the maps and directions given to these drivers.

Emergency worker radiological exposure control was evaluated at all field activities originating from the Patchogue Staging Area. Most of the emergency workers demonstrated knowledge of dosimetry, but the Patchogue Staging Area Bus Dispatcher misinformed the Bus Drivers about how to read DRDs; this may have contributed to the fact that various of the Bus Drivers did not read their DRDs often enough and did not understand the implications of the readings. Similarly, Traffic Guides at two (2) TCPs did not did not know the action guidelines for their dosimetry. Re-training of the Bus Dispatcher, the Bus Drivers, and the Traffic Guides concerning the proper use of dosimetry, as well as dose authorization limits is necessary.

The administration of simulated KI proceeded smoothly at the Patchogue Staging Area. All of the emergency workers in the field understood the proper procedures for its use, except that one (1) Route Alert Driver incorrectly believed that he would be authorized to take it in an EBS message. Route Alert Drivers need re-training concerning the proper means of receiving authorization to take KI.

Most emergency workers were aware of the chain of command for authorization of excess exposure to radiation, but Traffic Guides at two (2) TCPs did not know this important procedure. Corrective action is needed to train them about this.

RIVERHEAD STAGING AREA

The Staging Area Coordinator and supervisory personnel were notified by pagers at the Alert ECL and the administrative staff were called by telephone. Staff notified field workers in a timely manner, using telephone callout lists.

The staging area was activated and staffed in a timely manner. The emergency workers, including Traffic Guides, Route Alert Drivers, Bus Drivers, Road Crews, and Route Spotters, were issued equipment and briefed.

The Procedures maintained at the staging area contain detailed staff rosters indicating sufficient personnel for three (3) shifts.

The staging area is well lighted, with adequate space for the managers and support staff. Ample parking is provided in the visitors' parking lot, as well as in the lot established for workers and LILCO cars and trucks. Additionally, the facility has adequate supplies and equipment to support emergency operations.

Communications with the LERO EOC were accomplished by a dedicated telephone with commercial telephones and a radio as backup systems.

The staging area had adequate security and access control. Guards were posted as prescribed in the Plan, and only those persons with proper identification and authorization were admitted.

Messages were recorded on the prescribed LERO Message Form, but were not numbered. In several instances, it was unclear which part, if any, of the message was "new" information. While the status board was periodically updated, the posting time on the board was frequently incorrect, not reflecting the actual last time the information was updated. Frequent briefings were given over the public address system at the staging area throughout the day; while this approach is adequate for transmitting information, there was no opportunity for the staff to ask questions or coordinate activities. Some of the public address announcements were disruptive.

The Staging Area Coordinator was in full charge of the overall response functions assigned to the Riverhead Staging Area.

Field workers were given appropriate equipment and briefings prior to their deployment to the field.

Traffic Guides and Transfer Point Coordinators communicated with the staging area via radios. The locations of Traffic Guide positions were confirmed by radios when the Traffic Guides reached their assigned locations. Transfer Point Coordinators successfully apprised the staging area by radio of the status of the evacuation.

One (1) public alerting route was demonstrated. Mobile public address equipment was promptly mounted. All streets were traveled at an appropriate speed. However, the map provided for the Route Alert Driver had no mileage or distance scale, making it difficult to determine where portions of the public alerting function were to begin and end. In addition, the amount of time, seventy-eight (78) minutes, was excessive for dispatching and executing the route alert function.

Eight (8) TCPs were evaluated. Personnel were well trained and provided with the appropriate equipment. However, the time between deployment of Traffic Guides and their arrival at TCPs was excessive, taking from fifty (50) to seventy (70) minutes. Traffic Guides successfully demonstrated the resources to control access to an evacuated area, once they arrived.

Two (2) buses to evacuate the general public were demonstrated. The Bus Drivers were thoroughly trained and were knowledgable about their routes. The Brookhaven Substation Transfer Point functioned effectively. However, the access road is quite narrow and curving and could be impassible in inclement weather.

The ability to continuously monitor and control emergency worker radiological exposure, including use of personnel dosimetry, was adequately displayed by most field workers. One (1) Bus Driver, however, took infrequent dosimeter readings and two (2) Traffic Guides did not understand the difference between low- and mid-range DRDs.

Potassium iodide (KI) was supplied to emergency workers prior to their deployment to the field. Most field workers understood the instructions for taking KI and from whom they would receive authorization to do so; one (1) Bus Driver, however, took the tablet prematurely, prior to being assigned an evacuation route. Emergency workers were thoroughly briefed and understood who could authorize exposure in excess of the general public PAGs.

EMERGENCY WORKER DECONTAMINATION FACILITY (EWDF)

The EWDF was activated in a timely manner. The facilities and equipment were adequate for the expected volume of emergency personnel to be processed. Monitoring and decontamination procedures were demonstrated on several hundred emergency workers. EWDF workers who were in contact with potentially contaminated emergency workers continuously monitored their own dosimetry. Sufficient supplies of KI were available with pertinent record forms and instructions.

RECEPTION CENTER

The Reception Center at the Nassau County Veterans Memorial Coliseum was excellent for control of contaminated, uncontaminated, and unmonitored evacuees and vehicles. The Reception Center was fully mobilized by 1015, approximately one and one-half (1.5) hours after the staff was called. Approximately three hundred (300) people were activated initially and a roster was available demonstrating the capabilities for twenty-four (24) hour staffing.

Over one hundred (100) people were actually registered and monitored, and were decontaminated (simulated) if necessary. Procedures for monitoring evacuees were generally good, but on several occasions personnel monitoring took considerably longer than the time set forth in the LERO procedures.

Proper dosimetry was available and constantly monitored. Personnel were aware of dose authorization limits.

CONGREGATE CARE CENTER

Two Congregate Care Centers (CCCs) were activated during the exercise. Mass care at the CCCs was simulated. American Red Cross staff were on hand and knew their roles and resources.

MEDICAL DRILL

A medical drill was conducted on Sunday, February 9, 1986 in order to exercise the emergency medical response at SNPS, Wading River Fire Department, and Central Suffolk Hospital.

SNPS, ambulance, and hospital staff all performed very well. The simulated victim was treated promptly by site personnel demonstrating proper contamination control. Vital signs and radiological data were constantly taken. The ambulance responded promptly, was covered with herculite, and the victim was transported to the hospital. Constant radio contact with the hospital was maintained by radio.

Upon arrival at the hospital, a Radiological Emergency Area was already set up. The medical team, with the assistance of two (2) SNPS Radiation Protection Technicians, promptly treated and decontaminated the patient. Survey techniques, medical treatment, and contamination control were all very good. The hospital facility was well designed to handle contaminated, injured patients. All exercise objectives were met.

1 INTRODUCTION

1.1 EXERCISE BACKGROUND

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 responsibilities in radiological emergency planning for fixed nuclear facilities include the following:

- Taking the lead in off-site emergency planning and in the review and evaluation of radiological emergency response plans developed by state and local governments;

- Determining whether such plans can be implemented on the basis of observation and evaluation of exercises of the plans conducted by state and local governments;

- Responding to requests by the NRC pursuant to the Memorandum of Understanding Between NRC and FEMA Relating to Radiological Emergency Planning and Preparedness, 45 Fed. Reg. 82,714 (1980) (MOU);

- Coordinating the activities of Federal agencies with responsibilities in the radiological emergency planning process:

  - U.S. Department of Commerce (DOC)
  - U.S. Nuclear Regulatory Commission (NRC)
  - U.S. Environmental Protection Agency (EPA)
  - U.S. Department of Energy (DOE)
  - U.S. Department of Health and Human Services (HHS)
  - U.S. Department of Transportation (DOT)
  - U.S. Department of Agriculture (USDA)
  - U.S. Department of the Interior (DOI).

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

Radiological emergency preparedness plans for the Shoreham Nuclear Power Station (SNPS), which is located in the Town of Brookhaven, New York, have not been submitted to the RAC either by the State or by affected local jurisdictions. Instead, the Long Island Lighting Company (LILCO), the applicant for an NRC license to operate SNPS, established its own Local Emergency Response Organization (LERO), relying on LILCO employees, contractors, private organizations, and DOE. On May 26, 1983, LILCO filed a series of five (5) alternate plans with the NRC, each embodying a somewhat different approach to emergency planning surrounding SNPS. On June 10,

1983, the Atomic Safety and Licensing Board hearing the LILCO application ruled that it would consider only the plan entitled the "LILCO Transition Plan."

Acting at the request of the NRC pursuant to the FEMA/NRC Memorandum of Understanding (MOU), the FEMA Region II RAC conducted reviews of successive versions of the LILCO Transition Plan against the standards and evaluative criteria of NUREG-0654/FEMA-REP-1, Rev. 1. FEMA presented these results on February 12, 1986, October 8, 1985, November 15, 1984, March 15, 1984, and June 23, 1983, respectively. FEMA's review of Revision 6, the most recent version of this plan, revealed that five (5) inadequacies remain to be corrected.

On June 20, 1985, the NRC again invoked the MOU to request FEMA to conduct "as full an exercise . . . as is feasible to test offsite preparedness capabilities at the Shoreham Nuclear Power Plant." On October 29, 1985, FEMA began formally "initiating the process necessary to conduct an exercise." In its October 29, 1985 letter to NRC, FEMA recommended the basic two (2) options for exercising the LILCO Plan:

> **Option 1** would require that FEMA set aside all functions and exercise objectives related to issues of legal authority and State and local participation. Thus, only the functions outlined for LILCO would be exercised.
>
> **Option 2** would include all functions and normal exercise objectives. This option would exercise the current version of the LERO Plan. Exercise controllers would simulate the roles of key State or local officials unable or unwilling to participate. It would be desirable that State and local government personnel actually play. However, such a simulation mechanism would at least test the utility's ability to respond to ad hoc participation on the part of State and local governments.

FEMA emphasized in the October 29 letter to NRC that "the reluctance of county and State officials to participate in such an exercise . . . would place special parameters" on its conduct. FEMA stipulated that "[a]ny exercise without participation by State and local governments would not allow us sufficient demonstration to reach a finding of reasonable assurance" that appropriate protective measures can be taken offsite in the event of a radiological emergency. FEMA added that "[o]bviously, the value of such an exercise in the licensing process is a determination which can only be made by NRC." On November 12, 1985, NRC responded to FEMA's request for guidance and stated "[w]e conclude that an exercise should be conducted consistent with the approach outlined in your [FEMA's] Option 2."

This exercise was conducted on February 13, 1986, except for the medical drill which took place on February 9, 1986 (see Section 1.7.3 below). An evaluator team consisting of personnel from FEMA Regions I, II, and III, the RAC, and FEMA's contractors, evaluated the exercise. Thirty-eight (38) evaluators were assigned to evaluate LERO and LILCO activities. The FEMA Region II RAC Chairman coordinated the evaluations through team leaders.

Following the exercise, the Federal evaluators met to compile their evaluations. Evaluators presented observations specific to their assignments, the teams of evaluators developed preliminary assessments for each location, and team leaders consolidated the evaluations of individual team members and submitted these to the RAC Chairman. Based on these preliminary assessments, an informal critique of the exercise was held for LERO exercise participants at 1500 on Friday, February 14, 1986 at The Inn At Medford in Medford, New York; representatives of the State, Suffolk County, and LILCO also were in attendance. On February 15, 1986, the FEMA Region II Director and RAC Chairman conducted a public briefing for the exercise participants, the public, and the media at 1000 at the Holiday Inn, Ronkonkoma, New York. The findings presented in this report are based on evaluations of Federal evaluators, which were reviewed by FEMA Region II.

The exercise was limited without State and local government participation. Therefore, FEMA cannot measure the capabilities and preparedness of State and local governments if called upon to respond. The legal authority concerns have been ruled on in other forums. This report constitutes FEMA's evaluation of what was actually done during the course of the exercise.

1.2 FEDERAL EVALUATORS

Thirty-eight (38) Federal evaluators evaluated off-site emergency response functions. These individuals, their affiliations, and their exercise assignments are given below:

Evaluator	Agency	Exercise Location/Function(s)
R. Kowieski	FEMA	Oversight Evaluation/Region II RAC Chairman
G. Connolly	FEMA	LERO Emergency Operations Center (EOC)/Team Leader
T. Baldwin	ANL	LERO Warning Point; LERO EOC/Communications
P. Giardina	EPA	LERO EOC/Accident Assessment
H. Laine	FEMA	LERO EOC/Public Information
A. Smith	ANL	LERO EOC/Evacuation Operations
H. Fish	DOE	LERO EOC/Support Services Operations
C. Malina	USDA	LERO EOC/Medical Operations
C. Amato	NRC	SNPS Emergency Operations Facility (EOF)
M. Jackson	FEMA	Emergency News Center
J. Keller	INEL	Brookhaven Area Office/Accident Assessment
N. Chipman	INEL	Field Monitoring Team A

Evaluator	Agency	Exercise Location/Function(s)
B. Salmonson	INEL	Field Monitoring Team B
P. Weberg	FEMA	Port Jefferson Staging Area/Team Leader
K. Lerner	ANL	Port Jefferson Staging Area/Operations
K. Bertram	ANL	Port Jefferson Staging Area/Route Alerting Impediment to Evacuation; Traffic Control Points
R. Acerno	FEMA	Port Jefferson Staging Area/General Population Bus Route
P. Kier	ANL	Port Jefferson Staging Area/General Population Bus Route
R. Reynolds	FEMA	Patchogue Staging Area/Team Leader
E. Tanzman	ANL	Patchogue Staging Area/Operations
C. Saricks	ANL	Patchogue Staging Area/Route Alerting; Impediment to Evacuation; Traffic Control Points
M. Wu	FEMA	Patchogue Staging Area/Evacuation of School Requesting LERO Assistance
S. Curtis	ANL	Patchogue Staging Area/Evacuation of Non-Institutionalized Mobility Impaired At Home
J. O'Sullivan	FEMA	Patchogue Staging Area/General Population Bus Route
B. Houston	FEMA	Patchogue Staging Area/General Population Bus Route
D. Jankowski	ANL	Patchogue Staging Area/General Population Bus Route
D. Santini	ANL	Patchogue Staging Area/General Population Bus Route
S. McIntosh	FEMA	Riverhead Staging Area/Team Leader
P. Becherman	ANL	Riverhead Staging Area/Operations
J. Levenson	ANL	Riverhead Staging Area/Route Alerting; Traffic Control Points
J. Picciano	FEMA	Riverhead Staging Area/General Population Bus Route
A. Foltman	ANL	Riverhead Staging Area/General Population Bus Route
R. Bernacki	FDA	Other Field Activities/Team Leader; Reception Center; Medical Drill
D. Connors	FEMA	Other Field Activities/Congregate Care Centers

Evaluator	Agency	Exercise Location/Function(s)
P. Lutz	DOT	Other Field Activities/Evacuation of Mobility-Impaired (Ambulance)
D. Hulet	ANL	Other Field Activities/Evacuation of Mobility-Impaired (Ambulette)
W. Gasper	ANL	Other Field Activities/School Evacuation
L. Slagle	INEL	Other Field Activities/Reception Center; Emergency Worker Decontamination

In addition to the FEMA evaluators, a FEMA Command Post was maintained at the DOE Brookhaven Area Office, Upton, New York, in order to coordinate the exercise evaluation. FEMA personnel assigned to the Command Post included P. McIntire, A. Davis, D. Jones, and P. Cammarata (who was stationed at the LERO EOC to serve as communications liaison between evaluators). Figure 1.1 illustrates the organization of Federal evaluators, showing team composition and specific evaluation assignments.

1.3 FEMA CONTROLLERS

To assist in its evaluation of the exercise objectives, FEMA Region II executed certain control functions through controllers. Their responsibilities included injecting exercise messages and exercise data to specific designated exercise participants, as well as monitoring interactions between FEMA simulators and the exercise participants. Controllers were specifically prohibited from providing exercise information to the exercise participants regarding scenario development or resolution of problem areas encountered.

Eleven (11) individuals served as FEMA controllers during the exercise. Their names, affiliations, and assignments during the exercise follow:

Controller	Agency	Exercise Location/Function(s)
R. Donovan	FEMA	LERO EOC/Senior FEMA Controller
L. Kers	NRC	LERO EOC/Controller
J. Brown	NRC	Port Jefferson Staging Area/Controller
E. Weinstein	NRC	Patchogue Staging Area/Lead Controller
M. Hawkins	NRC	Patchogue Staging Area/Controller
J. Himes	NRC	Riverhead Staging Area/Controller
E. Williams	NRC	Field Team/Controller
E. Podalak	NRC	Field Team/Controller

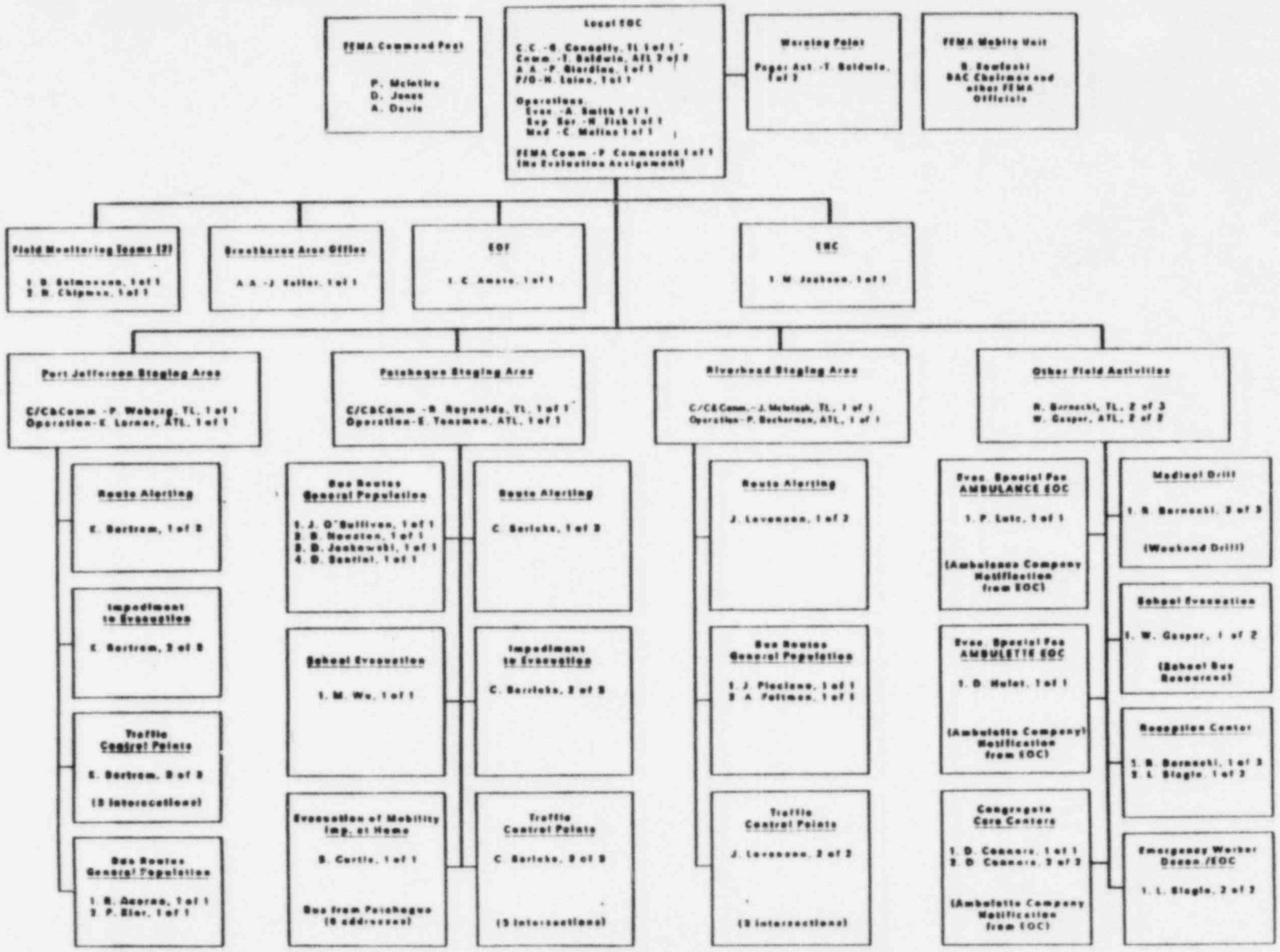

FIGURE 1.1 Shoreham Exercise Evaluator Organization

Controller	Agency	Exercise Location/Function(s)
B. Weiss	NRC	FEMA Control Cell/Controller for Simulator
K. Perkins	NRC	LERO EOC/Controller for Simulator
C. Sakenas	NRC	LILCO EOF/Controller for Simulator

1.4 FEMA SIMULATORS

FEMA Region II designated eleven (11) individuals to simulate the interface of key State and county officials with LERO and LILCO. The purpose of the simulation efforts was to provide an opportunity for the evaluation team to determine if the LILCO and LERO plans, procedures, facilities, and preparedness could, as claimed, accommodate and support State and local personnel and provide information to State and local personnel so that they could carry out their responsibilities. FEMA simulators were assigned to the LERO EOC, the LILCO EOF, and the FEMA Control Cell (located at Brookhaven National Laboratory), where simulators conducted their activities by telephone.

FEMA simulators representing State and county personnel were instructed not to assume a response posture. Their simulations were to be as consistent as possible with the New York State plans for other nuclear power plants and with the manner in which other counties have participated in the planning and exercises at other facilities in New York. They were to ask questions and request information, briefings, etc., in order to be informed. But, at all times, they were to allow the LERO staff to direct all response efforts. Like the participants, simulators were not privy to the exercise scenario. Certain FEMA controllers monitored the interactions between FEMA simulators and the LILCO/LERO exercise participants. The overall responsibility for managing the simulation of State and county officials rested with the Senior FEMA Controller.

The names, affiliations, and assignments during the exercise of the FEMA simulators follow:

Simulator	Agency	Exercise Location/Function(s)
V. Wingert	FEMA	FEMA Control Cell/Simulator for State Health Commissioner or Designee
J. Sucich	FEMA	FEMA Control Cell/Simulator for County Executive
G. Brown	NRC	FEMA Control Cell/Simulator for County Health Officer
M. Landau	NRC	FEMA Control Cell/Simulator for other County departments
R. Meck	NRC	FEMA Control Cell/Simulator for State Health Department technical representative

Simulator	Agency	Exercise Location/Function(s)
J. Thomas	FEMA	LERO EOC/Simulator for County Executive representative
L. Bolling	NRC	LERO EOC/Simulator for County Health Department representative
J. Gilliland	NRC	LERO EOC/Simulator for County Public Affairs Office representative
A. Gooden	NRC	LERO EOC/Simulator for State Health Department representative
J. Kreh	NRC	LILCO EOF/Simulator for County Health Department technical representative
W. Snell	NRC	LILCO EOF/Simulator for State Health Department technical representative

1.5 EVALUATION CRITERIA

The exercise evaluations presented in Section 2 of this report are based on applicable planning standards and evaluation criteria set forth in NUREG-0654-FEMA-REP-1, Rev. 1 (Nov. 1980), Section II. For the purpose of exercise assessment, FEMA uses an evaluation method to apply the criteria of NUREG-0654. FEMA classifies exercise inadequacies as deficiencies or areas requiring corrective actions. **Deficiencies** are demonstrated and observed inadequacies that would cause a finding that offsite emergency preparedness was not adequate to provide reasonable assurance that appropriate protective measures can be taken to protect the health and safety of the public living in the vicinity of a nuclear power facility in the event of a radiological emergency. Because of the potential impact of deficiencies on emergency preparedness, they are required to be promptly corrected through appropriate remedial actions including remedial exercises, drills or other actions. **Areas requiring corrective action** are demonstrated and observed inadequacies of performance, and although their correction is required, they are not considered, by themselves, to adversely impact public health and safety. In addition to these inadequacies, FEMA identifies **areas recommended for improvement**, which are problem areas observed during an exercise that are not considered to adversely impact public health and safety. While not required, correction of these would enhance an organization's level of emergency preparedness.

1.6 EXERCISE OBJECTIVES

The objectives of this exercise were to demonstrate LERO's capability to mobilize needed personnel and equipment, and familiarity with procedures required to manage an emergency at SNPS. The exercise was to involve activation and participation of staff and response facilities at SNPS, as well as LERO and its facilities. Federal

agencies were to be notified during the exercise according to existing protocols. Federal agencies with radiological emergency preparedness responsibility were not to participate actively in the play of the exercise, except for commitments under the LILCO Transition Plan by DOE for radiological field monitoring and by the U.S. Coast Guard for notification of water-borne traffic inside the ten (10)-mile EPZ. The scope of this exercise, with some exceptions, was to endeavor to demonstrate by actual performance a number of primary emergency preparedness functions. At no time was the exercise to interfere with the safe operations of SNPS, or with State or county activities. The RAC developed the following objectives for this exercise; those marked with an asterisk (*) are the objectives which are related to the legal authority issue as specified in RAC review comments on the LILCO Transition Plan for SNPS.

LERO Emergency Operations Center (EOC)

1. Demonstrate the ability to receive initial and followup emergency notifications.

2. Demonstrate the ability to mobilize staff and activate the Local Emergency Response Organization (LERO) EOC in a timely manner.

3. Demonstrate through rosters, the ability to maintain staffing in the LERO EOC on a 24-hour basis.

4. Demonstrate that the LERO EOC has adequate space, equipment, and supplies to support emergency operations.

*5. Demonstrate that the LERO can establish appropriate communication links, both primary and back up systems (communication with the State and county will be via telephone).

*6. Demonstrate that the LERO EOC has adequate access control and that security can be maintained.

7. Demonstrate that messages are transmitted in an accurate and timely manner, messages are properly logged, that status boards are accurately maintained and updated, that appropriate briefings are held, and that incoming personnel are briefed.

*8. Demonstrate that the appropriate official is in charge and in control of an overall coordinated response including decisions on protective action recommendations.

*9. Demonstrate the ability to coordinate the emergency response with county and State officials. (Role of State and/or county officials will be simulated by FEMA designated personnel.)

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*Note: The demonstration of this objective is affected by the legal authority issue.

*10. Demonstrate the ability of the designated official to determine the need to obtain State assistance.

*11. Demonstrate the ability to communicate with all appropriate locations, organizations, and field personnel.

12. Demonstrate the ability to receive and interpret radiation dosage projection information, and to determine appropriate protective measures, based on PAGs and information received from the Brookhaven Area Office (BHO).

*13. Demonstrate the ability to provide advance coordination of public alerting and instructional messages with the State and county (State and county participation simulated).

*14. Demonstrate the ability to activate the prompt notification siren system in coordination with State and county (State and county participation simulated).

*15. Demonstrate the capability for providing both an alert signal and an informational or instructional message to the population on an area-wide basis throughout the 10-mile EPZ, within 15 minutes (to be simulated).

*16. Demonstrate the organizational ability to manage an orderly evacuation of all or part of the 10-mile EPZ including the water portion.

*17. Demonstrate the organizational ability to deal with impediments to evacuation, such as inclement weather or traffic obstructions.

*18. Demonstrate the organizational ability necessary to effect an early dismissal of schools within the 10-mile EPZ.

*19. Demonstrate the organizational ability necessary to control access to an evacuated area.

*20. Demonstrate the organizational ability necessary to effect an orderly evacuation of schools within the 10-mile EPZ. If this protective action is not recommended by the decision-makers, e.g., schools were dismissed early, a free play controllers message may be inserted to demonstrate this activity.

*21. Demonstrate the ability to prepare and implement EBS in a timely manner (to be simulated within 15 minutes after command and control decision for implementation of protective action recommendations).

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*Note: The demonstration of this objective is affected by the legal authority issue.

Emergency Operations Facility (EOF)

1. Demonstrate that the Emergency Operations Facility has adequate space, equipment, and supplies to support emergency operations and interaction with LERO EOC.

2. Demonstrate that the Emergency Operations Facilities have adequate access control and that security can be maintained.

*3. Demonstrate the ability to coordinate the dose projections based on plant data and field measurements with county and/or State officials (Role of State and/or county officials will be simulated by FEMA designated personnel).

Brookhaven Area Office (BHO)

1. Demonstrate the ability to receive initial and follow up emergency notifications.

2. Demonstrate the ability to mobilize staff and activate the BHO in a timely manner.

3. Demonstrate through rosters, the ability to maintain staffing in the BHO on a 24-hour basis.

4. Demonstrate that the BHO has adequate space, equipment, and supplies to support emergency operations.

5. Demonstrate that the BHO can establish appropriate communication links with the LERO EOC, using both primary and backup systems.

6. Demonstrate that the BHO has adequate access control and that security can be maintained.

7. Demonstrate that messages are transmitted in an accurate and timely manner, messages are properly logged, that status boards are accurately maintained and updated, that appropriate briefings are held, and that incoming personnel are briefed.

8. Demonstrate that the appropriate official is in charge and in control of dose assessment function assigned to the BHO.

9. Demonstrate the ability to communicate with all appropriate field locations and personnel.

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*Note: The demonstration of this objective is affected by the legal authority issue.

10. Demonstrate the ability to project radiation dosage to the public via plume exposure, based on plant data and field measurements, and to recommend appropriate protective measures to LERO, based on PAGs and effectively communicate them to the LERO EOC. LERO is responsible for the final decision on protective action recommendations.

Emergency News Center (ENC)

1. Demonstrate the ability to mobilize staff and activate LERO functions at the ENC in a timely manner.

2. Demonstrate through rosters the ability to maintain staffing of LERO functions at the ENC on a 24-hour basis.

3. Demonstrate the ability to brief the media in a clear, accurate, and timely manner.

*4. Demonstrate the ability to share information with other agencies at the ENC prior to its release.

5. Demonstrate the ability to establish and operate rumor control in a coordinated manner.

6. Demonstrate that the ENC has adequate space, equipment, and supplies to support emergency operations.

*7. Demonstrate that the ENC has adequate access control and that security can be maintained.

Staging Areas (SA)

1. Demonstrate the ability to receive emergency notifications.

2. Demonstrate the ability to mobilize staff and activate the staging areas in a timely manner.

3. Demonstrate through rosters, the ability to maintain staffing at the staging areas on a 24-hour basis.

4. Demonstrate that the staging areas have adequate space, parking area, equipment, and supplies to support emergency operations.

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*Note: The demonstration of this objective is affected by the legal authority issue.

5. Demonstrate that the staging areas can establish appropriate communication links with the LERO EOC using both primary and backup systems.

*6. Demonstrate that the staging areas have adequate access control and that security can be maintained.

7. Demonstrate that messages are transmitted in an accurate and timely manner, messages are properly logged, that status boards are accurately maintained and updated, that appropriate briefings are held, and that incoming personnel are briefed.

8. Demonstrate that the appropriate official is in charge and in control of an overall response assigned to the staging area.

*9. Demonstrate the ability to dispatch to and direct emergency workers in the field.

10. Demonstrate the ability to communicate with all appropriate field locations and personnel.

Emergency Worker Decontamination Facility (EWDF)

1. Demonstrate the ability to mobilize staff and activate the Emergency Worker Decontamination Facility.

2. Demonstrate through rosters, the ability to maintain staffing of the Emergency Worker Decontamination Facility on a 24-hour basis.

*3. Demonstrate adequate equipment and procedures for decontamination of emergency workers, equipment and vehicles including adequate provisions for handling contaminated waste at the Emergency Worker Decontamination Facility.

Field Activities (Field)

1. Demonstrate the ability to continuously monitor and control emergency worker exposure including proper use of personnel dosimetry.

2. Demonstrate the ability to mobilize and deploy BHO field monitoring teams in a timely manner.

3. Demonstrate appropriate equipment and procedures for determining ambient radiation levels (BHO personnel).

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*Note: The demonstration of this objective is affected by the legal authority issue.

4. Demonstrate appropriate equipment and procedures for measurement of airborne radioiodine concentrations as low as 0.1 picocuries/cc in the presence of noble gases (BHO personnel).

*5. Demonstrate the ability to provide backup public alerting, if necessary, in the event of partial siren system failure.

*6. Demonstrate that access control points can be established and staffed by Traffic Guides in a timely manner.

7. Demonstrate the ability to supply and administer KI, once the decision has been made to do so.

8. Demonstrate that emergency workers understand who can authorize exposure in excess of the general public Protective Action Guidelines (PAGs).

9. Demonstrate a sample of resources necessary to implement an orderly evacuation of all or part of the 10-mile EPZ.

*10. Demonstrate a sample of resources necessary to deal with impediments to evacuation, such as inclement weather or traffic obstructions.

*11. Demonstrate a sample of resources necessary to control access to an evacuated area (Traffic Guides).

*12. Demonstrate the adequacy of evacuation bus transfer points including access and parking/transfer areas.

13. Demonstrate a sample of resources necessary to effect an orderly evacuation of the institutionalized mobility-impaired individuals within the 10-mile EPZ.

14. Demonstrate a sample of resources necessary to effect an orderly evacuation of the non-institutionalized mobility-impaired individuals within the 10-mile EPZ.

15. Demonstrate a sample of resources necessary to effect an early dismissal of schools within the 10-mile EPZ (to be simulated out of sequence, if appropriate).

16. Demonstrate a sample of resources necessary to effect an orderly evacuation of schools within the 10-mile EPZ.

17. Demonstrate the ability to mobilize staff and activate the Reception Center in a timely manner.

18. Demonstrate the ability to mobilize staff and activate Congregate Care Centers in a timely manner.

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*Note: The demonstration of this objective is affected by the legal authority issue.

19. Demonstrate through rosters the ability to maintain staffing at the Reception Center on a 24-hour basis.

20. Demonstrate through rosters the ability to maintain staffing at the Congregate Care Centers on a 24-hour basis.

*21. Demonstrate the adequacy of procedures for registration, radiological monitoring, and decontamination of evacuees and vehicles including adequate provisions for handling contaminated waste at the Reception Center.

22. Demonstrate the adequacy of facilities for mass care of evacuees at congregate centers.

23. Demonstrate adequacy for ambulance facilities and procedures for handling injured and contaminated individuals. (Medical drill involves an on-site/off-site injury).

24. Demonstrate adequacy of hospital facilities and procedures for handling injured and contaminated individuals. (Medical drill involves an on-site/off-site injury).

1.7 EXERCISE SCENARIO

1.7.1 Major Sequence of Events on Site

Given below is a listing of exercise events, and the approximate times that they were projected to occur by the scenario:

Projected by Scenario	Event
0515	SNPS is operating at sixty percent (60%) power and is near end of core life. Wind is out of northeast at five (5) miles per hour.
0529	Unidentified leak in the Drywell is detected exceeding five (5) gallons per minute.
0545	Unusual Event Emergency Classification (ECL) declared due to high unidentified leak rate in the Containment.
0550	Reactor shutdown commenced.
0559	Radiation monitors indicate levels one hundred (100) times greater than the high setpoint and greater than a one thousand (1000)-fold increase.

*Note: The demonstration of this objective is affected by the legal authority issue.

Projected by Scenario	Event
0601	Malfunction detected in Traversing Incore Probe System, accounting for the high radiation levels.
0620	**Alert ECL** declared due to high radiation levels on the northeast side of the reactor building.
0759	Failure of the only operable Condensate Pump results in a total loss of feedwater transient. Reactor scrams and Turbine trips. Condensate Booster Pump, Reactor Feedwater Pump, Feedpump Turbine Exhaust Diaphram and Feedpump Turbine Exhaust Isolation Valve all fail.
0805	Residual Heat Removal Pumps fail.
0815	**Site Area Emergency ECL** declared due to break in High Pressure Coolant Injection (HPCI) Steam Line and failure of HPCI Steam Supply Isolation Valves to close.
0929	Emergency power bus fails, causing total loss of the Emergency Core Cooling System (ECCS).
0945	**General Emergency ECL** declared due to loss of two (2) out of three (3) fission product barriers, with a potential to lose the third.
1130	Core melt and major radiation release begin.
1228	Emergency power bus is repaired and ECCS is reactivated.
1233	Core is covered.
1330	All telephone communications fail between EOF and onsite facilities.
1400	Telephone communications restored between EOF and onsite facilities.
1630	Wind shifts from out of northeast to out of northwest.
1730	Terminate Exercise.

1.7.2 On Site Scenario Overview

The exercise scenario begins at 0515 hours with the Shoreham Nuclear Power Station (SNPS) operating at sixty percent (60%) power on a reactor core approaching end of life. Two (2) days ago the plant was at one hundred percent (100%) power, having been

at that power for two (2) months, when a trip of a Condensate Pump caused a partial loss of feedwater. The reactor immediately reduced power and was settled at sixty percent (60%) power avoiding a reactor scram on low water level. Upon investigation, it was found that the Condensate Pump lower motor bearing had failed causing the shaft to seize and trip the pump motor on overcurrent. The motor is presently dismantled and expected to be returned to service within two (2) days.

Additionally, a Core Spray Pump, is tagged out-of-service to replace a leaking gasket at the flange of the pump suction spoolpiece. Work has commenced and is expected to be completed within four (4) to eight (8) hours.

Finally, the Local Power Range Monitors (LPRMs) are being calibrated by running the Traversing Incore Probe (TIP) system automatically into the core making routine plots.

Weather conditions are fair and seasonable with the wind out of the northeast at five (5) miles per hour.

The simulated accident began when excessive running of the Drywell Floor Drain Pumps sets off alarms in the Radwaste Control Room. The unidentified leak rate into the Drywell Floor Drain System is calculated to be six (6) gpm necessitating the declaration of an **Unusual Event ECL**. The Watch Engineer then assumes the duties of Emergency director and initiates the SNPS Emergency Plan. The leak is postulated to be from a cracked control rod drive weld and therefore cannot be isolated. It was expected that plant operations would decide to begin a controlled shutdown at this time since the high unidentified leak rate exceeds a Technical Specification limit. Due to system load, the shutdown was expected to be done slowly.

Within thirty (30) minutes after the declaration of the Unusual Event ECL, a malfunction in a TIP system probe withdrawal limit switch causes a hot probe to be withdrawn beyond the probe cask as far back as the cable reel housing. High area radiation alarms sound indicating a source of radiation of more than one hundred (100) times the high trip setpoint in the vicinity of the TIP cable drive system on the northeast side of the reactor building. This high radiation level event warrants that an Alert ECL be declared at this time and the TSC, OSC, EOF and ENC were to be activated.

As the TSC is being activated, the maintenance crew repairing the gasket of the out-of-service Core Spray Pump, locates a large crack in the flange which requires replacement. Estimated time to fabricate a new flange and weld it in place is sixteen (16) hours, extending the out-of-service time for this pump.

In the meantime a leak at the Intake Structure was to be identified to be coming from the Service Water vestibule area. The leak is sufficient to cause a decrease in header pressure to approximately forty (40) psig and initiates an annunciator. This failure never escalates beyond the initial level and was intended to spur "what-if" thinking in the TSC. A repair team was to have been dispatched from the OSC and, if they demonstrate that they could have fixed the leak, the system was to have been restored; if not, no adverse effects on the remainder of the exercise were to be seen.

Approximately two (2) hours and forty-five (45) minutes into the drill, with power level at approximately forty-five percent (45%), the only operable Condensate Pump fails when a motor winding short causes it to trip. This results in a total loss-of-feedwater transient. Reactor water level drops and a scram occurs. Collapse of bubble void due to the scram causes level to decrease further with the subsequent trip of the Reactor Recirculation Pumps and closure of the MSIVs. With both Condensate Pumps off, both the running Condensate Booster Pump and Reactor Feedwater Pump trip on low suction pressure. The Feedpump Turbine Exhaust Diaphragm fails at this time resulting in air inleakage to the Main Condenser and subsequent loss of vacuum. If the Feedpump Turbine Exhaust Isolation Valve is attempted to be closed, it was to have failed to close fully due to a mechanical blockage within the valve body. This loss of Condenser vacuum prevents the MSIVs from being reopened.

HPCI and RCIC initiate on low water level as designed and relief valves open as pressure rises after the MSIV closure. This high pressure condition causes a leak to develop in the steam supply line to the HPCI Turbine causing a leak to secondary containment. High area temperature is sensed by the Leak Detection System and an isolation signal to both HPCI and RCIC is initiated. RCIC trips and isolates normally, but the HPCI Steam Supply Isolation Valve fails to close, preventing isolation of this steamline break. Manual closure of this isolation valve is precluded since it is inside the Drywell, which is inerted. Additionally, the outboard HPCI steam supply isolation valve has dual indication, as it fails to close completely. It was to be impossible to get to this valve to close it due to steam leaking in the area. This was to result in the declaration of a Site Area Emergency ECL.

The steam leaking to the Secondary Containment from the HPCI steamline causes a high airborne condition and with multiple area radiation monitors alarming, a Restricted Area Evacuation was to be declared. Accountability was to be started at this time. For purposes of this exercise, Evacuation Plan A was to be utilized. Reactor building filters operate normally to release the steam leak contaminants to the environment via the plant vent. This release was expected to be low level, not requiring any PARs beyond the site boundary.

Operators were expected to cool down the plant quickly to reduce the steam leak as much as possible. Since the HPCI steamline break could not be isolated and a radiological release to the environment is in progress, a manual initiation of ADS may have been the decision of the TSC staff and Watch Engineer, but as rapid a cooldown as possible using manual control of the Steam Relief Valves was expected. With steam being dumped to the Suppression Pool, operators were to align Residual Heat Removal (RHR) in the Suppression Pool Cooling mode. When a RHR Pump was manually attempted to be started it was to start and then trip due to excessive binding in the pump, causing an overcurrent condition. Backup RHR Pumps and the Core Spray Pump were all to operate normally. The mass loss via the open Steam Relief Valves to the Suppression Pool and the steamline leak to the Secondary Containment is greater than Control Rod Drive cooling water maximum flow rate so vessel level decreases during this pressure reduction. When pressure drops below that necessary for the low pressure ECCS pumps, Core Spray was to be used to restore vessel level to normal.

As reactor pressure decreases below the LPCI high pressure interlock, the Residual Heat Removal Injection Valve was to fail to open either automatically or manually. The only normal means of replacing the water mass leaking from the HPCI steamline break at this time are from Control Rod Drive cooling water, one (1) Core Spray Loop and one (1) RHR Loop which only has one (1) RHR Pump operable. These pumps maintain reactor water level until a short to ground on an Emergency Power Bus causes it to lockout all power supplies approximately one and one-half (1½) hours after the SAE. The loss of this bus in turn fails the Control Rod Drive Pump, Core Spray Pump and RHR Pump. Since the steamline has not been isolated as yet, the mass loss through this breach of the reactor coolant pressure boundary causes a gradual decrease in reactor water level. These events were to result in the declaration of a General Emergency ECL.

Although emergency repair operations were to begin immediately after identification of each failure, ECCS was not to be restored for approximately three (3) hours. Initially, the rate of decrease of reactor water level is slow, and estimated time before the core starts to be uncovered was to be approximately four (4) hours. As time advances however, the leak increases to such an extent that the core actually becomes uncovered within two (2) hours of the declaration of the General Emergency ECL. As the fuel and cladding begin to melt, the fission products are released and carried out of the reactor system with the steam leaking from the HPCI steamline. Reactor Building Filters operate normally and filter this release to the environment. Eventually, emergency repair operations were to result in clearing the fault on Emergency Power Bus 102, the lockouts were to be reset, and the Diesel Generator was to re-energize the bus. A Core Spray Pump and RHR Pump are now able to reflood the core, precluding further core damage.

Since the Secondary Containment has been filled with the fission products released while the core was uncovered, the release was to continue for several days with a decreasing source term. Five (5) hours after the start of the major release the wind shifts from the northeast to the northwest requiring updated PARs. When drill controllers were satisfied that all exercise objectives had been achieved, the drill was to be terminated.

1.7.3 Description of Local Emergency Response Organization (LERO) Resources

LERO was to be responsible for ensuring that its resources actually were deployed in adequate numbers to reasonably test its notification, mobilization, command, coordination, and communications capabilities. Except as noted below, LERO was to have total authority in determining the degree of mobilization and deployment of its resources in a radiological accident at SNPS. Consistent with this intent, the decision to demonstrate or to actually deploy resources was to be made at the time of the exercise.

The following personnel and resources were to be deployed by LERO to demonstrate the capabilities of its emergency resources.

Public Notification

During the exercise, the public alerting sirens and the Emergency Broadcast System (EBS) were to be demonstrated. Since the LILCO Transition Plan provides a backup system for notification of areas where sirens fail to notify the public, Federal evaluators also evaluated this system. The system consists of pre-planned routes which are each to be driven by a loudspeaker-equipped vehicle upon a determination by LERO that a given siren was not heard by local residents. During the exercise, FEMA controllers specified in a free play message that one (1) siren to be simulated in each of the three (3) staging areas had failed; a Federal evaluator was assigned to follow the entire run of each route alerting vehicle that was deployed, and to interview the drivers regarding knowledge of their responsibilities and procedures.

Radiological Field Monitoring Teams

In addition to off-site radiological field monitoring teams dispatched by SNPS, two (2) DOE RAP radiological monitoring field teams were to be demonstrated as provided for in the LERO Plan. Both DOE RAP teams were accompanied in the field by a FEMA controller and a Federal evaluator. The FEMA controllers were given simulated field data, which they provided to the teams to determine local dose rate readings consistent with the scenario.

Both DOE RAP teams were to demonstrate the equipment necessary to determine both gamma dose rates and airborne radioiodine concentrations. The monitoring teams were not to be suited up in anticontamination clothing. Emphasis was to be on the rapid deployment of the teams, rapid gathering of data, and communication of data to the DOE Brookhaven Area Office.

Radiological Exposure Control

All emergency workers in the 10-mile EPZ were to have thermoluminescent and direct-reading dosimeters (TLDs and DRDs), access to thyroid blocking agents (KI), and radiological exposure record cards. They were to be familiar with procedures for radiological exposure control (e.g., at what exposure levels to contact supervisors, and with procedures for obtaining clearance for excess exposures).

Completion of Bus Routes for Evacuees

Each of the locations designated in the LILCO Transition Plan as playing a part in an evacuation of the 10-mile EPZ was to activate a limited number of the routes and vehicles it would use in an actual accident, as follows:

Originating Location	Number of Routes: General Population	School Children	Non-Institutionalized Mobility-Impaired	Institutionalized Mobility-Impaired Special Facilities
Port Jefferson Staging Area	2	0	0	0
Patchogue Staging Area	4	1	1	0
Riverhead Staging Area	2	0	0	0
Emergency Worker Decontamination Facility (co-located with LERO EOC)	0	0	0	1 ambulance 1 ambulette
Shoreham-Wading River High School	0	1	0	0
TOTAL	8	2	1	2

Resources to complete all evacuations were to be activated in sequence with the scenario, based on free play messages inserted at the LERO EOC. Bus routes were not to be pre-assigned. The Federal evaluators, in concert with the FEMA controllers, were to insure that the selected routes did not affect normal public transportation.

The drivers were to assemble at their normal dispatch locations and be assigned routes, but were not to pick up any evacuees. Upon completion of the routes, all drivers were to report to the Reception Center to drop off the simulated evacuees, and thence to the Emergency Worker Decontamination Facility for monitoring and decontamination of the drivers and vehicles. There were to be no time constraints outside of those in the LILCO Transition Plan on running the routes.

Traffic Guides

LERO was to deploy Traffic Guides from all three (3) staging areas to simulate activation of a suitable sample of traffic control points (TCPs) within the 10-mile EPZ.

Staging Area	Number of Intersections	Number of Traffic Control Points
Port Jefferson	3	10
Patchogue	3	9
Riverhead	3	8
TOTAL	9	27

TCPs were not to be preassigned, nor were Traffic Guides to be prepositioned. To provide a greater test of the capability to respond to an actual incident and to allow more free play in the exercise, the Federal evaluators were to provide the participants at their respective staging areas who were assigned the responsibility of deploying Traffic Guides with information on the locations to be evaluated during the exercise, in sequence with the scenario. In order to avoid interfering with the normal flow of traffic, FEMA did not request that Traffic Guides attempt to demonstrate the functions they would implement during an actual incident at SNPS; instead, Traffic Guides were requested to remain in their legally-parked vehicles upon arriving at each TCP, and to submit to an interview by the Federal evaluator concerning their responsibilities, procedures, and equipment.

Impediments to Evacuation

Federal evaluators were to introduce free play messages to test procedures for removing impediments from evacuation routes. A free play message was to be given to the appropriate LERO EOC official stating that a simulated impediment had been discovered at a given location. The demonstration was to include the actual dispatch of appropriate emergency vehicle(s) to the scene, as specified in the LILCO Transition Plan.

Emergency Worker Decontamination

The LERO Emergency Worker Decontamination Facility (EWDF), located in the basement of the LERO EOC, was to set up and demonstrate the monitoring and decontamination of LERO workers and emergency vehicles. The processing of emergency workers who had completed their exercise participation was to be demonstrated during the exercise. Decontamination actions were to be simulated, although all necessary equipment was to be assembled at the EWDF and all procedures were to be explained to the Federal evaluators.

Reception Center

The Nassau County Veterans Memorial Coliseum, designated in the LILCO Transition Plan as the Reception Center for all evacuees, was to be opened and staffed in accordance with the Plan. The LERO personnel were to obtain estimates on how many

evacuees would be arriving had the exercise been a real emergency. They were then to estimate the supplies required for the potential evacuees. Some volunteers were to be processed through the registration procedure. Procedures and equipment for monitoring evacuees and their vehicles were to be demonstrated. Decontamination was to be simulated.

Congregate Care Centers

Two Congregate Care Centers were pre-selected by LERO and activated in sequence with the scenario. Supplies required for long-term mass care (e.g., cots, blankets, food) need not have been acquired nor brought to the Congregate Care Centers. However, the LERO personnel were to obtain estimates on how many evacuees would be arriving had the exercise been a real emergency. They were then to estimate the supplies required for the potential evacuees. Sources for the required supplies were then to be located and the means for transporting the supplies was to be determined.

Medical Drill

A medical drill was conducted on Sunday, February 9, 1986 in order to evaluate the emergency medical response at SNPS, Wading River Fire Department, and Central Suffolk Hospital. A separate scenario was developed in which a LILCO worker received a contaminated injury (simulated) while working on site. He was to be treated on site by SNPS personnel, transported to the Central Suffolk Hospital by the Wading River Fire Department, and treated at the hospital. A Federal evaluator evaluated the entire drill.

Volunteer Organizations

Response organizations identified in the LILCO Transition Plan were to participate in the exercise. Members of volunteer organizations such as the American Red Cross have other responsibilities, including earning a livelihood, that take precedence over their participation in an exercise. Therefore, the staffing of these volunteer organizations for exercise purposes was to be on an as-available basis.

Closeout of the Exercise

The Federal evaluators were not to release any participants from the exercise play. That was to be a LERO responsibility. LERO was to have been appropriately staffed until such time as the exercise was determined to have been terminated.

1.7.4 Actual and Simulated Off-site Events Summary

The following list summarizes each of the activities that were actually demonstrated or simulated during the February 13, 1986 exercise.

Activity	Actual or Simulated
Call up of LERO Personnel	Actual
Activate LERO Organization	Actual
Maintain LERO Security	Actual
EPZ Siren Activation	Simulated
EBS Message	Simulated
Dispatch Backup Route Alerting	Actual
Dispatch Field Survey Teams	Actual
Field Team Communication	Actual
Reception Center Setup	Actual
Personnel Monitoring	Actual
Personnel and Vehicle Decontamination	Simulated
Evacuee Monitoring	Actual
Evacuee and Vehicle Decontamination	Simulated
Congregate Care Setup	Actual
General Population Evacuee Buses	Actual
School Children Evacuee Buses	Actual
Mobility Impaired Vehicles	Actual
Traffic Guide Deployment	Actual
Evacuation Impediment Response	Actual
Dose Assessment	Actual
PAG Recommendation	Actual
Operate Emergency News Center	Actual
School Notification (Wading-River School District)	Actual
School Notification (all other School Districts)	Simulated

1.7.5 Exercise Timeline

Tables 1.1 and 1.2 provide detailed timelines of events that were noted during the February 13, 1986 exercise. Table 1.1 details escalation of the ECLs, notification of emergency response personnel, and times when notification was received of radiological release information by various facilities. Table 1.2 details protective action decisions and the time at which these decisions were issued to the public via the EBS.

TABLE 1.1 Emergency Classification Timeline[a]

Emergency Classification	Utility Declared	EOF	LERO EOC	ENC	Port Jefferson Staging Area	Patchogue Staging Area	Riverhead Staging Area	Brookhaven Area Office	Reception Center	FEMA Control Cell	
										County	State
Unusual Event Notification	0540	0540	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Alert Notification	0617	0617	0628	N/A	0628	0627	0628	0633	N/A	0645	0645
Facility Declared Operational	N/A	N/R	0810	N/R	0745	0757	0810	0745	1015	N/R	N/R
Site Area Emergency Notification	0819	0819	0824	0819	0830	0832	0840	N/R	0939	0825	0830
General Emergency Notification	0939	0939	0946	N/R	1000	0958	1001	0949	N/R	0950	0950
Release Started Notification #1	N/A	N/R	0830	N/R	0900	0903	0858	0839	N/R	0847	0907
Release Started Notification #2	N/A	1130	N/R	N/R	N/R	N/R	N/R	1138	N/R	N/R	N/R

[a]Times that events were observed at each location: N/A = not applicable; N/R = not reported.

TABLE 1.2 Protective Action Decision/Public Notification Timeline[a]

Decision	Affected Areas (Zones)	Decision Time	EBS Message Issued	ΔT = (EBS Time) - (Decision Time) in minutes
Alert. Early school closing.	-	N/R	0652	N/A
Site Area Emergency. Dairy animals on stored feed.	A-E	0837	0841	4
Evacuation. Dairy animals on stored feed.	A-M, Q, R	1010	1024	14
Evacuation.	10-mile EPZ (add N O, P, S)	1146	1200	14
Populations report to Coliseum for monitoring.	A, B, F, G, K, Q	1331	N/R	N/A

[a]N/R = not reported.
N/A = not available.

2 EXERCISE EVALUATION

This section provides a narrative overview of the evaluations from the February 13, 1986, radiological emergency preparedness exercise for the Shoreham Nuclear Power Station (SNPS). The evaluations are keyed to the exercise objectives listed in Section 1.6 of this report. References to those objectives are provided in the following narrative.

2.1 LOCAL EMERGENCY RESPONSE ORGANIZATION EMERGENCY OPERATIONS CENTER (LERO EOC)

The LERO EOC is located at the LILCO Brentwood Operations facility. This facility is involved twenty-four (24) hours per day with LILCO business activities. A portion of this facility is dedicated to emergency response activities during a radiological emergency.

2.1.1 LERO EOC Operations

The objective of demonstrating the ability to receive initial and follow-up emergency notifications was met (EOC 1). Initial notification of the Unusual Event Emergency Classification Level (ECL) was received by the LILCO Supervising Service Operator (SSO) in Hicksville, New York, at approximately 0545 via the Radiological Emergency Communications System (RECS) line. Following LERO procedures, primary response personnel were notified by pagers at about 0553. Verification of the notification was obtained by return call to the SSO and by the computerized automatic verification system (AVS). Verification of this initial notification had been received from all responders within fifteen (15) minutes. Notification of the Alert ECL was received over the RECS line at approximately 0618 and verification of notification of emergency workers by the pagers was completed within twenty (20) minutes.

LERO notifications of the Site Area and General Emergency ECLs were received over the RECS telephone at the LERO EOC after that facility had become operational. All notifications of changes in the ECL were timely and the RECS telephone at the LERO EOC was used effectively throughout the exercise.

An exercise objective was met by demonstrating the ability to mobilize staff and activate the LERO EOC in a timely manner (EOC 2). The Alert ECL notification was received at about 0628 and the first responder arrived at the LERO EOC at approximately 0645. By 0745 most LERO employees were present. Appropriate maps and status boards were set up as specified in the Plan. Communication links were established and verified. The activation of the Patchogue, Port Jefferson, and Riverhead Staging Areas and the activation of the Brookhaven Area Office (BHO) were confirmed in a timely manner. The Evacuation Coordinator contacted his staff beginning at about 0750, instituted a check of the AVS, and arranged to get replacements for any of his staff who had not reported within a reasonable time. Prior to declaring the LERO EOC operational at approximately 0810, the Manager of Local Response held a briefing session with the principal staff members to discuss the status of activation activities.

In the public information area, the Coordinator of Public Information and most of the public information staff arrived within an hour of the Alert ECL notification. Upon arrival at the LERO EOC, public information staff proceeded to make the public information area operational in a timely fashion. The Alert ECL notification was broadcast over EBS at about 0652. Full staffing and setup of the area had been achieved by about 0745 and, at about 0750, a message was received from the Emergency News Center (ENC) that that facility was operational.

Emergency medical personnel at the LERO EOC were notified by pagers at about 0629. Responders called their automatic verification number and received instructions to report to the LERO EOC. The staff arrived in a timely fashion between about 0645 and 0730 and set up their area in the command room.

The LERO EOC demonstrated the ability to maintain staffing on a twenty-four (24) hour basis through the use of rosters, thus meeting an exercise objective (EOC 3). The Lead Communicator at the LERO EOC had a roster of both primary and backup personnel who could be called upon to maintain twenty-four (24) hour staffing. Both home and business telephone numbers were available in the roster. The effectiveness of the backup system was demonstrated when four (4) LERO responders who had not verified their initial notifications on the AVS were contacted by telephone by the Lead Communicator using the telephone number information in the roster.

Additional rosters for their areas were available to each of the lead coordinators. The Emergency Medical/Public Service Communicator, Ambulance Coordinator, Health Services Coordinator, and Hospital Coordinator presented rosters with home and business telephone numbers showing sufficient staff to support three (3) shifts on a twenty-four (24) hour basis. The roster in the accident assessment area also showed three (3) people available for each position except for the Radiation Health Coordinator position, for which eight (8) names were available.

In anticipation of extended operations, the Lead Communicator developed a roster of second shift personnel which he presented to the Manager of Local Response who decided that a shift change would occur at 1600 after replacements had arrived and been briefed. A simulated call-out of second shift personnel was demonstrated by each coordinator.

The objective of demonstrating that the LERO EOC has adequate space, equipment, and supplies to support emergency operations was met (EOC 4). It was observed, however, that the command room was too crowded during some of the briefings on accident assessment. LERO should consider whether operations could be improved by providing less crowded conditions during these briefings. Furniture, space, telephones, and radios were available for all personnel. All maps and status boards required by the Plan were available. However, simulators of State and county officials did not have a specific area assigned to them. Operations could be improved if a particular space for State and county personnel were available in the LERO EOC. Lighting was adequate. Noise levels appeared to be acceptable. The Route Spotter/Road Crew Communicator and the three (3) Staging Area Communicators had headsets so that their radio receptions were not broadcast into the operations area.

The objective of demonstrating that LERO can establish appropriate communications links, both primary and backup (including communication with New York State and Suffolk County via telephone) was partly met (EOC 5). All the primary and backup communications systems at the LERO EOC were operational and functioned well, including the communications link with the Eaton's Neck Coast Guard Station via the radio located on the Evacuation Coordinator's desk as specified OPIP 4.1.1.

There was some confusion regarding the proper method of contacting the Federal Aviation Administration (FAA). Although the FAA did not participate in the exercise, it was recognized by the LERO staff that the FAA should be requested to divert air traffic from the EPZ. However, the LERO staff did not locate information in the LERO Procedures for accomplishing this notification. If one has not already been established, a point of contact with the FAA should be designated so that notification can be accomplished promptly. The LERO Procedures should be reviewed and revised as necessary, and the LERO staff trained accordingly, to ensure that the FAA will be notified in a timely manner.

Similarly, the Long Island Railroad (LIRR) was not notified of the exercise emergency because there are no procedures in the Plan for requesting it to divert its trains from the EPZ. If one has not already been established, a point of contact with the LIRR should be designated so that notification can take place promptly. The LERO Procedures should be reviewed and revised as necessary, and the LERO staff trained accordingly, to ensure that the LIRR will be notified in a timely manner.

The LERO EOC met an exercise objective by demonstrating that it has adequate access control and that security can be maintained (EOC 6). All security points were staffed and security was maintained effectively at the LERO EOC in accordance with the provisions of procedure OPIP 4.7.1. All incoming LERO personnel were checked through security at the entrance to the LERO EOC and were issued LERO identification badges. Non-LERO personnel, including simulated State and county representatives, were checked for identification and, when this had been verified, were issued LERO identification badges permitting unrestricted access to the facility.

LERO partly met the objective of demonstrating that messages are transmitted in an accurate and timely manner, that messages are properly logged, that status boards are accurately maintained and updated, that appropriate briefings are held, and that incoming personnel are briefed (EOC 7). Clear, concise, and accurate briefings were conducted periodically in the LERO EOC command room and in the briefing room. Additional briefings were conducted by the Manager of Local Response in the operations area. These briefings enhanced the flow of information within the LERO EOC. There was some duplication between the briefings conducted in the briefing room and those conducted in the operations area. LERO should consider whether operations could be improved by consolidating the two (2) sets of briefings in the operations room to avoid duplication.

Status boards were located throughout the LERO EOC in the various functional areas. These boards were generally outstanding, effectively utilized, and updated in a timely manner. The key events status board in the operations area was maintained at all times and was visible from all functional areas in the operations area. Boards giving the

bus staging status and evacuation status were updated as needed as buses were dispatched and the evacuation of the general population proceeded. However, the dose assessment status board in the accident assessment area had to accommodate data from both the DOE RAP and the LILCO field monitoring teams. There were not enough columns on the board to keep the two (2) sources of data separated. It is recommended that the dose assessment status board should be enlarged to accommodate a clear separation between the data reports from the DOE RAP team and those from LILCO. Also, there were no key events or evacuation status boards posted in the command area. Operations could be improved if a key events status board were available in the command room.

All the coordinators in the traffic, transportation, and special facilities areas kept logs and generally used LERO message forms. In general, information was provided in a timely fashion both to and from the staging areas, the ENC, and the Emergency Operations Facility (EOF). For example, information properly identifying the numbers of the sirens which did not activate and their associated zone designations was transmitted to the appropriate staging areas within twenty (20) minutes after the LERO EOC had been informed of the siren failures. Internal LERO EOC communications were generally clear and efficient. The LERO EOC staff was generally well trained in the use of LERO message forms and checklists, thus facilitating the flow of information.

However, when the two (2) free play impediment messages were introduced at the LERO EOC, all pertinent information was not transferred from the free play impediment message forms introduced by the exercise controller to the LERO message forms. Pertinent information was not included on the 1045 LERO message form from the Evacuation Route Coordinator to the Evacuation Support Communicator for Route Spotters/Road Crews regarding the simulated impediment involving a gravel truck, including the fact that three (3) passenger cars were involved in the accident and the instruction that the LERO responder should locate the Federal evaluator. Also, pertinent information was not included on the 1106 LERO message form from the Evacuation Route Coordinator to the Route Spotter/Road Crew Communicator regarding the simulated impediment involving the fuel truck, including the fact that the fuel truck was leaking, the fact that there was the possibility of fire, the fact that both shoulders of the road were blocked, and the instruction that the LERO responder should locate the Federal evaluator. All coordinators and those who initiate messages should be trained to include all pertinent information on the LERO message forms. (The situation involved with the impediments is discussed further in this section under EOC 17.)

In addition, the 1205 message concerning the "visual check" of the fuel truck impediment from the Bus Dispatcher at the Patchogue Staging Area to the Transportation Support Coordinator was partially illegible and was not written on a standard LERO message form. LERO should consider whether operations could be improved by additional training stressing the mandatory use of standard message forms and the importance of legibility.

The objective of demonstrating that the appropriate official is in charge and in control of an overall coordinated response including decisions on protective action recommendations was partly met (EOC 8). The Director of Local Response was in charge and coordinated response actions including decisions on protective actions. Appropriate

protective action recommendations were made by the accident assessment staff in the LERO EOC and were relayed via the Radiation Health Coordinator to the Health Services Coordinator. Since the scenario provided limited release data, most of the protective action recommendations were based on projected doses. Discussions of evacuation options were limited, and all LILCO evacuation recommendations were followed.

However, there were several times when the Director was not in the command room to take calls over the RECS telephone or the dedicated telephone. At these times, a secretary took the calls and indicated to the caller that the Director would call back. Since both telephone systems are used to communicate vital emergency information, it is recommended that any personnel responsible for answering the telephones when the Director's responsibilities require his presence outside the command room should be trained to take the message in writing and then carry it to the Director immediately upon completion of the transmission.

The objective of demonstrating the ability to coordinate the emergency response with county and State officials was met with the role of State and/or county officials being simulated by FEMA designated personnel (EOC 9). LERO had a State/county liaison assigned to interface with the simulators of State and county officials.

Upon arriving at the LERO EOC, the County Executive representative (simulator) was briefed in detail. Simulated county assistance in responding to the emergency was requested of him by the Director of Local Response. Although county assistance was not offered (per the simulator plan for the exercise), LERO continued to accommodate State and county involvement in the formulation of protective action recommendations and the issuance of EBS messages. The County Public Affairs Office representative (simulator) arrived at about 0918 and was briefed immediately by the Public Information Coordinator. News releases and EBS messages were coordinated with the County Public Affairs Office representative (simulator) prior to simulated release.

The accident assessment staff made numerous, substantial briefings of appropriate State and county simulators.

The Evacuation Coordinator contacted the county (simulator) to determine whether county assistance would be available. Near the end of the exercise when the county (simulator) made assistance available, the Evacuation Coordinator contacted them at about 1630 to begin determining the number of county police that would be required to assist with the staffing of various access points around the periphery of the 10-mile EPZ to prevent reentry.

LERO demonstrated the ability of the designated official to determine the need to obtain State assistance, thereby meeting an exercise objective (EOC 10). The ability to determine the need for State assistance was demonstrated when requests were made for simulated police, road clearance, and radiological monitoring support personnel. Simulated police and road personnel were requested in responding to the impediments to evacuation. LERO officials requested simulated State police, radiological field monitoring, and personnel monitoring assistance at the Reception Center. Per simulator plans for the exercise, simulated State assistance was not provided. However, LERO

adequately demonstrated the ability to determine the need for such assistance. The LERO Director of Local Response, in coordination with the Manager of Local Response and appropriate LERO EOC staff, analyzed the need for State assistance. Requests were then forwarded to the State Health Department representative (simulator) for action.

An exercise objective was met by demonstrating the ability to communicate with all appropriate locations, organizations, and field personnel (EOC 11). Dedicated telephones and radios linked the LERO EOC with the EOF, the BHO, the ENC, the EBS station (WALK-FM), and the three (3) LERO emergency worker staging areas. Telecopiers were available for the transmission and receipt of hard copies.

In the accident assessment area, the RECS dedicated telephone was use to communicate with the EOF. The U.S. Department of Energy Radiological Assistance Plan (DOE RAP) Team Liaison used a telephone to communicate with the DOE RAP Team Captain at the BHO. Telephones were used to communicate with all the decontamination centers. All these systems were operational and their use was demonstrated throughout the exercise.

There was one (1) dedicated telephone line between the public information area and the ENC. There were also three (3) standard telephone lines. Computers were used in preparing and transmitting messages to the ENC. A copy machine was also available.

Radio and telephone communications with all three (3) staging areas were established rapidly and maintained throughout the exercise. Communications with the homebound, special facilities, and schools worked well. After the schools had been contacted, the two (2) School Coordinators were used to assist in calling the homebound. The Route Spotter/Road Crew Communicator was in constant contact with the Evacuation Route Spotters. There were occasional interference problems on this radio, but these did not compromise the overall effectiveness of the communications.

The ability to communicate with a fire company and Hess Oil Company was demonstrated while responding to the gasoline truck impediment.

The Emergency Medical/Public Services Coordinator, the Ambulance Coordinator, the Health Services Coordinator, and the Hospital Coordinator effectively demonstrated their ability to contact affected hospitals and ambulance/ambulette companies. The available communications equipment is appropriate for their emergency responsibilities.

The Support Services Coordinator maintained open communications with all functional elements under his jurisdiction. Security was kept informed by two (2)-way radios at the three (3) access points and at the main security desk in the lobby. Telephone communication was maintained throughout the exercise with the LERO Family Tracking Coordinator. The American Red Cross Coordinator maintained contact with the Reception Center and American Red Cross headquarters in Mineola.

The objective of demonstrating the ability to receive and interpret radiation dosage projection information and to determine appropriate protective measures based on Protective Action Guidelines (PAGs) and information received from the BHO was

partly met (EOC 12). Radiation dose projections were made by the accident assessment staff in the LERO EOC. Before the release began, these projections were based on projected releases and after the release began, simulated release data received from the field monitoring teams were used. Although the Radiation Health Coordinator and the Nuclear Engineer demonstrated good judgment in making correct PAG determinations, OPIP 3.6.1, Attachment 5 should be revised to account for the case of containment failure without core failure.

In addition, the downwind distance of the sample was incorrectly reported as 7000 meters instead of 700 meters for one of the thyroid doses reported by a DOE RAP field monitoring team. This error was caused by a decimal point misplaced during the conversion of the distance units and meant that the initial calculation of thyroid dose based on this measurement was 9000 mRem/hr at 4.3 miles downwind instead of 9000 mRem/hr at about 0.5 miles downwind. About five (5) minutes elapsed before this error was found and corrected. It is recommended that corrective action be taken to avoid such confusion by consistently reporting all downwind distances from the field in either miles or meters.

During the reporting of the initial DOE RAP thyroid doses, only one (1) field measurement, the 1400 mRem/hr measurement made at about 1204 at two (2) miles from the plant, was available. This value was used in the LERO EOC to extrapolate doses at other distances. However, these extrapolated data were reported as actual measurements rather than as projected data on the dose assessment status board. It took two and one half (2.5) hours to identify and correct this error. LERO should review the field monitoring team reporting procedures to ensure proper coordination and proper reporting.

Protective action recommendations were made by the Radiation Health Coordinator based on projected dose, meteorological forecasts, duration of release, plant status, and plant projections.

The protective action recommendations made by the Radiation Health Coordinator were consistent with the EPA PAGs for child thyroid dose which was the appropriate dose pathway for this exercise scenario.

The Health Services Coordinator generally provided accurate briefings. However, although he later quoted the PAG correctly when asked to do so by a Federal evaluator, the Health Services Coordinator misstated the EPA PAG as being mandatory evacuation when the projected thyroid dose was five (5) Rem. This misstatement was made during a briefing held at the LERO EOC at about 1110 and it did not affect the decision-making process. It is recommended that the Health Services Coordinator review the EPA PAG guidance in order to avoid any possible confusion due to misinformation given during briefings.

LERO met the objective of demonstrating the ability to provide advance coordination of public alerting and instructional messages with the State and county whose participation was simulated (EOC 13). Messages were coordinated between the LERO PIO and county PIO (simulator) at the LERO EOC. Both State and county representatives (simulators) were briefed in the issuance of EBS messages and news

releases, and EBS messages were provided to the county PIO (simulator) for comment prior to release. Coordination of EBS messages prior to release was effected between the Director of Local Response and the County Executive representative (simulator).

The objective of demonstrating the ability to activate the prompt notification siren system in coordination with the State and county with simulated State and county participation was partly met (EOC 14). The simulated activation of the siren system was coordinated by the LERO Coordinator of Public Information with the County Executive representative (simulator). Per simulator plans for the exercise, coordination with the State PIO was not observed. Prior to the exercise, LILCO management made the decision that the siren system would not be activated as part of the February 13, 1986 exercise. It is recommended that activation of the siren system should be actually tested in the future.

The objective of demonstrating the capability for providing both an alert signal and an informational or instructional message to the population on an area-wide basis throughout the 10-mile EPZ within fifteen (15) minutes (simulated) was met (EOC 15). OPIP 3.3.4, Section 2.1, requires that sirens be activated in coordination with the EBS system subsequent to the declaration of a Site Area Emergency ECL, the declaration of a General Emergency ECL, and the decision by the Director of Local Response to initiate or change protective action recommendations. OPIP 3.3.4, Section 3.1, requires that activation of the prompt notification system must take place within fifteen (15) minutes of a decision on the specific protective action recommendations that are to be broadcast to the public via EBS messages. In all cases the sirens were sounded (simulated) within the fifteen (15) minutes of the LERO EOC command decision. All EBS message were coordinated in accordance with the Plan. The simulated broadcast of EBS messages always occurred within six (6) minutes after the simulated siren sounding.

OPIP 3.3.4, Section 2.1, requires activation only of the siren system, while Section 3.1 indicates that the prompt notification system is to be activated following a decision on protective actions. Since the prompt notification system is defined in Section 3.4, Subsection H of the Plan, to include not only the siren system, but also the tone alert radio system and the backup mobile public address system, a potential exists for inconsistency within the Plan which could lead to confusion. LERO should consider whether procedures would be improved by making Sections 2.1 and 3.4 of OPIP 3.3.4 consistent.

In addition, Section 3.0 of OPIP 3.8.2, notes only that OPIP 3.3.4 must be implemented for the Site Area Emergency and General Emergency ECLs. This reference fails to note the requirement that the sirens be activated in coordination with the EBS whenever protective action recommendations are initiated or changed (OPIP 3.3.4, Section 2.1). LERO should consider whether procedures would be improved by making Section 3.0 of OPIP 3.8.2 consistent with Section 2.1 of OPIP 3.3.4.

The LERO EOC met the exercise objective of demonstrating the organizational ability to manage an orderly evacuation of all or part of the 10-mile EPZ including the water portion (EOC 16).

News of the failure of three (3) sirens to sound was received at the LERO EOC at about 0810 (simulated). By approximately 0821, the message had been given to the Special Facilities Evacuation Coordinator, who determined which siren zones were affected by using the appropriate table from the Plan. He then called the affected staging areas, requesting dispatch of route alerting and verification of both dispatch and completion of the route. These calls had been completed by about 0831.

Plans to implement evacuation were made early and the flow of important information was checked. As early as 0805, before the receipt of the utility recommendation for the declaration of a Site Area Emergency ECL, the Bus Coordinators were calling bus companies to determine the potential numbers of buses available. The Transportation Support Coordinator and Bus Coordinators worked well together using this information and the number of buses actually needed by each staging area. The manual system used for allocating the available buses to different routes based on the numbers required as specified in the Plan worked well. The staff demonstrated that they understood what was required and that they were familiar with the appropriate procedures. The Manager of Local Response contacted the Evacuation Coordinator at about 0844 to determine whether the staging areas knew of the county's (simulated) position on assistance. When the Manager informed the Evacuation Coordinator at about 0932 that prestaging of personnel for the potential evacuation of Zones A-G was being considered, the Evacuation Coordinator requested his staff to develop lists of potentially affected TCPs, staging areas, and Route Spotters. The Traffic Control, Traffic Control Point, Evacuation Route, and Road Logistics Coordinators each proceeded to determine the procedures required in their respective areas of responsibility. Good use was made of both the LERO forms and bulletin board maps in determining which personnel would need to be dispatched. When the message to evacuate Zones A-M, Q, and R was received at approximately 1011, much of the identification of the required resources had already been accomplished. This early identification expedited initiation of the evacuation.

By 1023, telephone calls (simulated) were being made to homebound individuals. These calls conveyed all appropriate information and were made using the appropriate message forms. The Home Coordinator maintains lists of individuals requiring curbside pickup. Special buses were assigned to pick up these individuals. If the Home Coordinator does not make telephone contact with a particular individual, the Bus Driver, who has copies of the list, is told to check at the residence to see if the individual is home. The Special Facilities Evacuation Coordinator directed this effort and kept informed of its progress.

Listings of special facilities requiring ambulance services are maintained in OPIP 3.6.5, along with lists of ambulance companies under contract. An evacuation of the entire 10-mile EPZ would require that about eight hundred eight (808) individuals with special needs be picked up. Fifty-seven (57) ambulances and one hundred eighteen (118) ambulette vans with a total capacity to move five hundred eighty-six (586) people in approximately two (2) hours are available under the Plan. The remaining people would be evacuated in a second round of pickups requiring an additional one and one half (1.5) hours. According to exercise participants, additional ambulances could be requested from volunteer fire companies and volunteer ambulance companies in the area.

When the free play messages were injected at about 1030 requesting that an ambulance be sent to Our Lady of Perpetual Help Convent and that an ambulette be sent to the United Cerebral Palsy Residence, the messages were handled expeditiously by the LERO EOC staff. Both messages had gone from the Special Facilities Evacuation Coordinator to the Health Facilities Coordinator to the Ambulance Coordinator, according to the Plan, by about 1055. The ambulance had been dispatched by about 1100 and the ambulette by about 1114.

The objective of demonstrating the organizational ability to deal with impediments to evacuation, such as inclement weather or traffic obstructions, was not met (EOC 17). The flow of information on impediments needs to be improved and there were unnecessary delays in responding to the impediments.

There were two (2) simulated impediments, one (1) involving a gravel truck and three (3) cars (referred to hereafter as gravel truck), and one (1) involving a fuel truck, for which the free play messages were injected at about 1040 and 1100, respectively. (See discussion of objective EOC 7 in this section for a summary of problems in handling these messages accurately.) Although there were problems verifying the gravel truck impediment in the field because the Federal evaluator was not at the specified location, a Route Spotter had met the Federal evaluator at the site of the simulated gravel truck impediment by about 1140. However, the Evacuation Coordinator was not informed of either impediment until after about 1213, and even then was informed by the FEMA Controller. OPIP 3.6.3, Attachment 3, Section 3 requires that Evacuation Route Spotters report any problems to the Evacuation Route Coordinator immediately; Section 5.6.7 requires the Evacuation Route Coordinator to obtain periodic updates from the Route Spotters and to report problems to the Traffic Control Coordinator; Section 5.22 requires the Transportation Control Coordinator to periodically update the Evacuation Coordinator on the status of traffic control activities. Although news of the simulated impediments did not originate with observations by Route Spotters, it is apparent that the intent of OPIP 3.6.3 is that the Evacuation Coordinator be kept informed of problems including impediments or suspected impediments. The late notification of the Evacuation Coordinator resulted in unnecessary delays in responding to the impediments. By about 1245, the Evacuation Coordinator had discussed the following with his staff: the omission of the instruction to meet the Federal evaluators in the field from the LERO Message Forms; the need to inform the Road Logistics Coordinator, who had not been informed of both impediments; the need to reroute traffic around the impediments and the procedures for so doing; the need to contact a fire department to respond to the spilled fuel; and the need to supply dosimetry for the responding fire department.

There was also a lack of lateral and downward communication in the chain of command in responding to some aspects of the impediments. As late as about 1240, the Transportation Support Coordinator had not been informed that bus evacuation route M-1 was potentially blocked by a gravel truck. As late as about 1348, the Road Logistics Coordinator had not been informed that there might be a need to send equipment to the site of the fuel truck impediment despite the fact that the Evacuation Coordinator had discussed the situation with respect to road logistics with some of his staff as early as about 1216.

It is recommended that two (2) actions be taken to correct this deficiency. First, internal communications procedures should be reviewed and revised as necessary to ensure that information on impediments is passed both up the chain of command to the Evacuation Coordinator and downward and laterally to all lead coordinators under the Evacuation Coordinator and their staffs. This information flow should take place as soon as practicable after instituting impediment verification procedures and any other impediment-related actions required by the Plan. Dissemination of this information would facilitate advance planning, coordination, and the identification and alerting of appropriate field personnel, thereby reducing the time needed to respond to verified impediments. Second, additional training is recommended to ensure that the Procedures, whether new or current, are implemented properly.

Although there was a message received by the Transportation Support Coordinator from the Bus Dispatcher at the Patchogue Staging Area timed 1205 which indicated that a "visual check" of the fuel truck impediment had indicated that there was no problem, more than one (1) hour had elapsed between receipt of this message and injection of the free play impediment message at the LERO EOC. The Evacuation Coordinator should have been informed more quickly to ensure a timely, coordinated response to the impediment after it had been verified. (See objective EOC 7 in this section for additional discussion of this message.)

After the Road Logistics Coordinator had been informed of the need to dispatch equipment to the fuel truck impediment, the response to that impediment appeared adequate. A Road Crew was dispatched by approximately 1350. When it was determined (by FEMA injection) that the truck belonged to Hess Oil Co., Hess was called by about 1415 and indicated that they would have the fuel transferred from the overturned tanker in accordance with their normal procedures. As a result of the subject delays, the Federal evaluator could not observe a response to the fuel truck impediment.

Based on observations made by the Federal evaluator, the equipment responding to the gravel truck impediment was inadequate for two (2) reasons: 1) since the message from the LERO EOC did not specify that three (3) cars were involved, only one (1) tow truck was dispatched, and 2) no scraper was sent to remove spilled gravel from the road, nor was a determination ever made as to whether any gravel had been spilled. It is recommended that corrective action be taken by training personnel in the need for additional review and discussion of the equipment required to clear impediments. These discussions should include, at a minimum, the Evacuation Coordinator and the four (4) lead coordinators who report to him.

At about 1115, after having tried unsuccessfully to contact Route Spotter #1005, on whose route the fuel truck impediment was located, the Route Spotter/Road Crew Communicator requested the Port Jefferson Evacuation Support Communicator to determine whether Route Spotter #1005 had been dispatched. This spotter was not dispatched until about 1202. This delay of about forty-five (45) minutes, although apparently caused by the need to brief the Route Spotter at the Port Jefferson Staging Area, interfered with the timely verification of the fuel truck impediment. Since this time could be important in clearing impediments to evacuation, alternatives for rapid verification should have been explored in consultation with the Evacuation Coordinator and the Evacuation Route Coordinator. It is recommended that corrective action be

taken by training personnel in the development of alternative approaches when delays are reasonably anticipated in the field verification of impediments to evacuation. Development of alternatives should include consultation between, at a minimum, the Evacuation Coordinator and the Evacuation Route Coordinator.

A demonstration of the organizational ability necessary to effect an early dismissal of schools within the 10-mile EPZ could not be observed (EOC 18). Both public and private schools were simulated to have been contacted prior to 0845. It should be noted, however, that only the Shoreham-Wading River School District participated in the February 13, 1986 exercise. Prior to the exercise, LILCO management made the decision that other school districts were not to be included in the exercise. In the future all schools must be included in all Federally evaluated exercises and drills.

An exercise objective was met by demonstrating the organizational ability necessary to control access to an evacuated area (EOC 19). The Traffic Control Point Coordinator determined which TCPs needed to be staffed. This information was communicated to the staging areas according to the Plan. The Evacuation Coordinator initially notified the Coast Guard at about 0755.

Access control was enhanced by coordination with the county police (simulator). Near the end of the exercise, when simulated police assistance was made available, the Evacuation Coordinator contacted the county police (simulated) at about 1630 to begin working out the numbers of simulated police that would be required at various points around the periphery of the 10-mile EPZ to prevent reentry.

Since schools would have already been closed, an actual demonstration of the organizational ability necessary to effect an orderly evacuation of schools within the 10-mile EPZ could not be observed at the LERO EOC (EOC 20). However, this exercise objective was met as demonstrated in response to a free play message inserted to demonstrate this activity. A free play message requesting school bus resources to assist in transporting forty (40) children from Ridge Elementary School was given to the Evacuation Coordinator by the Exercise Controller at the LERO EOC at approximately 1030. In a 1041 message the pertinent information was communicated to the Special Population Bus Dispatcher at the Patchogue Staging Area, requesting that a bus be picked up at the United Bus Company. Coordination was effected with the superintendent of the Longwood Central School District, in which Ridge Elementary School is located, to confirm arrival of the bus. Arrival was confirmed at about 1323 but it was noted that the bus had not yet arrived at the Reception Center. The Reception Center was contacted and requested to inform the Public School Coordinator at the LERO EOC when the bus arrived.

The objective of demonstrating the ability to prepare and implement EBS in a timely manner (to be simulated within fifteen [15] minutes after command and control decision for implementation of protective action recommendations) was met (EOC 21). Each EBS message that was used to convey instructions to the public regarding protective actions, was aired within fifteen (15) minutes of LEROs protective action decisions.

DEFICIENCY

Description: Delays in responding to the two (2) evacuation impediment free-play messages inserted at the LERO EOC were caused by the failure to inform the Evacuation Coordinator in a timely manner. In addition there was a lack of internal communication in response to these impediment problems. Pertinent information was not included on the 1045 and 1106 LERO Message Forms from the Evacuation Route Coordinator to the Evacuation Support Communicator for Route Spotters/Road Crews regarding the simulated impediment involving the gravel truck and fuel truck problems. As a result of this lack of information, the impediment problems were not analyzed in a timely fashion and incomplete equipment was dispatched to handle the gravel truck impediment in the field (NUREG-0654, II, J.10.k).

Recommendation: Internal communications procedures should be reviewed and revised as necessary to ensure that information on impediments is promptly passed both up the chain of command to the Evacuation Coordinator and downward and laterally to all lead coordinators under the Evacuation Coordinator and their staffs. Additional training is needed to ensure that the procedures, whether new or current, are properly implemented. All coordinators at the EOC, and those who initiate messages, must be trained to include all pertinent information on the LERO message forms and to analyze the equipment requirements to clear impediments.

AREAS REQUIRING CORRECTIVE ACTION

1. **Description:** There was some confusion regarding the method for notifying the Federal Aviation Administration (FAA) (NUREG-0654, II, F.1.c).

   Recommendation 1: The LERO procedures should be reviewed and revised as necessary to ensure that a point of contact with the FAA has been designated.

   Recommendation 2: The LERO EOC staff should be trained in the appropriate procedures so that the FAA can be notified in a timely manner.

2. **Description:** Since there are no procedures for notification of the Long Island Railroad (LIRR) in the Plan, the LIRR was not notified during the exercise (NUREG-0654, II, E.1, F.1.a).

   Recommendation 1: The LERO procedures should be revised to establish a point of contact and a means for notifying the LIRR.

Recommendation 2: The LERO EOC staff should be trained in the revised procedures so that the LIRR can be notified in a timely manner.

3. **Description:** The dose assessment status board in the accident assessment area had to accommodate both DOE RAP and LILCO field monitoring data. There were not enough columns on the board to keep the two (2) sources of data separated (NUREG-0654, II, I.10)

   Recommendation: LERO should enlarge the dose assessment status board to accommodate a clear separation between the data reports from the DOE RAP and LILCO field monitoring teams.

4. **Description:** The downwind distance of the sample was incorrectly reported as 7000 meters instead of 700 meters for one of the thyroid doses reported by a DOE RAP field monitoring team. This error was caused by a decimal point misplaced during the conversion of the distance units and meant that the initial calculation of thyroid dose based on this measurement was 9000 mRem/hr at 4.3 miles downwind instead of 9000 mRem/hr at about 0.5 miles downwind. About five (5) minutes elapsed before this error was found and corrected (NUREG-0654, II, I.10, F.1.d).

   Recommendation: All downwind distances from the field should be reported consistently in either miles or meters.

5. **Description:** During the reporting of the initial DOE RAP thyroid doses, only one field measurement, the 1400 mRem/hr measurement made at about 1204 at two (2) miles from the plant, was available. This value was used at the LERO EOC to extrapolate doses at other distances. These extrapolated data were reported as actual measurements at other distances rather than as projected data on the dose assessment status board. It took two and one half (2.5) hours to identify and correct this error (NUREG-0654, II, I.10).

   Recommendation: LERO reporting procedures should be reviewed to ensure proper coordination and proper reporting.

6. **Description:** Although he later quoted the PAG correctly when asked to do so by a Federal evaluator, during a briefing held at the LERO EOC at about 1110, the Health Services Coordinator misstated the EPA PAG as being mandatory evacuation when the projected thyroid dose was five (5) Rem (NUREG-0654, II, I.10).

   Recommendation: The Health Services Coordinator should review the EPA PAG guidance in order to avoid any possible confusion that could result due to misinformation given during briefings.

7. **Description:** Prior to the exercise, LILCO management made the decision that the siren system would not be activated as part of the February 13, 1986 exercise (NUREG-0654, II, E.6).

   Recommendation: Activation of the siren system should be actually tested in the future.

8. **Description:** There was a delay of about forty-five (45) minutes between the LERO EOCs first attempt to have Route Spotter #1005 verify the fuel truck impediment and the dispatch of that spotter from the Port Jefferson Staging Area. This delayed timely verification of the impediment (NUREG-0654, II, E.2).

   Recommendation: Personnel need to be trained in the development of alternative approaches when delays are reasonably anticipated in the field verification of impediments to evacuation. Development of alternatives should include consultation between, at a minimum, the Evacuation Coordinator and the Evacuation Route Coordinator.

9. **Description:** Only the Shoreham-Wading River School District participated in the February 13, 1986 exercise. Prior to the exercise, LILCO management made the decision that other school districts were not to be included in the exercise.

   Recommendation: In the future all schools must be included in all Federally evaluated exercises and drills.

AREAS RECOMMENDED FOR IMPROVEMENT

- **Description:** The command and control room was too crowded during some of the briefings on accident assessment.

  Recommendation: LERO should consider whether operations could be improved by providing less crowded conditions during these briefings.

- **Description:** State and county personnel (simulated) did not have a specific area assigned to them.

  Recommendation: Operations could be improved if a particular space for State and county personnel were available in the LERO EOC.

- **Description:** There was some duplication between the briefings conducted in the briefing room and those conducted in the operations area.

Recommendation: LERO should consider whether operations could be improved by consolidating the two (2) sets of briefings to avoid duplication.

- **Description:** There was no key events or evacuation status boards posted in the command room.

  Recommendation: Key events and evacuation status boards should be posted in the command room.

- **Description:** The 1205 message concerning the "visual check" of the fuel truck impediment from the Bus Dispatcher at the Patchogue Staging Area to the Transportation Support Coordinator was partially illegible and was not written on a standard LERO message form.

  Recommendation: LERO should consider whether operations could be improved by additional training stressing the mandatory use of standard message forms and the importance of legibility.

- **Description:** There were several times when the Director was not in the command room to take calls over the RECS telephone or the dedicated telephone. At these times, a secretary took the calls and indicated to the caller that the Director would call back (NUREG-0654, II, F.1).

  Recommendation: Any personnel responsible for answering the telephone when the Director's responsibilities require his presence outside the command room should be trained to take the message in writing and then carry it to the Director immediately upon completion of the transmission.

- **Description:** OPIP 3.3.4, Section 2.1 requires activation of only the siren system, while Section 3.1 indicates that the entire "prompt notification system" (which, according to Section 3.4, Subsection H of the Plan also includes the tone alert radio system and the backup mobile public address system) be activated following a decision on protective actions.

  Recommendation: LERO should consider whether procedures would be improved by making Sections 2.1 and 3.4 of OPIP 3.3.4 consistent.

- **Description:** The precaution in Section 3.0 of OPIP 3.8.2, notes only that OPIP 3.3.4 must be implemented for the Site Area and General Emergency ECLs. This reference fails to note the requirement that the sirens be activated in coordination with the EBS whenever protective action recommendations are initiated or changed (OPIP 3.3.4, Section 2.1).

Recommendation: LERO should consider whether procedures would be improved by making Section 3.0 of OPIP 3.8.2 consistent with Section 2.1 of OPIP 3.3.4.

2.1.2 Implementation of Field Activities (LERO EOC)

Field activities dispatched from the LERO EOC were evacuation of special facilities by ambulance and ambulette, and school evacuation.

The objective of demonstrating a sample of the resources necessary to effect an orderly evacuation of the institutionalized mobility-impaired individuals within the 10-mile EPZ was met with respect to the ambulance and ambulette demonstrations (Field 13). The ambulance coordinator at the LERO EOC identified the need for ambulance resources and implemented notification call-up procedures for them. Six (6) ambulances and six (6) ambulettes were activated and all were dispatched to pick up mobility-impaired individuals. Written lists are available at the LERO EOC which identify the locations of the mobility-impaired. One (1) of the six (6) pick-up routes that was run by an ambulance was observed by a Federal evaluator. The route from the LERO EOC to Our Lady of Perpetual Help Convent to the VA Hospital in Northport and back to the LERO EOC took two and one half (2.5) hours to complete which is within the evacuation time estimate included in the LERO plan. During the demonstration of this objective by the ambulette driver, proper forms, maps, and instructions were given prior to dispatch into the field. The Ambulette Driver was able to find the locations of the pick-up points and complete the route in a timely manner. An additional person who could assist the Ambulette Driver in message handling (radio) and map reading would be beneficial. LERO should consider whether operations could be improved by having a second person accompany the Ambulette Drivers on their routes.

A sample of resources necessary to effect an early dismissal of schools or an orderly evacuation of schools was demonstrated through the simulated dispatch of seventeen (17) buses to the Shoreham-Wading River High School and the release of students for transportation back to their homes (Field 15 and 16). The dismissal actions were implemented by the Superintendent of the school district. The bus company, which is under contract to the school district and available at any time, was notified and dispatched two (2) buses to the high school. Drivers were given detailed maps of routes to follow and instructions to report back to the bus depot upon completion of their routes. A sufficient number of buses and drivers are available for the transportation responsibilities required during an evacuation of schools.

DEFICIENCIES

No deficiencies were observed in the implementation of field activities deployed from the LERO EOC during the exercise.

AREAS REQUIRING CORRECTIVE ACTION

No areas requiring corrective action were observed in the implementation of field activities deployed from the LERO EOC during the exercise.

AREA RECOMMENDED FOR IMPROVEMENT

- **Description:** The Ambulette Drivers could use another person to assist them with map reading and message handling.

  Recommendation: A second person should accompany the Ambulette Drivers on their routes.

2.1.3 Emergency Worker Radiological Exposure Control

With respect to the ambulance and ambulette demonstrations, the objective to demonstrate the ability to continuously monitor and control emergency worker exposure including proper use of dosimetry was met (Field 1). Ambulance and ambulette personnel were issued dosimetry equipment consisting of 0-200 mRem and 0-5 Rem direct-reading dosimeters (DRDs), a thermoluminescent dosimeter (TLD), dose record forms, and simulated potassium iodide tablets (KI). Prior to deployment into the field, the ambulance and ambulette teams were given a comprehensive briefing on personnel dosimetry by LERO workers. The Ambulance and Ambulette Drivers were familiar with dosimetry and its use.

The ability to continuously monitor and control emergency worker exposure, including the proper use of dosimetry, was not demonstrated by the Bus Drivers used to transport school children in the event of an early dismissal or a general dismissal of schools (Field 1). Bus Drivers used for school evacuation have not been supplied with dosimetry nor have they received adequate training in its use. It is recommended that the Bus Drivers used for school evacuation should be trained in dosimetry use and radiological exposure control, and provided with adequate supplies of dosimetry.

The objective to supply and administer KI to the ambulette and ambulance personnel was partly met (Field 7). KI was available in sufficient amounts and was distributed prior to deployment of the ambulettes and ambulances. However, some of the Ambulette Drivers were not aware of when the KI should be taken. It is recommended that training on KI procedures should be given to the Ambulette Drivers. Ambulance Drivers were given instructions to take KI prior to their deployment into the field.

The ability to supply and administer KI to Bus Drivers used for school evacuation was not demonstrated (Field 7). Bus Drivers have not been trained in KI policy and the use of KI. Sufficient stores of KI are not available for Bus Drivers. It is recommended that Bus Drivers used for school evacuation should be trained in KI policy and use. Adequate supplies of KI should also be provided to Bus Drivers used for school evacuation.

- PAGs were discussed during the briefing before the ambulance teams left for the field. Additional information is also available on the emergency worker dose record forms, which were supplied to each emergency worker. Ambulance Drivers were knowledgeable in their understanding of the PAGs (Field 8).

However, Ambulette and School Bus Drivers were not all trained regarding who can authorize doses in excess of and what to do in the event of an exposure beyond the general public PAGs. The objective of demonstrating that emergency workers understand who can authorize exposure in excess of the general public PAGs was partly met with respect to the ambulette and school evacuation demonstrations (Field 8).

It is recommended that Ambulette and School Bus Drivers be trained regarding who can authorize exposure in excess of the general public PAGs.

DEFICIENCIES

No deficiencies were observed in the implementation of emergency worker radiological exposure control for field activities deployed from the LERO EOC during the exercise.

AREAS REQUIRING CORRECTIVE ACTION

1. **Description:** Dosimetry and training have not been provided to the Bus Drivers used for school evacuation (NUREG-0654, II, K.3, K.5.a).

   Recommendation 1: Bus Drivers used for school evacuation should be trained in the use of dosimeters.

   Recommendation 2: Adequate supplies of dosimetry should be provided for Bus Drivers used for school evacuation.

2. **Description:** Some of the Ambulette Drivers were not aware of when to take their KI (NUREG 0654, II, J.10.e).

   Recommendation: Training on KI procedures should be given to the ambulette drivers.

3. **Description:** Bus Drivers used for school evacuation have not been trained in KI policy and the use of KI. Sufficient supplies of KI are not available for school evacuation Bus Drivers (NUREG-0654, II, J.10.e).

   Recommendation 1: Bus Drivers used for school evacuation should be trained in KI policy and the use of KI.

   Recommendation 2: Adequate supplies of KI should be provided for Bus Drivers used for school evacuation.

4. **Description:** Ambulette Drivers were not all trained regarding who can authorize doses in excess of and what to do in the event of exposure above the general public PAGs (NUREG-0654, II, K.4).

   Recommendation: Ambulette Drivers should be trained on excessive exposure authorization and applicable procedures.

5. **Description:** Bus Drivers used for school evacuation have not been trained regarding who can authorize exposure in excess of the general public PAGs (NUREG-0654, II, K.4).

   Recommendation: Bus Drivers used for school evacuation should receive training regarding who can authorize exposure in excess of the general public PAGs.

AREAS RECOMMENDED FOR IMPROVEMENT

No areas recommended for improvement were observed in the implementation of emergency worker radiological exposure control for field activities deployed from the LERO EOC during the exercise.

2.2 EMERGENCY OPERATIONS FACILITY (EOF)

The EOF is located at the LILCO Training Center just west of Veterans Memorial Highway off the Long Island Expressway. The EOF is eighteen and one-half (18.5) miles from the SNPS site.

The EOF has adequate space, equipment, supplies, and amenities to support emergency operations and interactions with the LERO EOC (EOF 1). Seven (7) rooms in the LILCO Training Center were utilized by the EOF operations. Required displays, maps, and status boards were posted in the command center and the dose assessment area. Status boards were well maintained and complete with pertinent data. Command and control of the EOF was the responsibility of the Response Manager, who effectively directed the emergency response during the exercise. Frequent staff conferences were held and situation reports were given.

Access control and security were maintained at the EOF throughout the exercise (EOF 2). Proper identification was required by all personnel requesting entrance into the facility. All exits were secured during the exercise. The EOF is outside of the 10-mile EPZ, with the result that no radiological exposure control measures are required.

The ability to coordinate the dose projections based on plant data and field measurements with State and/or county officials was demonstrated (EOF 3). Projected doses, measured doses, and dose commitment values were displayed on the radiological status board in the command center. Differences in values were questioned by the EOF staff and appropriate answers were provided. Measured doses would be used in decision making, provided there are data for a number of points. If not, the more conservative

value would be used. Data from the DOE RAP field monitoring teams were received in a timely manner. The LILCO EOF staff provided complete information, timely briefings, adequate working space, and communication equipment to support State and county simulators.

DEFICIENCIES

No deficiencies were observed at the EOF during the exercise.

AREAS REQUIRING CORRECTIVE ACTION

No areas requiring corrective action were observed at the EOF during the exercise.

AREAS RECOMMENDED FOR IMPROVEMENT

No areas recommended for improvement were observed at the EOF during the exercise.

2.3 BROOKHAVEN AREA OFFICE (BHO)

The BHO is located on the DOE Brookhaven National Laboratory site in Upton, New York.

2.3.1 Brookhaven Area Office Operations

The BHO demonstrated the ability to receive initial and follow-up emergency notifications (BHO 1). The Duty Officer at the Brookhaven Police Headquarters received the initial telephone call at the Alert ECL. This position is staffed on a twenty-four (24) hour basis. After receiving the notification of the Alert ECL, the Duty Officer consulted a DOE RAP roster and called a DOE RAP Team Captain. When this call was not answered, the Duty Officer called the second DOE RAP Team Captain on the roster, who then called the other members of the DOE RAP response team. After the DOE RAP team was notified, the Duty Officer was instructed to divert all follow-up notifications to the DOE RAP team.

The BHO staff was mobilized and the BHO was activated in a timely manner (BHO 2). The BHO accident assessment function was operational within seventy (70) minutes after the initial notification. The DOE RAP staff, including the Team Captain, and staffs for the dose assessment function, environmental survey function, and survey teams, arrived in a timely manner. After assessing the situation, the DOE RAP Team Captain mobilized additional staff beyond that called for in the Plan to more effectively respond to the situation.

The ability to maintain staffing in the BHO on a twenty-four (24) hour basis was demonstrated (BHO 3). There was a roster of relief personnel who would be assigned to a second shift, and telephone calls were made to ensure their availability. Other DOE facilities also were contacted to assure the availability of additional backup staff.

Adequate radios, telephones, equipment, and supplies were available to support emergency operations (BHO 4). If needed, an additional operational area was available in a secure building.

The BHO established appropriate communication links with the LERO EOC (BHO 5). A dedicated telephone line from the DOE RAP team at the BHO to the DOE RAP liaison at the LERO EOC serves as the primary communication link. Several commercial telephones also are available.

The BHO has adequate access control and can maintain security (BHO 6). Brookhaven National Laboratory, the site of the BHO, is a Federal facility with the Brookhaven National Laboratory Police providing its own guard force. Excellent security measures were demonstrated; no unauthorized personnel were admitted to the facility.

The objective to demonstrate that messages are transmitted in an accurate and timely manner, messages are properly logged, that status boards are accurately maintained and updated, that appropriate briefings are held, and that incoming personnel are briefed was met at the BHO (BHO 7). The DOE RAP Team Captain maintained a log of the information transmitted over the dedicated telephone from the DOE RAP liaison at the LERO EOC. LERO staff provided information on the plant status by telephone every fifteen (15) minutes; this information was logged on forms by BHO clerical staff. Data transmitted from the field teams by radio were recorded on log sheets. During the initial stages of the incident, incoming staff were effectively briefed by the personnel who had already arrived at the response center. On several occasions, the DOE RAP Team Captain briefed the DOE-BHO officials on the incident and the teams' actions, and DOE-BHO personnel briefed DOE Headquarters personnel.

The DOE RAP Team Captain, as designated in the Plan, was in charge and in control of the dose assessment function assigned to the BHO (BHO 8). He interacted well with DOE-BHO officials to obtain assistance and additional support.

The ability to communicate with all appropriate field locations and personnel was demonstrated (BHO 9). The DOE RAP communicator maintained radio contact with the field teams using a secure (scrambled frequency) radio system. At one point, one of the field teams lost the capability to receive transmissions over the secure system. A courier with a backup radio was dispatched to the team, and the difficulty was quickly and effectively resolved.

The BHO demonstrated the ability to project radiation dosage to the public via plume exposure, based on plant data and field measurements, and to recommend appropriate protective measures to LERO, based on PAGs and effectively communicate them to the LERO EOC (BHO 10). The DOE RAP staff made "what if" calculations prior to the release of radioactive material. These calculations were based on the design basis LOCA with several possible leak rates. Once the release occurred, plant status

information (from LERO) was used for dose projections. The computer-based systems were used to make these calculations. Field data were compared to projections. Dose projection data were exchanged between the BHO DOE RAP operation and the LERO EOC. The field team information was used to make a plume plot which was also compared to the projections. The information, both field data and projections, was efficiently transmitted to the DOE RAP liaison at the LERO EOC.

DEFICIENCIES

No deficiencies were observed in the operation of the Brookhaven Area Office during the exercise.

AREAS REQUIRING CORRECTIVE ACTION

No areas requiring corrective action were observed in the operation of the Brookhaven Area Office during the exercise.

AREAS RECOMMENDED FOR IMPROVEMENT

No areas recommended for improvement were observed in the operation of the Brookhaven Area Office during the exercise.

2.3.2 Radiological Field Monitoring Teams

The BHO mobilized and deployed radiological field monitoring teams in a timely manner (Field 2). Team members were identified from a list of trained personnel and were notified by telephone. The field monitoring personnel arrived at the BHO between twenty-five (25) and seventy (70) minutes after receiving their notification. Each team had three (3) cases containing equipment for personnel protection, air sampling, and radiation detection. Upon their arrival at the BHO, team members conducted an inventory of the field monitoring equipment kits and checked the radiation monitoring instruments, air sampling equipment, and radios for operability. The field teams were briefed on the meteorological conditions and on the current plant status. They were ready for deployment about one (1) hour after arriving at the BHO.

The objective to demonstrate the appropriate equipment and procedures for determining ambient radiation levels was met (Field 3). Field team kits contained the proper instruments for monitoring radiation. Both low- and high-range instruments were contained in the kits. The kits also contained the necessary equipment for air sampling. Backup equipment and instruments were available. A sticker was attached to each piece of equipment indicating that all equipment had been calibrated. Each team had several area maps in their kits. The teams were provided with vans which were large enough to carry the equipment, and which appeared capable of reaching the monitoring points under severe weather conditions.

Members of Field Team A were well trained and knew the use and function of each instrument. However, two (2) pieces of monitoring equipment failed during the exercise. A probe on the modified CPV-700 failed, but was replaced by another probe contained in the kit. The micro-R-meter failed and was not replaced. While this failure left the team without a true low-range instrument, sufficient other equipment was available for low-range monitoring. Readings and samples taken were recorded on a field team log sheet, and the data were transmitted to the BHO via radios.

Field Team B had all of the appropriate calibrated equipment and backup equipment. The field team kits contained high-range ion chambers, low range GM type survey meters, and very low-range micro-R-meter gamma scintillators. The team also carried a spare high-range ion chamber detector and a spare low-range GM survey meter as well as multiple detectors (probes) for the low-range instrument. Equipment was not adequately protected from contamination at all times when the field team was in the plume. Equipment should be protected from contamination by plastic bags, or the unused equipment should remain in closed kits when the team's vehicle is stopped within the plume boundaries and the doors are opened. This will help prevent contamination of the monitoring equipment; a contaminated instrument could give an indication of the presence of radiation even when the instrument is outside of the actual plume boundaries.

The appropriate equipment and procedures for measurement of airborne radioiodine concentrations as low as 0.1 picocuries/cc in the presence of noble gases were demonstrated by both DOE RAP field teams (Field 4). Air sampling equipment was contained in the field team kits. The operability of the equipment was checked out before the teams were deployed to the field. Spare equipment was available at the assembly point.

Members of Field Team A were able to properly take air samples. The flow rate on the air mover is fixed but calibrated. A stop watch was used to time the air sample. Samples were placed in plastic bags and transported to a low background area before being read; the samples were again bagged and labeled after being read. The sample times, places, and readings were recorded in the team's log, and data were transmitted to the BHO. Samples were transported to the BHO via courier.

Field Team B gave an excellent demonstration of the proper use of equipment and procedures to measure radioiodine in the presence of noble gases. The field monitoring kit contained a calibrated air sampler which operated off of the vehicle power supply. Each equipment kit contained five (5) silver silica gel filters for field determination and five (5) charcoal filters which could be used to take samples for laboratory analysis. Additional supplies of both filter medias were available in the BHO. Air samples from locations which were determined to be in the plume (based on open and closed window radiation survey measurements) were taken to a low background area outside of the plume where the samples were counted.

DEFICIENCIES

No deficiencies were observed in the radiological field monitoring teams deployed from the Brookhaven Area Office during the exercise.

AREAS REQUIRING CORRECTIVE ACTION

No areas requiring corrective action were observed in the radiological field monitoring teams deployed from the Brookhaven Area Office during the exercise.

AREA RECOMMENDED FOR IMPROVEMENT

- **Description:** Equipment was not adequately protected from contamination at all times when a DOE RAP field team was in the plume (NUREG-0654, II, I.8).

  Recommendation: Equipment should be protected from contamination by plastic bags or the unused equipment should remain in closed kits when the team is in the plume.

2.3.3 Emergency Worker Radiological Exposure Control

The DOE RAP field teams demonstrated the ability to continuously monitor and control emergency worker exposure including proper use of personnel dosimetry (Field 1). Each team member was issued two (2) DRDs, a 0-200 mRem and a 0-5R, and a permanent record device. Spare dosimeters of each range were available. The dosimeters were charged before being issued and a charger was available in the kits. Teams members were familiar with the use and function of dosimetry. They took readings often, recorded them, and reported them to the BHO. On one occasion, a field team stopped at a location within the plume and waited to transmit their data to the BHO. The simulated exposure rate at this location was about eighty (80) mRem/hour. The field team members could have reduced their accumulated exposure somewhat if they had driven to a location at the edge of the plume (or outside of the plume) to wait while transmitting their data to the dose assessment center.

The ability to supply and administer KI, once the decision had been made to do so, was successfully demonstrated (Field 7). A supply of KI was stocked at the BHO. Each DOE RAP field team member was issued simulated KI prior to deployment to the field. Field team members simulated ingestion of the KI tablets when directed to do so by the DOE RAP Team Captain.

DOE RAP field team members demonstrated that they understood who could authorize exposure in excess of the general public PAGs (Field 8). BHO field team members are classified as radiation workers and can receive up to 3 Rem per quarter and 5 Rem per year; they were authorized up to 3 Rem for the exercise. Each team member understood that the DOE RAP Team Captain could authorize exposure in excess of the limit.

DEFICIENCIES

No deficiencies were observed in the implementation of emergency worker radiological exposure control for field activities deployed from the Brookhaven Area Office during the exercise.

AREAS REQUIRING CORRECTIVE ACTION

No areas requiring corrective actions were observed in the implementation of emergency worker radiological exposure control for field activities deployed from the Brookhaven Area Office during the exercise.

AREA RECOMMENDED FOR IMPROVEMENT

- **Description:** One of the DOE RAP field teams stopped at a location within the plume and waited to transmit their data to the BHO. The exposure rate at this location was about eighty (80) mRem/hour. The field team members could have reduced their accumulated exposure, somewhat, if they had driven to a location at the edge of the plume (or outside of the plume) to wait while transmitting their data to the dose assessment center.

- **Recommendation:** DOE RAP field teams should be trained to drive away from the plume to a location at the edge of the plume (or outside of the plume) to wait while transmitting their data, thereby reducing their accumulated exposure.

2.4 EMERGENCY NEWS CENTER (ENC)

The ENC is located in the Holiday Inn, Ronkonkoma, New York.

The activation of the LERO functions and the mobilization of the staff at the ENC were demonstrated in a timely manner (ENC 1). LERO personnel began arriving at 0641 to begin set-up and activation of the news center. Approximately one (1) hour later, the telephones were operational. The first press briefing was conducted at 0844. Overall activation of the ENC was done well.

The objective to demonstrate the ability to maintain staffing of the LERO function at the ENC on a twenty-four (24) hour basis through rosters could not be observed because the ENC roster is kept at the LERO EOC (ENC 2).

Briefing of the media in a clear, accurate, and timely manner was partly demonstrated (ENC 3). Additional displays and maps are needed at the ENC. An EPZ map should be displayed in the media briefing area which tracks protective actions and the plume exposure pathway. A status board providing ECLs and times declared would be beneficial to media personnel. Although the lead LERO PIO at the ENC received the contents of EBS messages promptly by telephone, hard copy transmissions were not

reproduced and provided to the press. For example, EBS messages #3 and #4, which were aired to the public at 0937 and 1003, respectively, were not posted in written form for viewing by the press until 1045. Due to this time lag, reporters did not have an accurate or timely picture of protective action recommendations to the public. Also, some hard copies of EBS messages that were provided to the press contained extraneous information (clearly marked for deletion) that should have been omitted to avoid possible confusion. Hard copies of EBS messages posted in the ENC for use by the press should contain only that information which was broadcast to the public. Six (6) news briefings were conducted during the exercise. Briefings provided requested information and answered questions presented by media representatives.

Emergency personnel at the ENC adequately demonstrated the ability to share information with other agencies prior to its release (ENC 4). LERO and LILCO PIO staff members exchanged and shared information throughout the exercise.

The objective to demonstrate the ability to establish rumor control in a coordinated manner was not met (ENC 5). The rumor control operation was set up at the ENC quickly and efficiently. The public would get through to rumor control by calling LILCO offices. However, because of the slow distribution of EBS messages to rumor control from the LERO PIO, the rumor control staff did not have current information concerning protective actions. Specifically, during a test call to a rumor control operator, current details concerning evacuated Zones were not available. This call was made at 1319 following the airing of an EBS message at 1206 which announced that the entire EPZ had been recommended to evacuate. The information available to the rumor control operator was outdated, identifying only Zones A-M, Q and R for evacuation.

In general, the ENC has adequate space, equipment, and supplies to support emergency operations. However, due to the inadequacy of the copying capabilities, which resulted in insufficient and untimely message distribution, the objective was not met (ENC 6).

Security measures at the ENC were good. Adequate access control and the ability to maintain security were demonstrated (ENC 7).

DEFICIENCY

Description: Insufficient copying capabilities at the ENC resulted in delays in the distribution of information. These delays affected the following two (2) areas: (NUREG-0654, II, G.4.b, G.4.c).

- Hard copies of EBS messages were not provided to the media in a timely manner.

- Rumor control personnel were not able to answer questions received from the public because they were not given accurate up-to-date status reports.

Recommendation: LERO should make provisions for reliable and rapid equipment to reproduce, in hard copy, all appropriate messages for distribution to the ENC staff.

AREAS REQUIRING CORRECTIVE ACTION

1. **Description:** Maps and displays in the media briefing room were insufficient (NUREG-0654, II, J.10.b).

   Recommendation: The following displays should be posted in an area easily visible to reporters:

   - An EPZ map which tracks protective actions and plume pathway.
   - A status board which provides ECLs and their times of declaration.

2. **Description:** Some hard copies of EBS messages that were provided to the press contained extraneous information (clearly marked for deletion) that should have been omitted to avoid possible confusion.

   Recommendation: Hard copies of EBS messages posted in the ENC for use by the press should contain only that information which was broadcast to the public.

AREAS RECOMMENDED FOR IMPROVEMENT

No areas recommended for improvement were observed in the ENC during the exercise.

2.5 PORT JEFFERSON STAGING AREA

The Port Jefferson Staging Area is located at a LILCO fossil fuel power plant. The main part of the staging area is the turbine deck for one of the generator units. Briefing areas were set up in two (2) rooms that open onto the turbine deck. Another briefing area and a communications room were set up in an adjacent office area.

2.5.1 Staging Area Operations

The staging area was promptly notified of each stage in the exercise emergency (SA 1). Lead staff were notified of each ECL via the LERO pager system. Once the

communication room was set up, primary notifications were received via the dedicated telephone system.

Staging area activation was initiated at the Alert ECL and was accomplished in a timely manner (SA 2). The Staging Area Coordinator, Bus Dispatcher, Lead Traffic Guides, Dosimetry Record Keepers, and support staff arrived promptly and set up the physical arrangements and equipment necessary for the facility's emergency functions. The facility was declared operational at 0745. Computerized roster lists were set up for personnel sign-in, listing staff by emergency role, and including work and home telephone numbers. The roster listed three (3) shifts for each lead staff position. Field positions such as Route Alert Drivers, Traffic Guides, Route Spotters and Bus Drivers were listed on the roster at approximately one hundred fifty percent (150%) of projected need (SA 3).

The facility's physical arrangements, equipment, supplies, and parking area were adequate to support emergency operations (SA 4). The turbine deck provided ample space for field personnel awaiting assignments. Three (3) separate briefing rooms were used for briefing personnel prior to dispatch: one (1) for dosimetry distribution, one (1) for briefing Bus Drivers, and one (1) for briefing Route Alert Drivers, Route Spotters, Traffic Guides and Road Crews. Command, control, and communications were conducted in a separate communications room. One potential concern is that the noise level in the staging area might be excessive if the turbine -- which was shut off during the exercise -- actually were operating during an emergency. LERO should consider whether a commitment should be made by LILCO that the turbine not be operated during any emergency at SNPS which necessitates activating the Port Jefferson Staging Area.

Communications with the LERO EOC were generally good. Dedicated telephone (primary), commercial telephone and LILCO radio were used to communicate with the LERO EOC throughout the exercise (SA 5).

Security checkpoints were promptly established at the facility's two (2) gates, and security was maintained throughout the exercise (SA 6). All entrants were checked for LILCO identification. Security guards were equipped with walkie-talkies and could call up to the coordinator in the communications room if any questions arose. Once inside the staging area, all personnel signed the roster list and were issued color-coded LERO badges.

Message handling and distribution also were very good (SA 7). Incoming messages were recorded on message forms, reproduced, and distributed to appropriate staff. Transcription and handling of messages was prompt and accurate. The system performed well at getting information to and from the correct staff person, despite the staff's being scattered in several different locations throughout the building. In addition, it should be noted that the staff critically examined incoming information and displayed excellent initiative in identifying and resolving any ambiguous or unclear items. Status boards were maintained in four (4) locations: the communications room, the Bus Driver briefing room, the Traffic Guide briefing room, and the turbine deck. All of these boards were kept up to date on key exercise events. The Staging Area Coordinator also gave periodic oral briefings to the entire facility over the public address system.

The Staging Area Coordinator was clearly in charge of the facility and demonstrated leadership in the assignment of personnel, briefing of staff and implementation of procedures (SA 8). He kept informed of all staging area activities and ensured that appropriate written procedures were utilized and followed. He assigned personnel where needed, maintained contact with the EOC, obtained information on plume direction and estimated dose rates, and conducted periodic briefings to update staff on the current situation.

Dispatch and direction of field workers from the Port Jefferson Staging Area was well organized (SA 9). Under the direction of the Staging Area Coordinator, the Bus Dispatcher was responsible for sending out Transfer Point Coordinators and Bus Drivers, and the Lead Traffic Guides were responsible for dispatching Evacuation Route Spotters, Route Alert Drivers, Traffic Guides, and Road Crews. Prior to dispatch, all personnel were systematically briefed on dosimetry and on their particular assignments. The briefings were clear and thorough. For example, the Traffic Guides were briefed on radio protocol, traffic guidance procedures, interaction with police, dosimetry and dose call-in points, and use of protective clothing. Specific information on the briefings given to each group of field personnel is discussed directly below in Section 2.5.2.

One (1) radio channel was used for communication with the activated bus transfer point (Miller Place) and with Traffic Guides in the field (SA 10). Communication with the transfer point was good at all times. Communication with Traffic Guides at TCPs was sometimes difficult due to poor reception; the noisy transmissions also occasionally interfered with the conversations of other personnel in the communication room. Consideration should be given to improving the radio system, by using a headset, or relocating the radio operator to an adjacent room.

DEFICIENCIES

No deficiencies were observed in the operation of the Port Jefferson Staging Area during the exercise.

AREAS REQUIRING CORRECTIVE ACTION

No areas requiring corrective action were observed in the operation of the Port Jefferson Staging Area during the exercise.

AREAS RECOMMENDED FOR IMPROVEMENT

- **Description:** The noise level in the staging area might be excessive if the turbine actually were operating during an emergency.

  Recommendation: Consideration should be given to whether a commitment should be made by LILCO that the turbine not be operated during any emergency at SNPS which necessitates activating the Port Jefferson Staging Area.

- **Description:** Communication with Traffic Guides at TCPs was sometimes difficult due to poor reception; the noisy transmissions also occasionally interfered with the conversations of other personnel in the communication room (NUREG-0654, II, F, J.10.j).

  Recommendation: Consideration should be given to improving the radio system by using a headset, or else relocating the radio operator to an adjacent room.

2.5.2 Implementation of Field Activities

The numerous field activities deployed from Port Jefferson Staging Area were generally well organized and implemented according to the Plan. The first activity demonstrated was route alerting (Field 5). A message was received at the staging area at 0822 indicating siren #26 had not sounded (simulated) and that backup route alerting would be required. A route alerting crew was promptly briefed, given a packet containing a map of the failed siren's coverage area, and dispatched. The driver obtained a mobile public address system from the emergency equipment van located in the staging area parking lot and attached it to his car. The Route Alert Driver followed procedures correctly, driving at a realistically slow speed (approximately five (5) miles per hour) and covering the area in a systematic fashion. About half of the total assigned area was covered. It should be noted, however, that alerting half of the siren coverage area took the driver ninety (90) minutes; presumably it would take three (3) hours for one (1) driver to cover the entire area. It is recommended that each siren coverage area should be assessed to determine an appropriate number of drivers that would be required to drive the area. Where necessary, multiple drivers should be deployed to reduce alerting time.

Ten (10) TCPs were evaluated during the exercise. Traffic Guide teams were briefed and dispatched in priority order, as planned. Timeliness of TCP setup could not be evaluated because the Federal evaluator was delayed at another location (see discussion of Field 10 below). However, all the TCPs were established at the correct locations, and each team demonstrated thorough knowledge of their assignment (Field 6). Each team understood its role in providing guidance to motorists and was aware of LERO policy regarding interaction with county/local police. Each TCP team was equipped with a set of written procedures and diagrams, a radio, and a traffic guidance kit consisting of traffic cones, flares, and flashlights (Field 11).

The objective to demonstrate resources for dealing with impediments to evacuation could not be evaluated (Field 10). Prestaging under standard procedures was demonstrated when several Road Crews and tanker trucks were requested by the Road Logistics Coordinator from the LERO EOC, in a message received at the Port Jefferson Staging Area at about 1040. The Road Crews were issued dosimetry, briefed, and dispatched from the Port Jefferson Staging Area at 1150. In response to the simulated fuel truck impediment, delays at the LERO EOC meant that the team assigned to respond to the simulated traffic impediment in Port Jefferson's area of responsibility did not arrive at the scene of the impediment until approximately 1410. This was caused by internal communications problems observed at the LERO EOC (see also discussion of

objectives EOC 7 and EOC 17 in this report). The Federal evaluator was there from 1130 until 1400, when it become necessary for him to proceed to other assignments. Therefore, the Federal evaluator and Road Crew never met. Due to this delay the Federal evaluator was unable to observe the arrival times of the Traffic Guides (see discussion of Field 6 above).

Resources to evacuate the public were demonstrated by activating a bus transfer point and running the bus routes as called for by the exercise scenario. The Miller Place Transfer Point was well-managed and was adequate in terms of access and parking area (Field 12). Activation of the transfer point was initiated at the Port Jefferson Staging Area, where the Transfer Point Coordinators were briefed by the Bus Dispatcher and were issued emergency kits and protective clothing. The transfer point was set up at the Miller Place shopping plaza, which has a large open parking lot suitable for transfer operations. Operations there were well organized; when one (1) of the evaluated buses arrived at the transfer point, there were between ten (10) and fifteen (15) vehicles ahead of it in the queue, but it only took eight (8) minutes for the bus to reach the Transfer Point Coordinators and receive a route assignment.

Two (2) randomly selected bus routes were evaluated for the exercise. Both routes were implemented according to plan (Field 9). At the staging area, the drivers were briefed, assigned to a bus company, and issued route maps to the assigned bus company lot, and from the lot to the transfer point. Each driver was issued route-specific maps and directions at the transfer point, drove the route correctly, and arrived promptly at the Reception Center.

DEFICIENCIES

No deficiencies were observed in the field activities dispatched from the Port Jefferson Staging Area.

AREAS REQUIRING CORRECTIVE ACTION

No areas requiring corrective action were observed in the field activities dispatched from the Port Jefferson Staging Area.

AREA RECOMMENDED FOR IMPROVEMENT

- **Description:** Ninety (90) minutes elapsed from the time the LERO EOC informed the Staging Area of the simulated siren failure until public alerting of only half of the route was completed.

  Recommendation: Plans for backup route alerting should be reviewed and revised as necessary to reduce the time needed for route alerting.

2.5.3 Emergency Worker Radiological Exposure Control

The ability to continuously monitor and control emergency worker radiological exposure was partly demonstrated (Field 1). All field personnel were issued dosimetry kits and thoroughly briefed on their use prior to dispatch. The kits consisted of a low-range (0-200 mRem) DRD, a mid-range (0-5 Rem) DRD, a TLD, and assorted instructional, consent, and record-keeping forms. Most of the personnel demonstrated proper procedures for use of the DRDs. One Bus Driver, however, neglected to read his DRD at any time during the seventy-five (75) minutes he was working in the 10-mile EPZ. All Bus Drivers should be trained to read their DRDs every fifteen (15) minutes as described in the LERO procedures.

The ability to supply and administer KI was also demonstrated (Field 7). All field personnel were given a briefing on KI use at the staging area prior to dispatch, including why it would be administered, authorization procedures for use, and the danger posed to iodine-allergic individuals. Interviews in the field confirmed that the personnel were familiar with the KI authorization procedure. The Bus Drivers were instructed to ingest their first KI tablet while still in the staging area. The Traffic Guides indicated that they would offer their KI and instruction sheets to police if the police took over their traffic assignments. Federal evaluators verified that an adequate supply of KI is on hand at the staging area, consisting of one hundred twenty-seven (127) bottles of fourteen (14) tablets each, stored in a heated equipment van.

The field personnel evaluated were familiar with their call-in dose limits and the procedure for authorizing exposures in excess of the general public PAGs (Field 8).

DEFICIENCIES

No deficiencies were observed in the implementation of emergency worker radiological exposure control for field activities deployed from the Port Jefferson Staging Area.

AREA REQUIRING CORRECTIVE ACTION

Description: One (1) Bus Driver neglected to read his DRD at any time during the seventy-five (75) minutes he was working in the EPZ (NUREG-0654, II, K.3.a, K.3.b).

Recommendation: All Bus Drivers should be trained to read their DRDs every fifteen (15) minutes as described in LERO Procedures.

AREAS RECOMMENDED FOR IMPROVEMENT

No areas recommended for improvement were observed in the implementation of emergency worker radiological exposure control for field activities deployed from the Port Jefferson Staging Area.

2.6 PATCHOGUE STAGING AREA

The Patchogue Staging Area is located in a LILCO building at the intersection of Main Street and Conklin Avenue in Patchogue, New York. The second floor of the building is used to dispatch LILCO repair crews. The ground floor and part of the basement have been dedicated for staging area purposes.

The main floor of the facility consists of three (3) rooms used for distinct purposes. The largest room, capable of accommodating four hundred (400) people, is used as a waiting, briefing, and dispatching area for emergency workers. An area exists at the south end of the room for dispensing food and beverages. A smaller room, located at the north end of the facility, is used to brief emergency workers on dosimetry and issue DRDs, TLDs, and KI. This room seats about forty (40) individuals. A third room, located adjacent to the largest room, is dedicated to communications.

The Patchogue Staging Area building also has a basement for storage of emergency supplies and a second floor not planned to be used in an emergency.

2.6.1 Staging Area Operations

The objective of demonstrating the ability to receive emergency notifications was met at the Patchogue Staging Area (SA 1). All emergency notifications were received promptly. LERO personnel were notified by a combination of pagers and telephone call-outs at the Alert, Site Area Emergency, and General Emergency ECLs as specified in OPIPs 3.3.2 and 4.5.1. The staging area itself was notified of all changes in the ECL and protective actions as planned via dedicated telephone.

The objective of demonstrating the ability to mobilize staff and activate the Patchogue Staging Area was met (SA 2). The Patchogue Staging Area was promptly opened and efficiently set up after the Alert ECL. Responding individuals were cleared by security checks, briefed upon arrival at the Patchogue Staging Area, and issued dosimetry for field assignments. Staff were promptly notified by individual pagers and a commercial telephone callout process. Approximately three hundred (300) individuals reported to the Patchogue Staging Area for the exercise.

Staffing rosters demonstrated a three (3) shift/twenty-four (24) hour capability at the Patchogue Staging Area, thus meeting the objective of demonstrating an ability to maintain staffing around the clock (SA 3). The staging area administrators tracked the actual staffing of each position until its full planned complement was met or exceeded. The roster of backup staff showed that three (3) shifts were available for all positions except Bus Drivers, Traffic Guides, and Route Alert Drivers; the latter positions have between two and three (2-3) shifts planned since these are relevant only to evacuation. It is assumed in the Plan that evacuation can be accomplished in two (2) or fewer shifts.

The Patchogue Staging Area met the objective of demonstrating adequate space, parking area, equipment, and supplies to support emergency operations (SA 4). All operations were conducted on the first floor, which was large enough to comfortably accommodate approximately four hundred (400) emergency workers, except initial Alert

ECL telephone callouts: these were done on the second floor (see discussion of SA 6 below). Two (2) large parking lots are adjacent to the staging area. All equipment was kept in a locked storage room in the basement. The entire inventory as stated in OPIP 5.3.1 was verified. However, only one (1) first aid kit was available. It is recommended that consideration be given to acquiring more first aid kits, as well as additional goggles, gloves, and boots. Supplies for each function were prepared for ready use, with additional replacement materials on hand.

The objective of demonstrating that the Patchogue Staging Area can establish appropriate communication links with the LERO EOC using both primary and backup systems was met (SA 5). Three (3) systems were used: dedicated telephone, commercial telephone, and two-way radio. Both telephone systems worked flawlessly. The two-way radio was successfully tested at 1114.

The objective of demonstrating that the Patchogue Staging Area had adequate access control and that security could be maintained was partly met (SA 6). Access was sufficiently controlled at the Patchogue Staging Area, but not as described in OPIP 4.7.1. The planned complement of guards was posted at all three (3) entrances, and sign-in badging was implemented properly. When a reporter appeared at 1245 requesting access to the staging area, she was denied it by the Staging Area Coordinator and urged to go to the ENC. However, four (4) deviations from the Plan which require corrective actions were noted. First, the access point that was demonstrated was the north entrance rather than the Conklin Avenue main entrance as specified in OPIP 4.7.1, Page 41. If the north entrance is the best access point, then it is recommended that OPIP 4.7.1 should be revised to reflect this practice. Second, LERO personnel used telephones on the second floor to carry out emergency notifications. This contradicts security provisions in OPIP 4.7.1, Page 38, item #2, which explicitly bars all LERO personnel from the upper floor. It is recommended that either OPIP 4.7.1 should be revised to reflect this practice, or additional telephones should be provided on the first floor to carry out the necessary emergency notifications. Third, the south door was not kept locked as specified in OPIP 4.7.1, Page 3, item #1. It is recommended that the Staging Area Coordinator or a designee should be trained to verify that all doors required by the Plan to be locked are, in fact, locked. Fourth, unauthorized entrance from the street to the staging area could be achieved through the open fire escape on the second floor of the east side of the building. It is recommended that a guard should be stationed at this location and that this fire escape should be designated as a guard post in OPIP 4.7.1.

The objective of demonstrating that messages were transmitted in an accurate and timely manner, messages were properly logged, status boards were accurately maintained and updated, appropriate briefings were held, and incoming personnel were briefed was met (SA 7). Messages were transmitted and logged properly; key items were brought by the Staging Area Coordinator to the recipients and the appropriate response was decided immediately. The status boards located in the command room and the main staff room were updated and easy to read. Briefings of incoming staff and those continually present were at regular and frequent intervals, as the situation dictated. The only area recommended for improvement is that the person carrying out briefings should be better versed in their underlying meaning. On occasion, the Bus Dispatcher announced radiation readings, plant conditions, and wind directions (in degrees) to the staff without

elaboration; when questioned by the Federal evaluator about the meaning of the wind direction in degrees, he did not know its meaning. Also, questions from the staff never were elicited. Given the nature of the activities at this location, this probably would not adversely affect the response to a real emergency, but it is an area that could be improved by training the person carrying out briefings more thoroughly, and by requiring that staff questions be elicited.

The objective of demonstrating that the appropriate official was in charge and in control of an overall response assigned to the Patchogue Staging Area was met by the Staging Area Coordinator (SA 8). He used his emergency response checklist (from OPIP 4.5.1) and directed all operations through his principal subordinates. The Bus Dispatcher and Lead Traffic Guide demonstrated thorough familiarity with their own responsibilities.

The objective of demonstrating an ability to dispatch to and direct emergency workers in the field was partly met (SA 9). Personnel were to be dispatched to the field from the staging area for general population bus evacuation, school evacuation, evacuation of the mobility-impaired, route alerting, traffic control, and removal of traffic impediments. The Bus Dispatcher and Lead Traffic Guide closely oversaw the dispatch of individuals under their control. These emergency workers were briefed on dosimetry, were issued dosimeters, and were issued instruction packets for their assignments prior to being dispatched to the field. However, the first Bus Drivers were not dispatched until approximately 1045 -- over two (2) hours after the 0832 declaration of the Site Area Emergency ECL. This is not according to the timetable for prestaging Bus Drivers stated in OPIP 3.6.4. It is recommended that Bus Dispatchers should be trained in the importance of promptly dispatching Bus Drivers. Also, an additional area should be established for dosimetry distribution to reduce Bus Driver processing time, and an additional trained individual should be available to assist the Bus Dispatcher.

The objective of demonstrating the ability to communicate with all appropriate field locations and personnel was met (SA 10). Communications with the field staff were maintained as planned with the Traffic Guides and Transfer Point Coordinators. Status reports were obtained every thirty (30) minutes from each. When the radio of one (1) Traffic Guide failed, the Traffic Guide found a telephone and called the staging area. A replacement radio was promptly dispatched.

DEFICIENCY

Description: Bus drivers were not dispatched until two (2) hours after receipt of the Site Area Emergency ECL declaration (NUREG-0654, II, J.9, J.10.g).

Recommendation 1: An additional area should be established for the distribution of dosimetry to reduce Bus Driver processing time.

Recommendation 2: Additional trained staff should be provided to the Bus Dispatcher to assist him in deploying over three hundred (300)

drivers and Transfer Point Coordinators who are deployed from the Patchogue Staging Area.

AREAS REQUIRING CORRECTIVE ACTION

1. **Description:** OPIP 4.7.1 specifies that the only personnel entrance is to be the Main Entrance on the Conklin Avenue side of the building. The entrance actually used for this purpose was the one on the north side of the building (Main Street) (no NUREG-0654 reference).

   Recommendation: Since the system actually used seems to be superior to the Plan due to reduced congestion, OPIP 4.7.1 should be revised to indicate that personnel are to enter the Patchogue Staging Area through the Main Street entrance to the building.

2. **Description:** LERO personnel entered the upper floor repeatedly to use telephones for emergency notification. This practice is explicitly prohibited by OPIP 4.7.1 (page 38, item #3) (no NUREG-0654 reference).

   Recommendation: Either OPIP 4.7.1 should be revised to reflect the actual practice of using telephones on the second floor of the Patchogue Staging Area building, or more telephones should be provided on the first floor for LERO personnel to perform their emergency notifications.

3. **Description:** The south door was not locked for security as specified in OPIP 4.7.1 (no NUREG-0654 reference).

   Recommendation: All doors required to be locked by the Plan should be verified as actually locked by the Staging Area Coordinator or a designee.

4. **Description:** Unauthorized entrance to the staging area could be achieved through the open fire escape on the second floor of the east side of the building (no NUREG-0654 reference).

   Recommendation: The fire escape on the second floor of the east side of the building should be designated as a guard post in the Plan and an individual should be assigned to staff this guard post.

AREAS RECOMMENDED FOR IMPROVEMENT

- **Description:** The Bus Dispatcher was not well enough versed in the meaning of the information he communicated to the staff during briefings. Questions from the staff were never elicited.

Recommendation: Persons carrying out briefings should be trained sufficiently about the meaning of terms associated with plant conditions and wind direction so that they can explain these things in understandable terms to the staff. Also, it should be made a routine part of the briefing process to ask if any of the staff have questions.

- **Description:** Only one (1) first aid kit was available at the Patchogue Staging Area. No boots, gloves, or goggles were available for aiding in emergency work.

  Recommendation: Consideration should be given to acquiring additional first aid kits, boots, gloves, and goggles at the Patchogue Staging Area.

2.6.2 Implementation of Field Activities

The objective of demonstrating the ability to provide backup public alerting, if necessary, in the event of partial siren system failure was partly met (Field 5). Mounting and operation of the mobile public address units assigned to the Route Alert Drivers was demonstrated at the staging area. The driver who was evaluated had good knowledge of the route plan in the affected area and drove at an appropriate speed. He knew how to give verbal instructions if anyone should approach the vehicle with questions regarding the prescripted message. Total time from dispatch to the beginning of the route was nineteen (19) minutes, with another fifty-one (51) minutes needed to complete the route itself because of the length of the route. It is recommended that the plans for backup route alerting should be reviewed and revised as necessary to reduce the time needed for public alerting.

The objective of demonstrating that access control points can be established and staffed by Traffic Guides in a timely manner was partly met (Field 6). All nine (9) TCPs evaluated were fully staffed in a timely manner. All personnel understood the concept of operations at their respective locations, including timely radio communication and check-in, as well as proper placement, as appropriate, of barricades and cones. However, only one (1) Traffic Guide out of the fourteen (14) who were interviewed at nine (9) TCPs knew the location of the Reception Center, and one (1) Traffic Guide thought that the general public was to be directed to the EWDF. It is recommended that all Traffic Guides be trained to advise motorists with questions to tune to the EBS station (WALK-FM) for the latest information on all matters related to the emergency, including the location of the Reception Center.

The objective of demonstrating a sample of resources necessary to implement an orderly evacuation of all or part of the 10-mile EPZ was not met (Field 9). Four (4) Bus Drivers dispatched from the Patchogue Staging Area were evaluated. Two (2) of the drivers were able to pick up buses at designated yards, proceed to assigned transfer points, and drive their assigned routes, although one (1) of them missed part of his assigned evacuation route. More confusion was evident on the part of the other drivers.

One (1) driver proceeded to the wrong transfer point, and completed his route only after being prompted by the Federal evaluator. The other driver took over two (2) hours to get to his transfer point from the staging area because he initially went to the wrong bus garage. It is recommended that training be provided to Bus Drivers to assure that they will be able to follow directions given to them and to drive their routes from the staging area to the bus garages to transfer points, and to complete their entire assigned pickup routes. In addition, it is recommended that OPIP 3.6.4, Attachment 2 (Pages 13-14) and Attachment 1 (Pages 10-12) be revised to require, respectively, the Bus Driver to present, and the Transfer Point Coordinator to verify, each Bus Driver's copy of the Bus/Van Dispatching Form (OPIP 3.6.4, Attachment 7, Page 62) to assure that the Bus Driver has arrived at the proper transfer point.

The objective of demonstrating a sample of resources necessary to deal with impediments to evacuation, such as inclement weather or traffic obstructions, was partly met (Field 10). This demonstration was impaired by two (2) factors. First, the LERO EOC failed to transmit the entire free play message with the result that Road Crews could not locate and recognize the Federal evaluator at the impediment (see discussion of objectives EOC 7 and EOC 17 in Section 2.1.1 above). This delayed evaluation of the response by over an hour. Second, the Road Crew was not informed that the impediment was a multiple vehicle accident, and only one (1) tow truck was dispatched. This would have been inadequate for removal of the impediment, which the Tow Truck Driver estimated would have required thirty (30) minutes to clear with the proper equipment. Rerouting of traffic was not observed. It is recommended that the appropriate personnel at the Patchogue Staging Area be trained to request more information regarding impediments from the LERO EOC when impediments to evacuation are indicated.

The objective of demonstrating a sample of resources necessary to control access to an evacuated area (Traffic Guides) was met (Field 11). Equipment and resources evaluated by the Federal evaluator were adequate to control access to the areas evacuated. For example, entire complements of barricades, cones, and personnel identified in the Plan were demonstrated at TCPs #31 and #32. Though Traffic Guides could not position their vehicles in roadways adjacent to the actual spot where they would guide traffic, interviews by the Federal evaluator indicated that they had ample knowledge of correct positioning.

The objective of demonstrating the adequacy of evacuation bus transfer points, including access and parking/transfer areas, was partly met (Field 12). Transfer points were evaluated at Brookhaven National Laboratory and Middle Island Shopping Center. These locations were easily recognized with free access and ample parking. Transfer Point Coordinators were clearly in control at both locations. However, one (1) problem was noted. The driver of the bus for the non-institutionalized mobility-impaired (see discussion of Field 14 below) proceeded to the Brookhaven National Laboratory Transfer Point upon completing his route (as planned), where he was directed to the EWDF despite the fact that a message from the Bus Dispatcher at 1145 to be transmitted to all Transfer Point Coordinators had requested all drivers arriving before 1600 at a transfer point to be directed to the Reception Center. It is recommended that Transfer Point Coordinators be trained to follow instructions from the Staging Area regarding directions that are to be given to special population evacuation route Bus Drivers, since the Bus

Drivers are trained to return to the transfer points for instructions as specified in the Procedures.

The objective of demonstrating a sample of resources necessary to effect an orderly evacuation of the non-institutionalized mobility-impaired individuals within the 10-mile EPZ was partly met (Field 14). Evacuation of non-institutionalized mobility-impaired individuals was demonstrated by a driver who was knowledgeable about procedures for obtaining an evacuation vehicle, driving a route for curb-side pickup, and returning to the Brookhaven National Laboratory Transfer Point. Seventeen (17) mobility-impaired individuals were located from the route map, the route was completed in less than two (2) hours, and the bus returned to the transfer point at 1459. The estimated time for driving the entire route, stopping at the transfer point, and proceeding to the Reception Center (this latter segment was not observed) was over three (3) hours. However, the residences of some mobility-impaired persons were difficult to find using the map provided. It is recommended that drivers designated to pick up non-institutionalized mobility-impaired persons at their residences should be provided with more detailed maps and clearer descriptions of pickup points.

The objective of demonstrating a sample of resources necessary to effect an orderly evacuation of schools within the 10-mile EPZ was partly met at the Patchogue Staging Area (Field 16). The Bus Dispatcher at the staging area arranged for one (1) bus to simulate the evacuation of forty (40) children to the Reception Center, based on a LERO EOC request. The driver was familiar with his function and followed his directions very well. However, the staging area took forty (40) minutes to dispatch the driver after the request was received. It is recommended that the Bus Dispatcher be provided with trained staff support so that Bus Drivers can be dispatched in a more timely manner.

DEFICIENCY

Description: A Bus Driver took two (2) hours and ten (10) minutes to proceed from the staging area to the transfer point. Another driver went to the wrong transfer point, and his mistake was not recognized by the Transfer Point Coordinator. Yet another driver missed a segment of an assigned evacuation route (NUREG-0654, II, J.9, J.10.g).

Recommendation 1: Bus Drivers for general population evacuation routes should receive training to assure their ability to follow directions given to them so they can (a) follow routes from the staging area to bus garages and then to transfer points, and (b) follow an assigned bus route.

Recommendation 2: OPIP 3.6.4, Attachment 2 (Pages 13-14) and Attachment 1 (Pages 10-12) should be revised to require, respectively, the Bus Driver to present, and the Transfer Point Coordinator to verify, each Bus Driver's copy of the Bus/Van Dispatching Form (OPIP 3.6.4, Attachment 7, Page 62) to assure that the Bus Driver has arrived at the proper Transfer Point.

AREAS REQUIRING CORRECTIVE ACTION

1. **Description:** Traffic Guides do not have complete or correct information on the appropriate destination for evacuees (NUREG-0654, II, J.9, J.10.g).

   Recommendation: All Traffic Guides should be trained to advise motorists with questions to tune to the EBS station (WALK-FM) for the latest information on all matters related to the emergency, including the location of the Reception Center.

2. **Description:** Appropriate personnel and equipment were not dispatched to clear the multiple vehicle accident simulated as an impediment to evacuation (NUREG-0654, II, J.10.k).

   Recommendation: The appropriate personnel at the Patchogue Staging Area should be trained to request more information from the LERO EOC when impediments to evacuation are indicated.

3. **Description:** Instructions for the driver of the non-institutionalized mobility-impaired bus to proceed to the Reception Center were not properly transmitted to the Bus Driver at the Brookhaven National Laboratory Transfer Point (NUREG-0654, II, J.10.d).

   Recommendation: Transfer Point Coordinators should be trained to follow instructions forthcoming from the staging area regarding directions that are to be given to special population evacuation route Bus Drivers, since they are trained to return to the Transfer Point for instructions as specified in the LERO Plan.

4. **Description:** Residences of some non-institutionalized mobility-impaired persons were difficult to find (NUREG-0654, II, J.10.d).

   Recommendation: Drivers designated to pick up non-institutionalized mobility-impaired evacuees at their residences should be provided with more detailed maps and clearer descriptions of pickup points.

5. **Description:** It took forty (40) minutes from receipt of a LERO request to dispatch a Bus Driver to simulate the evacuation of forty (40) school children (NUREG-0654, J.9, J.10.g).

   Recommendation: The Bus Dispatcher at the Patchogue Staging Area should be provided with trained staff support so that Bus Drivers can be dispatched in a more timely manner.

AREA RECOMMENDED FOR IMPROVEMENT

- **Description:** Seventy (70) minutes elapsed from the time the LERO EOC informed the Staging Area of the given simulated siren failure until public alerting was completed.

  Recommendation: Plans for backup route alerting should be reviewed and revised as necessary to reduce the time needed for route alerting.

2.6.3 Emergency Worker Radiological Exposure Control

The objective of demonstrating the ability to continuously monitor and control emergency worker exposure, including proper use of personnel dosimetry, was partly met at the Patchogue Staging Area (Field 1). Most of the emergency workers evaluated -- including six (6) Bus Drivers, a Route Alert Driver, a Road Crew, and Traffic Guides at three (3) locations -- demonstrated knowledge of use of dosimetry and actions required in response to certain readings as called for in OPIP 3.9.1. However, there were exceptions. Distribution of dosimetry to the general population evacuation route Bus Drivers at the Patchogue Staging Area was accompanied by the careful reading of instructions by the Dosimetry Record Keepers covering all features of OPIP 3.9.1, including the use and meaning of readings on the 0-200 mRem and 0-5 Rem DRDs. However, the Bus Dispatcher later made repeated statements with a bullhorn which emphasized only that general population evacuation route Bus Drivers were to call in when a reading of 3.5 was reached on the DRD; he did not give the units associated with the 3.5 number, nor did he mention the use of the 0-200 mRem DRD which is supposed to trigger the first call-in at a reading at or above 200 mRem. These bullhorn announcements may have led to confusion, because one (1) general population evacuation route Bus Driver thought the 0-200 mRem DRD was for use if the 0-5 Rem DRD reached 5 and did not know which DRD would give him the 3.5 Rem call-in reading. In addition, this general population evacuation route Bus Driver read his DRDs only when it was convenient to do so, when the bus stopped for other reasons, about every thirty (30) minutes. Another bus driver read his DRDs only twice, when reminded to do so by the Transfer Point Coordinator. For example, he did not know that 3.5 Rem was his call-in reading. It is recommended that the verbal instructions given to general population evacuation route Bus Drivers by the Bus Dispatcher over the bullhorn be more precise to emphasize the proper use of both DRDs and the careful reading of exposure control instructions for emergency workers. General population evacuation route Bus Drivers should also be trained to read their DRDs approximately every fifteen (15) minutes when they are inside the 10-mile EPZ, stopping the bus to do so if necessary. Traffic Guides at two (2) TCPs did not know dose authorization limits. It is recommended that all Traffic Guides should be trained so that they know dose authorization limits.

The objective of demonstrating the ability to supply and administer KI, once the decision is made to do so, was partly met at the Patchogue Staging Area (Field 7). Emergency workers were authorized to take simulated KI at about 0953, while still in the staging area. All of the emergency workers, with the exception of a Route Alert Driver,

understood the proper procedure for authorization and use of KI; a number of these asserted that they were not allergic to it. The Route Alert Driver understood the purpose of KI, but was unaware of the automatic ingestion instruction in OPIP 3.3.4, Attachment 1, item #9, and believed that he would receive KI authorization in an EBS message. Route Alert Drivers should be trained so that they know that KI authorization is to be issued to them by their supervisor as specified in the LERO Plan.

The objective of demonstrating that emergency workers understand who can authorize exposure in excess of the general public PAGs was partly met at the Patchogue Staging Area (Field 8). Most of the emergency workers evaluated were aware of the chain of command for authorization of exposure in excess of the general public PAGs, as well as the fact that this would be an additional voluntary act. However, Traffic Guides at two (2) TCPs did not fully understand that the chain of command for excess exposure authorization gives the Lead Traffic Guide authority to authorize excess exposure by radio, and some Traffic Guides indicated that they might question the authority of the Lead Traffic Guide to issue the authorization for excess exposure. It is recommended that all Traffic Guides should be trained to know that the Lead Traffic Guide can authorize exposure in excess of the general population PAGs by radio.

DEFICIENCIES

No deficiencies were observed in the implementation of emergency worker radiological exposure control for field activities deployed from the Patchogue Staging Area.

AREAS REQUIRING CORRECTIVE ACTION

1. **Description:** The Patchogue Staging Area Bus Dispatcher made repeated statements with a bullhorn which emphasized only that general population evacuation route Bus Drivers were to call in if a reading of 3.5 was reached on their DRD; he did not give the units associated with the 3.5 number nor mention the use of the 0-200 mRem DRD which is supposed to trigger the first call-in at a reading at or above 200 mRem (NUREG-0654, II, K.3, K.4).

   Recommendation: The verbal instructions given to the general population evacuation route Bus Drivers by the Patchogue Bus Dispatcher over the bullhorn should be more precise to emphasize the proper use of both dosimeters and the careful reading of exposure control instructions for emergency workers.

2. **Description:** One general population evacuation route Bus Driver read DRDs only twice at the instructions of the Transfer Point Coordinator and another read his DRDs only when it was convenient (NUREG-0654, II, K.3.a, K.3.b).

Recommendation: General population evacuation route Bus Drivers should be trained to read their dosimeters approximately every fifteen (15) minutes when they are inside the 10-mile EPZ, stopping the bus to do so if necessary.

3. **Description:** Traffic Guides at two (2) TCPs did not know dose authorization limits (NUREG-0654, II, K.3.a, K.3.b).

   Recommendation: Train the Traffic Guides so that they know the dose authorization limits.

4. **Description:** The Route Alerting Driver observed believed he would receive KI authorization in an EBS message. This is inconsistent with OPIP 3.3.4, Attachment 1, item #9 (NUREG-0654, II, J.10.e, J.10.f).

   Recommendation: Route Alert Drivers should be trained to know that KI authorization is to be issued to them by their supervisor as specified in the LERO Plan.

5. **Description:** Traffic Guides at two (2) TCPs did not fully understand that the chain of command for excess exposure authorization gives the Lead Traffic Guide authority to authorize excess exposure by radio, and some Traffic Guides indicated that they might question the authority of the Lead Traffic Guide to issue the authorization for excess exposure (NUREG-0654, II, K.4).

   Recommendation: All Traffic Guides should be trained to know that the Lead Traffic Guide can authorize exposure in excess of the general population PAGs by radio.

AREAS RECOMMENDED FOR IMPROVEMENT

No areas recommended for improvement were observed in the implementation of emergency worker radiation exposure control for field activities deployed from the Patchogue Staging Area.

2.7 RIVERHEAD STAGING AREA

The Riverhead Staging Area is located in the basement of a LILCO facility in Riverhead, New York. A large workspace is divided into an office for the Staging Area Coordinator, and sections for the administrative support staff, and communications staff. There are several other rooms specified for field personnel and related staff.

2.7.1 Staging Area Operations

The ability to receive emergency notifications was demonstrated (SA 1). The Staging Area Coordinator and supervisory staff were notified at the Alert ECL by activation of their pagers. All administrative support staff and field personnel were successfully notified by commercial telephone either at the Alert ECL or at the Site Area Emergency ECL, as appropriate.

Staff were mobilized, and the staging area was activated in a timely manner (SA 2). The facility was declared operational at 0810 when the Staging Area Coordinator, administrative support staff, supervisory personnel, and most Route Alert Drivers had arrived. Other field staff were called out at the Site Area Emergency ECL and reported to the staging area.

The Procedures maintained at the staging area contain detailed staff rosters indicating adequate management and administrative personnel for three (3) separate shifts, demonstrating the ability to maintain staffing on a twenty-four (24) hour basis (SA 3). Field workers would be relieved by those who had not yet been activated. In addition, in response to a message to simulate a shift change, replacements were identified, and telephone calls to the replacements were initiated or simulated.

The staging area had adequate facilities to support emergency operations (SA 4). The facility is a well-lighted area with ample space for managers as well as support staff. Adequate parking is provided in the visitors' parking lot as well as in the parking lot for company cars and trucks. The facility has a generator which is capable of maintaining the emergency communications equipment, and also has a shower for emergency workers. Adequate supplies and equipment are available and are stored in a secured trailer.

The staging area had appropriate communication links with the LERO EOC (SA 5). A commercial telephone serves as the primary communication system and a dedicated telephone and a radio serve as backup. In addition, there are commercial telephones which are used by the supervisory and administrative personnel. Communication systems performed well. All telephones and the radio were checked to ensure that they were in service during the initial activation of the facility.

The staging area had adequate security with guards posted at the site gate house and at all doors to the facility (SA 6). Only those persons listed on rosters and showing proper identification were admitted.

The objective to demonstrate that messages are transmitted in an accurate and timely manner, that messages are properly logged, that status boards are accurately maintained and updated, that appropriate briefings are held, and that incoming personnel are briefed was partly met (SA 7). Messages were recorded on the prescribed LERO Message Form. However, messages were not numbered in the space provided on the LERO Message Form. Since messages are sent to the Staging Area Coordinator, as well as directly to other supervisory staff in the facility who are located in different rooms, perhaps a numbering scheme should be developed which would reflect the order in which each recipient received each message.

The Procedures (OPIP 4.1.2, Section 3.0, Page 1) state: "All event status information to be passed to the Staging Area should be recorded on the Emergency Event Status Form, Attachment 2, by the Lead Communicator and communicated to the Staging Areas." At the Riverhead Staging Area, in several cases, the LERO Message Form merely referred to the attached Emergency Event Status Form, which contains eight (8) subsets of data and "new" information was not clearly designated. It was unclear which, if any, of the eight (8) subsets of data were "new" information. The LERO Message Form should be reviewed and revised, if appropriate, to indicate which item, if any, is the "new" message.

While the status board was updated periodically, the time of posting information was not always included when new information was posted. For example, the status board posting time of 1350 was not updated when new information on expected dose rates was added at 1455.

One briefing was actually held "in person" at the activation of the staging area. Additional briefings were given throughout the day over the public address system. While this approach is adequate for transmitting information, there is no opportunity for asking questions or discussing coordination of activities. In addition, some of these public address announcements were disruptive -- the Bus Dispatcher was interrupted by the public address system four (4) times while briefing the Bus Drivers. Briefings with field personnel prior to their deployment were comprehensive.

The Staging Area Coordinator, as designated in the Plan, was in charge and in control of the response assigned to the facility (SA 8).

The ability to dispatch to and direct emergency workers in the field was demonstrated (SA 9). The field workers were all given appropriate equipment and briefings prior to their dispatch to their assigned activities. However, Route Alert Drivers and Traffic Guides should be more expeditiously dispatched (see Field 5 and Field 6).

Traffic Guides and Transfer Point Coordinators communicated with the staging area via radios, demonstrating the ability to communicate with all appropriate field locations and personnel (SA 10). Traffic Guides called into the staging area upon arriving at their assigned locations. Transfer Point Coordinators radioed reports to the staging area on the status of bus routes for the general population evacuation at thirty (30) minute intervals. Road Crews and Route Spotters maintained radio contact with the LERO EOC, not the staging area, but were provided with a telephone number to reach the staging area in case of an emergency. The Route Alert Driver did not have direct communications with the staging area but telephoned upon completing the route.

DEFICIENCIES

No deficiencies were observed in the operation of the Riverhead Staging Area during the exercise.

AREA REQUIRING CORRECTIVE ACTION

Description: While the status board was updated periodically, the time was not always included when new information was posted (No NUREG-0654 reference).

Recommendation: Personnel should be trained to record the time that updated information is posted on the status board.

AREAS RECOMMENDED FOR IMPROVEMENT

- **Description:** Messages were not numbered in the space provided on the LERO Message Form.

  Recommendation: Messages received at the Riverhead Staging Area should be numbered on the LERO Message Form to reflect the order in which messages are received.

- **Description:** In several cases, the LERO Message Form merely referred to the attached Emergency Event Status Form, which contains eight (8) subsets of data and "new" information was not clearly designated.

  Recommendation: The LERO Message Form should be reviewed and revised, if appropriate, to indicate which item, if any, is the "new" information.

- **Description:** Only one briefing was actually conducted in person at the activation of the Riverhead Staging Area. Additional briefings were given throughout the day over the public address system. While this approach is adequate for transmitting information, there is no opportunity for asking questions or discussing coordination of activities.

  Recommendation: Some of the briefings at the Riverhead Staging Area should be conducted in person to enable the emergency workers to ask questions and discuss activities.

- **Description:** Some of the public address announcements were disruptive -- the Bus Dispatcher was interrupted by the public address system four (4) times while briefing the Bus Drivers.

  Recommendation: The timing of announcements made over the public address system should be coordinated with other activities in the staging area to ensure that these announcements do not disrupt other activities.

2.7.2 Implementation of Field Activities

The objective to demonstrate the ability to provide backup public alerting, if necessary, in the event of a partial siren system failure was partly met (Field 5). The Route Alert Driver was thoroughly briefed and provided with a kit which included a map of the area covered by siren #89. However, the map had no mileage or distance scale, making it difficult to determine where to begin and end route alerting on roads in the area covered by the siren. Mobile public address equipment was promptly mounted on the assigned vehicles and was demonstrated to be operable. A written message was provided but was not broadcast. All streets were traversed at an appropriate speed, and the driver completed the entire route in thirty-five (35) minutes. However, seventy-eight (78) minutes elapsed from the time the LERO EOC informed the staging area of the simulated siren failure until the public alerting was completed. A portion of the elapsed time included fifteen (15) minutes for holding a briefing and distributing the packet. It is recommended that the Plan for backup route alerting should be reviewed and revised as necessary to reduce the time needed for route alerting.

The objective to demonstrate that TCPs can be established and staffed by Traffic Guides in a timely manner was partly met (Field 6). Eight (8) TCPs were observed in the Riverhead Staging Area's jurisdiction. The time between deployment of Traffic Guides from the staging area and their arrival at TCPs was excessive, taking between fifty (50) and seventy (70) minutes. According to the Traffic Guide dispatch log, the Traffic Guides were given their assignments between 1053 and 1101. They did not arrive at their TCP assignments until between 1150 and 1210 which was about two (2) hours after the General Emergency ECL was declared. Travel times from the staging area to the TCPs were up to twenty (20) minutes. On average, each Traffic Guide spent an additional thirty (30) minutes in line at the staging area receiving field kits and briefings. A more expeditious means of dispatching the Traffic Guides is recommended, particularly for those locations within the 2-mile EPZ (this includes TCPs #73, #127, and #128 of the eight (8) locations observed). Each Traffic Guide communicated successfully by radio with the staging area. The Traffic Guides were all at the proper locations and were familiar with where to guide traffic, how to interact with the county police, and the limitations of their authority.

A sample of resources necessary to implement an orderly evacuation of all or part of the 10-mile EPZ was successfully demonstrated at the Riverhead Staging Area and on the two (2) general population evacuation bus routes (Field 9). The staging area had KI tablets, protective clothing, and pre-packaged kits with instruments, forms, and directions. Emergency equipment and clothing is stored in a climate-controlled trailer. By 1028, one hundred twenty-one (121) Bus Drivers were at the staging area, well exceeding the forty eight (48) Bus Drivers required at that time. All drivers were provided with the proper equipment. Both Bus Drivers who drove bus routes evaluated at the exercise were well trained, followed the Procedures (OPIP 3.6.4, Attachment 2), and obeyed traffic laws. They traveled to all required locations, including the bus company yard, the transfer point, the general population evacuation route, then returned to the transfer point, and then proceeded to the Reception Center and the EWDF.

The Traffic Guides successfully demonstrated a sample of resources necessary to control access to an evacuated area (Field 11). Each Traffic Guide had traffic cones,

flashing lights, and flares. The resources appeared adequate to demarcate the desired flow of traffic. Each Traffic Guide was supplied with highly visible yellow protective rain gear and a reflective day-glo vest. Each Traffic Guide had procedures and thoroughly understood his assignment. A sufficient number of Traffic Guides were available to staff all of the TCPs which were activated.

The Brookhaven Substation Transfer Point partly demonstrated the adequacy of transfer points (Field 12). The access road is narrow and curving and could be impassable in inclement weather. Consideration should be given to relocating the Brookhaven Substation Transfer Point to a different location.

DEFICIENCY

Description: The time between deployment of Traffic Guides from the staging area and their arrival at TCPs was excessive, taking between fifty (50) and seventy (70) minutes; approximately thirty (30) minutes was spent in line at the staging area receiving field kits and procedures (NUREG-0654, II, J.10.j).

Recommendation: A more expeditious means of dispatching the Traffic Guides from the staging area to the field should be developed.

AREA REQUIRING CORRECTIVE ACTION

Description: The access road at the Brookhaven Substation Transfer Point was narrow and curving and could be impassable in inclement weather. (NUREG-0654, II, H).

Recommendation: Consideration should be given to relocating the Brookhaven Substation Transfer Point to a different location.

AREAS RECOMMENDED FOR IMPROVEMENT

- **Description:** The map provided for the Route Alert Driver had no mileage or distance scale, making it difficult to determine where to begin and end route alerting on roads in the area covered by the siren.

  Recommendation: The maps provided for Route Alert Drivers should clearly indicate where public alerting along the routes begins and ends.

- **Description:** Seventy-eight (78) minutes elapsed from the time the LERO EOC informed the staging area of the simulated siren failure until the public alerting was completed.

Recommendation: Plans for backup route alerting should be reviewed and revised as necessary to reduce the time needed for route alerting.

2.7.3 Emergency Worker Radiological Exposure Control

Emergency workers in the field partly demonstrated the ability to continuously monitor and control their exposure, including proper use of personnel dosimetry (Field 1). Dosimetry was charged and distributed at the staging area. Briefings by the dosimetry record keeper were excellent. The Route Alert Driver had the appropriate DRDs (0-200 mRem and 0-5 Rem) and a TLD, as specified in the Procedures (OPIP 3.9.1). The driver paused to read his DRDs while driving his route. Values were recorded prior to dispatch as well as at the end of his assignment. The driver was well trained and aware of readings that required specific action on his part.

One (1) of the two (2) drivers for general population evacuation bus routes read his DRDs every fifteen (15) minutes as required (OPIP 3.9.1), knew dose authorization limits, and appeared very well trained. The driver for the other general population evacuation bus route read both of his DRDs only three (3) times, rather than every fifteen (15) minutes as stated in OPIP 3.9.1, although he was in the 10-mile EPZ for two (2) hours. He did, however, know how to use the dosimetry and was aware of dose authorization limits. It is recommended that Bus Drivers should be trained to read their low- and mid-range DRDs every fifteen (15) minutes.

At the eight (8) TCPs observed, all Traffic Guides had the DRDs (0-200 mRem and 0-5 Rem) and TLDs. Each Traffic Guide was aware of the requirement to read the DRDs every fifteen (15) minutes and was aware of dose authorization limits. Although able to read the DRDs, two (2) of the eight (8) Traffic Guides did not fully understand the difference between the low-range and mid-range DRDs. The remainder were very well trained and competent in continuously monitoring their own exposure. It is recommended that Traffic Guides should be given additional training in the use of low- and mid-range DRDs.

The ability to supply and administer KI, once the decision has been made to do so, was partly demonstrated (Field 7). Sufficient real KI was stocked at the staging area, and all field workers were given simulated KI. All Traffic Guides understood the instructions for taking KI and from whom they would receive authorization to do so. The Traffic Guides were directed to simulate the ingestion of the tablets prior to their deployment to the field. The Route Alert Driver was given KI prior to his deployment into the field, understood the instructions for ingesting it, and from whom he would receive instructions for taking it.

Bus Drivers for the general population evacuation bus routes were told to ingest KI prior to entering the EPZ. One (1) Bus Driver followed instructions, taking the KI as directed. The other Bus Driver simulated the ingestion of his KI tablet prematurely, prior to being assigned an evacuation route. It is recommended that Bus Drivers should be trained in procedures for ingesting KI.

All emergency field workers understood who could authorize exposure in excess of the general public PAGs (Field 8). Both Bus Drivers, the Transfer Point Coordinator, the Traffic Guides, and the Route Alert Drivers understood that their immediate supervisors, going through the chain of command, could authorize exposures in excess of the general public PAGs.

DEFICIENCIES

No deficiencies were observed in the implementation of emergency worker radiological exposure control for field activities deployed from the Riverhead Staging Area during the exercise.

AREAS REQUIRING CORRECTIVE ACTION

1. **Description:** One (1) of the drivers for the general population evacuation bus routes dispatched from the Riverhead Staging Area did not read his DRDs every fifteen (15) minutes as stated in OPIP 3.9.1 (NUREG-0654, II, K.3.b).

   Recommendation: Bus Drivers for the general population bus routes should be given additional training to read their low- and mid-range DRDs every fifteen (15) minutes.

2. **Description:** Two (2) of the eight (8) Traffic Guides did not fully understand the difference between low- and mid-range DRDs (NUREG-0654, II, K.3.b).

   Recommendation: Traffic Guides should be given additional training in the use of low- and mid-range DRDs.

3. **Description:** One (1) Bus Driver simulated the ingestion of his KI tablet prematurely, prior to being assigned an evacuation route (NUREG-0654, II, J.10.e).

   Recommendation: Bus Drivers should be given additional training in procedures for ingesting KI.

AREAS RECOMMENDED FOR IMPROVEMENT

No areas recommended for improvement were observed in the implementation of emergency worker radiological exposure control for field activities deployed from the Riverhead Staging Area during the exercise.

2.8 EMERGENCY WORKER DECONTAMINATION FACILITY (EWDF)

The EWDF is located in the basement of the LERO EOC, 1650 Islip Avenue, Brentwood, New York.

2.8.1 EWDF Operations

The ability to mobilize staff and activate the EWDF was demonstrated (EWDF 1). A call-out procedure is available for activation of personnel at anytime. The facility was operational on a timely basis and was provided with a full complement of operating personnel.

Rosters were available to show that sufficient personnel were trained and available to provide continuous operation of the EWDF on a twenty-four (24) hour basis (EWDF 2).

The objective to demonstrate that adequate equipment and procedures for decontamination of emergency workers' equipment and vehicles, including adequate provisions for handling contaminated wastes at the EWDF, was met (EWDF 3). The equipment used by the EWDF staff was well maintained, had been calibrated, and was properly used by the personnel. The facilities were adequate for the expected volume of emergency personnel to be processed. Decontamination facilities were adequate, with the establishment of separate contaminated and uncontaminated areas. Procedures were well written and utilized by the emergency staff. Monitoring procedures were demonstrated on several hundred emergency workers as they were checked and processed through the decontamination facility. Waste handling procedures demonstrated were adequate. Solid wastes would be stored, collected, and removed for processing/storage at the SNPS site. The generation of liquid waste was minimized by not using flooding methods. As an alternate to flooding, decontamination of vehicle surfaces was accomplished by paper towels, swipes, and damp cloths which were included in the solid waste.

DEFICIENCIES

No deficiencies were observed in the operation of the EWDF during the exercise.

AREAS REQUIRING CORRECTIVE ACTION

No areas requiring corrective action were observed in the operation of the EWDF during the exercise.

AREAS RECOMMENDED FOR IMPROVEMENT

No areas recommended for improvement were observed in the operation of the EWDF during the exercise.

2.8.2 Emergency Worker Radiological Exposure Control

The objective to continuously monitor and control emergency worker exposure including the proper use of personnel dosimetry was met (Field 1). All personnel who were in contact with potentially contaminated emergency workers were wearing the required dosimeters and knew how to use them. Record keeping was efficient. Required dosimetry was in good condition and available in sufficient supply. EWDF personnel read their DRDs at the prescribed intervals.

Sufficient supplies of KI were available at the EWDF for issuance to Ambulance and Ambulette Drivers. KI was issued to the appropriate emergency workers, along with pertinent record forms and instructions. Briefings were given at the time of issuance of KI on the proper procedures by which KI would be authorized for ingestion (Field 7). The Emergency Worker Decontamination Leader at the EWDF was aware of the proper procedures for obtaining authorization for exposure in excess of the general public PAGs (Field 8).

DEFICIENCIES

No deficiencies were observed in the implementation of emergency worker radiological exposure control at the EWDF during the exercise.

AREAS REQUIRING CORRECTIVE ACTION

No areas requiring corrective action were observed in the implementation of emergency worker radiological exposure control at the EWDF during the exercise.

AREAS RECOMMENDED FOR IMPROVEMENT

No areas recommended for improvement were observed in the implementation of emergency worker radiological exposure control at the EWDF during the exercise.

2.9 RECEPTION CENTER

The Nassau County Veterans Memorial Coliseum in Uniondale, New York is the designated Reception Center for the general population who would evacuate the 10-mile EPZ. The Coliseum is approximately forty (40) miles from SNPS and would serve as a monitoring and decontamination facility for evacuees, and as a preliminary registration center for the American Red Cross.

The monitoring and controlling of emergency worker exposure, including proper use of personnel dosimetry, was demonstrated by the emergency workers at the Reception Center (Field 1). Issuance of dosimetry to the emergency workers was done in an efficient manner and according to the plan. Workers were briefed by the Supervising Decontamination Leader. Dosimetry was in ample supply, good condition, properly

calibrated, and tagged. Personnel were familiar with dosimetry use and whom to notify if a problem developed with the equipment. Record forms were appropriate and instruction sheets issued with the dosimeters contained concise and pertinent data. Personnel were instructed, and reminded frequently, to read their DRDs at fifteen (15) minute intervals.

The objective to demonstrate the ability to supply and administer KI, once the decision has been made to do so, was not applicable at the Reception Center (Field 7). KI is not stockpiled at the Reception Center, nor is it required to be according to procedure OPIP 3.6.2.

The Supervising Decontamination Leader was aware of the general public PAGs. He also knew the name of the individual at the LERO EOC who must authorize, by use of the "Emergency Exposure Authorization Form," exposure in excess of the general population PAGs (Field 8).

The Reception Center was staffed with about three hundred (300) LERO personnel within ninety (90) minutes following notification. All personnel were notified by commercial telephone using a written call list. The center was fully operational by 1130 and ready to receive evacuees. Approximately one hundred fifty (150) personnel are needed to operate the facility, seventy-eight (78) of whom were present to perform monitoring functions (Field 17).

Duty rosters displayed at the Reception Center showed that sufficient trained personnel are available to maintain operation, at the expected demand rates, on a twenty-four (24) hour basis (Field 19).

The objective of demonstrating procedures for the registration, radiological monitoring, and decontamination of evacuees and vehicles, including adequate provisions for handling contaminated wastes, was partly met at the Reception Center (Field 21). Separate areas were established for contaminated and uncontaminated personnel and vehicles, and incoming traffic was properly routed to the applicable areas. Security was set up and maintained to control the ingress and egress of evacuees.

Personnel radiological monitoring was demonstrated by the seventy-eight (78) monitors available. Over one hundred (100) people were actually registered and monitored, and were decontaminated (simulated) if necessary. On several occasions personnel radiological monitoring took approximately four (4) to five (5) minutes per individual, which is considerably longer then the ninety (90) seconds specified in the LERO procedures. A large number of evacuees could result in a significant queue of individuals waiting to be monitored. A sufficient supply of calibrated equipment was available for use by the monitoring personnel. Emergency workers appeared very familiar with the operation and function of the equipment.

The facilities at the Reception Center, as demonstrated during the exercise, were capable of handling thirty-two thousand (32,000) evacuees within the required twelve (12) hour time period. A message was received at the Reception Center from the LERO EOC which indicated that the expected number of evacuees to be processed would be increased to 100,000. The Supervising Decontamination Leader informed his staff of

the anticipated increase in numbers and implemented (simulated) an alternate plan which is available to handle evacuees in excess of the thirty-two thousand (32,000) planned. This alternate monitoring plan (OPIP 4.2.3, Section 5.11, Page 16-17) provides for the monitoring of the wheelwells and hoods of vehicles and the hands and thyroid area of drivers of all vehicles arriving at the Reception Center to reduce the time needed to process groups of evacuees. Also, the Supervising Decontamination Leader contacted the LERO EOC to make arrangements for additional monitoring personnel to be provided by other support organizations (i.e., the Institute for Nuclear Power Operations, DOE, etc.) and the estimated arrival times for these additional personnel were provided by the LERO EOC. However, the alternate evacuee monitoring plan for the Reception Center was not evaluated at this exercise.

The decontamination facility at the Reception Center was set up in accordance with the Plan, with operational activities generally run well. However, on one occasion an evacuee with a contaminated hand (simulated) was told to put rubber booties on, which could have resulted in their contamination. Further, he was told to put anticontamination gloves on after he used his contaminated hand to put the booties on. Since his feet were not contaminated, the booties were not necessary. Decontamination personnel assigned to the Reception Center should receive additional training on evacuee decontamination procedures described in the LERO Plan.

DEFICIENCIES

No deficiencies were observed at the Reception Center during this exercise.

AREA REQUIRING CORRECTIVE ACTION

Description: On several occasions, personnel radiological monitoring took approximately four (4) to five (5) minutes per individual, which is considerably longer then the ninety (90) seconds specified in the LERO Procedures (NUREG-0654, II, J.12).

Recommendation: All monitoring personnel assigned to the Reception Center should be trained to monitor individuals within ninety (90) seconds as prescribed in the LERO Procedures.

AREA RECOMMENDED FOR IMPROVEMENT

- **Description:** An evacuee, who required decontamination, was erroneously instructed to don anticontamination clothing.

  Recommendation: All decontamination staff assigned to the Reception Center should be given additional training on evacuee decontamination procedures established in the LERO Plan.

2.10 CONGREGATE CARE CENTERS

The Nassau County Chapter of the American Red Cross has made arrangements to use numerous facilities as congregate care centers in case of an emergency at SNPS. Two (2) facilities were activated and staffed for evaluation during the exercise. However, neither of these facilities are identified in the latest submission of the LERO Plan. It is recommended that the Plan should be revised to include all facilities intended for use as shelter facilities during a radiological emergency at SNPS. These facilities should be included in the list attached to LERO's letter of agreement with the American Red Cross.

2.10.1 U.S. Marine Corps Brigade, Garden City, NY

Mobilization of staff and activation of the Congregate Care Center was demonstrated in a timely manner, thereby meeting an objective of the exercise (Field 18). Twenty-four (24) hour notification of the staff and activation/set up of the facility were implemented through the local American Red Cross Chapter.

The ability to maintain staffing on a twenty-four (24) hour basis at the Congregate Care Center was demonstrated (Field 20); staffing is the responsibility of the American Red Cross.

Procedures and activities demonstrated for the Congregate Care Center were adequate (Field 22). The center is designed to facilitate handicapped and has ample floor space, parking, feeding areas, and medical assistance to support the anticipated numbers of evacuees. OPIP 3.7.1 ("Public Health Support") was not demonstrated. The purpose of OPIP 3.7.1 is to ensure support services for the operation of Congregate Care Centers. The Shelter Manager was aware of how to get any required assistance or support; these would be acquired through the American Red Cross coordinator in the LERO EOC. Copies of the Procedures should be made available to the emergency staff at each Congregate Care Center.

2.10.2 LILCO Office Building, Mineola, NY

The ability to mobilize staff and activate the Congregate Care Center in a timely manner was demonstrated by the American Red Cross staff (Field 18). Personnel were mobilized using a written call-up procedure. There was limited participation by American Red Cross volunteers during this exercise due to personnel work-related conflicts.

The capability to staff the Congregate Care Center on a twenty-four (24) hour basis was demonstrated through the presentation of duty rosters (Field 20).

The facilities are adequate for the mass care of evacuees at the Mineola Congregate Care Center (Field 22). The center has sufficient space and feeding capability in two (2) multifloored vacant buildings which are available for use by the American Red Cross. Parking is limited to approximately four hundred (400)

automobiles. The facilities for handicapped evacuees were limited. The Shelter Manager knew to request resources and supplies through the LERO EOC and the East Office American Red Cross. This was demonstrated when a nurse was needed, but was not available at this Congregate Care Center, and the Shelter Manager followed proper procedures by requisitioning one through the LERO EOC. There was no counseling capability demonstrated at the center, but the staff works with the local mental health team.

Emergency radio capability was not available at this center during the exercise, but an agreement with the local radio club is being developed to assist in this capacity.

DEFICIENCIES

No deficiencies were observed at the Congregate Care Centers during this exercise.

AREA REQUIRING CORRECTIVE ACTION

Description: Neither of the two (2) congregate care facilities activated for the February 13, 1986 exercise are identified in the latest submission of the LERO Plan (NUREG-0654, II, J.10.h).

Recommendation: The Plan should be revised to include all facilities intended for use as shelter facilities during a radiological emergency at SNPS. These facilities should be included in the list attached to LEROs letter of agreement with the American Red Cross.

AREAS RECOMMENDED FOR IMPROVEMENT

- **Description:** The availability and implementation of the procedure for public health support (OPIP 3.7.1) was not demonstrated at the Marine Congregate Care Center.

  Recommendation: OPIP 3.7.1 should be made available and utilized at each Congregate Care Center.

- **Description:** The Mineola Congregate Care Center needs to upgrade the facilities for handicapped evacuees.

  Recommendation: Facilities needed for the handicapped should be identified and proper actions should be taken to accommodate them at the Mineola Congregate Care Center.

2.11 MEDICAL DRILL

A medical drill was conducted on Sunday, February 9, 1986 in order to exercise the emergency medical response of personnel from SNPS, Wading River Fire Department, and Central Suffolk Hospital. This drill required response to an accident involving a simulated injury and contamination of a worker at SNPS.

The objective to demonstrate the ability to continuously monitor and control emergency worker exposure including proper use of personnel dosimetry was met during the medical drill (Field 1). All emergency workers, including plant, ambulance, and hospital personnel were provided with the required TLDs and DRDs. In addition, the hospital medical team had ring-type TLDs. DRDs were checked at appropriate intervals and emergency personnel appeared familiar with dosimetry fundamentals.

Radioiodine was not a factor during the medical drill, with the result that the objective to supply and administer KI once the decision has been made to do so, was not applicable (Field 7).

SNPS personnel and ambulance team members were aware of exposure control guidelines and who can authorize exposure in excess of those guidelines, thereby meeting an objective of the drill (Field 8).

The performances of the SNPS personnel and the Wading River Fire Department ambulance crew, who were called on during the medical drill, were good. The objective to demonstrate the adequacy for ambulance facilities and procedures for handling injured and contaminated individuals was met (Field 23). The scenario involved an injured plant worker who suffered a deep laceration of the right thigh, which was also radiologically contaminated. Personnel on-site at SNPS treated the victim promptly, took necessary vital signs, surveyed the entire victim, as well as the injured area, and isolated him. During this entire process the control room at SNPS was kept informed of the status of the injured victim. An ambulance was requested from the Wading River Fire Department to provide transportation to Central Suffolk Hospital. Along with this request, all necessary information was communicated to the Fire Department dispatcher in Wading River. Security at SNPS was notified and instructed to direct the ambulance to the proper location within the site. The ambulance arrived within ten (10) minutes and the victim was transported by stretcher to the vehicle.

Contamination control was continuously maintained. Site personnel gave medical information to the ambulance crew, along with a radiological report on the victim. The ambulance personnel were given protective clothing and dosimetry. The interior of the ambulance was covered with herculite to mitigate the spread of contamination. A Radiation Protection Technician (RPT) accompanied the ambulance to the hospital. The ambulance maintained radio contact with the hospital during transit, relaying the estimated time of arrival information and status reports on the vital signs of the accident victim.

The adequacy of the hospital facilities and procedures for handling injured and contaminated individuals were well demonstrated, thereby meeting an objective (Field 24). Performances by the Central Suffolk Hospital personnel and the SNPS health physics

staff were good. Due to the information radioed from the ambulance, the hospital was all set up with the appropriate staff ready to treat the injured upon arrival. The RPT put on protective clothing in order to assist the medical team with the radiological evaluation. A number of recently calibrated survey instruments, provided by LILCO, were available for use by the medical team. Procedures were posted on the wall of the emergency room and proper security measures were taken to isolate the Radiological Emergency Area (REA). A second SNPS RPT arrived to survey the ambulance, crew, and supplies prior to their release. The patient's clothing was removed and he was monitored, revealing contamination of the thigh laceration and chin. Samples were collected and properly labeled. Decontamination procedures were initiated and survey results recorded after each decontamination process. Waste was properly managed and held for transportation to SNPS in marked containers. After the patient was determined to be decontaminated, he was sutured and transferred out of the REA. An SNPS RPT was available to perform the exit survey of the patient and the gurney. The two (2) RPTs also assisted the medical team with the removal of their protective clothing. The step-off pad procedure was used and complete body surveys were performed. Dosimetry (TLDs, ring badges, and DRDs) were collected and documented.

The layout of the hospital facility is very well adapted for a safe and efficient radiological emergency response. Direct access from the outside and the ambulance arrival area to the REA was utilized, thereby reducing the possibility of spreading contamination to other parts of the hospital. In addition, this feature enabled the hospital to have a tighter and better controlled security operation. Another step taken to assure a minimal possibility for the spread of contamination outside of the REA was that the floor was covered with herculite.

DEFICIENCIES

No deficiencies were observed at the medical drill during the exercise.

AREAS REQUIRING CORRECTIVE ACTION

No areas requiring corrective actions were observed at the medical drill during the exercise.

AREAS RECOMMENDED FOR IMPROVEMENT

No areas recommended for improvement were observed at the medical drill during the exercise.

3 SCHEDULE FOR CORRECTING DEFICIENCIES OR AREAS REQUIRING CORRECTIVE ACTION: FEBRUARY 13, 1986 EXERCISE

Section 2 of this report lists deficiencies or areas requiring corrective action based on the observations and recommendations of Federal evaluators at the radiological emergency preparedness exercise for the Shoreham Nuclear Power Station held on February 13, 1986. These evaluations are based on the applicable planning standards and evaluation criteria set forth in NUREG-0654-FEMA-REP-1, Rev. 1 (Nov. 1980), and objectives for the exercise agreed upon by LILCO, FEMA, and the RAC.

FEMA recommends to NRC that LILCO submit a schedule of actions it has taken or intends to take to correct these inadequacies. FEMA also recommends that a detailed plan, including dates of completion for scheduling and implementing recommendations, be provided if corrective actions cannot be instituted immediately.

TABLE 3.1

SHOREHAM NUCLEAR POWER STATION - SCHEDULE FOR CORRECTING DEFICIENCIES
OR AREAS REQUIRING CORRECTIVE ACTION

February 13, 1986 Exercise
LERO EOC

No.	NUREG Element	RAC Recommendation for Corrective Action	Deficiency (D) or Corrective Action (ARCA)	LERO Response (ACTION)	Proposed Completion Date	FEMA Evaluation of LERO Response	Response Adequate (A) Inadequate (I)	Remedial Action Complete (C) Incomplete (I)
1	J.10.k	Delays in responding to the two (2) evacuation impediment free-play messages inserted at the LERO EOC were caused by the failure to inform the Evacuation Coordinator in a timely manner. In addition there was a lack of internal communication in response to these impediment problems. Pertinent information was not included on the 1045 and 1106 LERO Message Forms from the Evacuation Route Coordinator to the Evacuation Support Communicator for Route Spotters/Road Crews regarding the simulated impediment involving the gravel truck and fuel truck problems. As a result of this lack of information, the impediment problems were not analyzed in a timely fashion and incomplete equipment was dispatched to handle the gravel truck impediment in the field. Internal communications	D					

TABLE 3.1

SHOREHAM NUCLEAR POWER STATION - SCHEDULE FOR CORRECTING DEFICIENCIES
OR AREAS REQUIRING CORRECTIVE ACTION

February 13, 1986 Exercise

LERO EOC (Cont'd)

No.	NUREG Element	RAC Recommendation for Corrective Action	Deficiency (D) or Corrective Action (ARCA)	LERO Response (ACTION)	Proposed Completion Date	FEMA Evaluation of LERO Response	Response Adequate (A) Inadequate (I)	Remedial Action Complete (C) Incomplete (I)
	Cont'd	procedures should be reviewed and revised as necessary to ensure that information on impediments is promptly passed both up the chain of command to the Evacuation Coordinator and downward and laterally to all lead coordinators under the Evacuation Coordinator and their staffs. Additional training is needed to ensure that the procedures, whether new or current, are properly implemented. All coordinators at the EOC, and those who initiate messages, must be trained to include all pertinent information on the LERO message forms and to analyze the equipment requirements to clear impediments.						

TABLE 3.1

SHOREHAM NUCLEAR POWER STATION - SCHEDULE FOR CORRECTING DEFICIENCIES
OR AREAS REQUIRING CORRECTIVE ACTION
February 13, 1986 Exercise
LERO EOC (Cont'd)

No.	NUREG Element	RAC Recommendation for Corrective Action	Deficiency (D) or Corrective Action (ARCA)	LERO Response (ACTION)	Proposed Completion Date	FEMA Evaluation of LERO Response	Response Adequate (A) Inadequate (I)	Remedial Action Complete (C) Incomplete (I)
2	F.1.c	There was some confusion regarding the method for notifying the Federal Aviation Administration (FAA). (1) The LERO procedures should be reviewed and revised as necessary to ensure that a point of contact with the FAA has been designated. (2) The LERO EOC staff should be trained in the appropriate procedures so that the FAA can be notified in a timely manner.	ARCA					
3	E.1, F.1.a	Since there are no procedures for notification of the Long Island Railroad (LIRR) in the Plan, the LIRR was not notified during the exercise.	ARCA					

TABLE 3.1
SHOREHAM NUCLEAR POWER STATION - SCHEDULE FOR CORRECTING DEFICIENCIES
OR AREAS REQUIRING CORRECTIVE ACTION
February 13, 1986 Exercise
LERO EOC (Cont'd)

No.	NUREG Element	RAC Recommendation for Corrective Action	Deficiency (D) or Corrective Action (ARCA)	LERO Response (ACTION)	Proposed Completion Date	FEMA Evaluation of LERO Response	Response Adequate (A) Inadequate (I)	Remedial Action Complete (C) Incomplete (I)
	Cont'd	(1) The LERO procedures should be revised to establish a point of contact and a means for notifying the LIRR. (2) The LERO EOC staff should be trained in the revised procedures so that the LIRR can be notified in a timely manner.						
4	I.10	The dose assessment status board in the accident assessment area had to accommodate both DOE RAP and LILCO field monitoring data. There were not enough columns on the board to keep the two (2) sources of data separated. LERO should enlarge the dose assessment status board to accommodate a clear separation between the data reports from the DOE RAP and LILCO field monitoring teams.	ARCA					

TABLE 3.1
SHOREHAM NUCLEAR POWER STATION - SCHEDULE FOR CORRECTING DEFICIENCIES
OR AREAS REQUIRING CORRECTIVE ACTION
February 13, 1986 Exercise
LERO EOC (Cont'd)

No.	NUREG Element	RAC Recommendation for Corrective Action	Deficiency (D) or Corrective Action (ARCA)	LERO Response (ACTION)	Proposed Completion Date	FEMA Evaluation of LERO Response	Response Adequate (A) Inadequate (I)	Remedial Action Complete (C) Incomplete (I)
5	I.10, F.1.d	The downwind distance of the sample was incorrectly reported as 7000 meters instead of 700 meters for one of the thyroid doses reported by a DOE RAP field monitoring team. This error was caused by a decimal point misplaced during the conversion of the distance units and meant that the initial calculation of thyroid dose based on this measurement was 9000 mRem/hr at 4.3 miles downwind instead of 9000 mRem/hr at about 0.5 miles downwind. About five (5) minutes elapsed before this error was found and corrected. All downwind distances from the field should be reported consistently in either miles or meters.	ARCA					

TABLE 3.1
SHOREHAM NUCLEAR POWER STATION - SCHEDULE FOR CORRECTING DEFICIENCIES
OR AREAS REQUIRING CORRECTIVE ACTION
February 13, 1986 Exercise
LERO EOC (Cont'd)

No.	NUREG Element	RAC Recommendation for Corrective Action	Deficiency (D) or Corrective Action (ARCA)	LERO Response (ACTION)	Proposed Completion Date	FEMA Evaluation of LERO Response	Response Adequate (A) Inadequate (I)	Remedial Action Complete (C) Incomplete (I)
6	I.10	During the reporting of the initial DOE RAP thyroid doses, only one field measurement, the 1400 mRem/hr measurement made at about 1204 at two (2) miles from the plant, was available. This value was used at the LERO EOC to extrapolate doses at other distances. These extrapolated data were reported as actual measurements at other distances rather than as projected data on the dose assessment status board. It took two and one half (2.5) hours to identify and correct this error. LERO reporting procedures should be reviewed to ensure proper coordination and proper reporting.	ARCA					
7	I.10	Although he later quoted the PAG correctly when asked to do so by a Federal evaluator, during a briefing held at the LERO EOC at about 1110, the	ARCA					

TABLE 3.1
SHOREHAM NUCLEAR POWER STATION - SCHEDULE FOR CORRECTING DEFICIENCIES
OR AREAS REQUIRING CORRECTIVE ACTION
February 13, 1986 Exercise
LERO EOC (Cont'd)

No.	NUREG Element	RAC Recommendation for Corrective Action	Deficiency (D) or Corrective Action (ARCA)	LERO Response (ACTION)	Proposed Completion Date	FEMA Evaluation of LERO Response	Response Adequate (A) Inadequate (I)	Remedial Action Complete (C) Incomplete (I)
	Cont'd	Health Services Coordinator misstated the EPA PAG as being mandatory evacuation when the projected thyroid dose was five (5) Rem. The Health Services Coordinator should review the EPA PAG guidance in order to avoid any possible confusion that could result due to misinformation given during briefings.						
8	E.6	Prior to the exercise, LILCO management made the decision that the siren system would not be activated as part of the February 13, 1986 exercise. Activation of the siren system should be actually tested in the future.	ARCA					
9	E.2	There was a delay of about forty-five (45) minutes between the LERO EOC's first attempt to have Route Spotter #1005 verify the fuel truck impediment and the dispatch of that spotter from	ARCA					

TABLE 3.1
SHOREHAM NUCLEAR POWER STATION - SCHEDULE FOR CORRECTING DEFICIENCIES
OR AREAS REQUIRING CORRECTIVE ACTION
February 13, 1986 Exercise
LERO EOC (Cont'd)

No.	NUREG Element	RAC Recommendation for Corrective Action	Deficiency (D) or Corrective Action (ARCA)	LERO Response (ACTION)	Proposed Completion Date	FEMA Evaluation of LERO Response	Response Adequate (A) Inadequate (I)	Remedial Action Complete (C) Incomplete (I)
	Cont'd	the Port Jefferson Staging Area. This delayed timely verification of the impediment. Personnel need to be trained in the development of alternative approaches when delays are reasonably anticipated in the field verification of impediments to evacuation. Development of alternatives should include consultation between, at a minimum, the Evacuation Coordinator and the Evacuation Route Coordinator.						
10	N/R	Only the Shoreham-Wading River School District participated in the February 13, 1986 exercise. Prior to the exercise, LILCO management made the decision that other school districts were not to be included in the exercise. In the future all schools must be included in all Federally evaluated exercises and drills.	ARCA					

TABLE 3.1
SHOREHAM NUCLEAR POWER STATION - SCHEDULE FOR CORRECTING DEFICIENCIES
OR AREAS REQUIRING CORRECTIVE ACTION
February 13, 1986 Exercise
LERO EOC (Cont'd)

No.	NUREG Element	RAC Recommendation for Corrective Action	Deficiency (D) or Corrective Action (ARCA)	LERO Response (ACTION)	Proposed Completion Date	FEMA Evaluation of LERO Response	Response Adequate (A) Inadequate (I)	Remedial Action Complete (C) Incomplete (I)
11	K.3, K.5.a	Dosimetry and training have not been provided to the Bus Drivers used for school evacuation. (1) Bus Drivers used for school evacuation should be trained in the use of dosimeters. (2) Adequate supplies of dosimetry should be provided for Bus Drivers used for school evacuation.	ARCA					
12	J.10.e	Some of the Ambulette Drivers were not aware of when to take their KI. Training on KI procedures should be given to the Ambulette Drivers.	ARCA					
13	J.10.e	Bus Drivers used for school evacuation have not been trained in KI policy and the use of KI. Sufficient supplies of	ARCA					

TABLE 3.1
SHOREHAM NUCLEAR POWER STATION - SCHEDULE FOR CORRECTING DEFICIENCIES
OR AREAS REQUIRING CORRECTIVE ACTION
February 13, 1986 Exercise
LERO EOC (Cont'd)

No.	NUREG Element	RAC Recommendation for Corrective Action	Deficiency (D) or Corrective Action (ARCA)	LERO Response (ACTION)	Proposed Completion Date	FEMA Evaluation of LERO Response	Response Adequate (A) Inadequate (I)	Remedial Action Complete (C) Incomplete (I)
	Cont'd	KI are not available for school evacuation Bus Drivers. (1) Bus Drivers used for school evacuation should be trained in KI policy and the use of KI. (2) Adequate supplies of KI should be provided for Bus Drivers used for school evacuation.						
14	K.4	Ambulette Drivers were not all trained regarding who can authorize doses in excess of and what to do in the event of exposure above the general public PAGs. Ambulette Drivers should be trained on excessive exposure authorization and applicable procedures.	ARCA					

TABLE 3.1
SHOREHAM NUCLEAR POWER STATION - SCHEDULE FOR CORRECTING DEFICIENCIES
OR AREAS REQUIRING CORRECTIVE ACTION
February 13, 1986 Exercise
LERO EOC (Cont'd)

No.	NUREG Element	RAC Recommendation for Corrective Action	Deficiency (D) or Corrective Action (ARCA)	LERO Response (ACTION)	Proposed Completion Date	FEMA Evaluation of LERO Response	Response Adequate (A) Inadequate (I)	Remedial Action Complete (C) Incomplete (I)
15	K.4	Bus Drivers used for school evacuation have not been trained regarding who can authorize exposure in excess of the general public PAGs. Bus Drivers used for school evacuation should receive training regarding who can authorize exposure in excess of the general public PAGs.	ARCA					

TABLE 3.2

SHOREHAM NUCLEAR POWER STATION - SCHEDULE FOR CORRECTING DEFICIENCIES
OR AREAS REQUIRING CORRECTIVE ACTION
February 13, 1986 Exercise
EMERGENCY OPERATIONS FACILITY

No.	NUREG Element	RAC Recommendation for Corrective Action	Deficiency (D) or Corrective Action (ARCA)	LERO Response (ACTION)	Proposed Completion Date	FEMA Evaluation of LERO Response	Response Adequate (A) Inadequate (I)	Remedial Action Complete (C) Incomplete (I)
		No recommendations.						

TABLE 3.3
SHOREHAM NUCLEAR POWER STATION - SCHEDULE FOR CORRECTING DEFICIENCIES
OR AREAS REQUIRING CORRECTIVE ACTION
February 13, 1986 Exercise
BROOKHAVEN AREA OFFICE

No.	NUREG Element	RAC Recommendation for Corrective Action	Deficiency (D) or Corrective Action (ARCA)	LERO Response (ACTION)	Proposed Completion Date	FEMA Evaluation of LERO Response	Response Adequate (A) Inadequate (I)	Remedial Action Complete (C) Incomplete (I)
		No recommendations.						

TABLE 3.4
SHOREHAM NUCLEAR POWER STATION - SCHEDULE FOR CORRECTING DEFICIENCIES
OR AREAS REQUIRING CORRECTIVE ACTION
February 13, 1986 Exercise
EMERGENCY NEWS CENTER (Cont'd)

No.	NUREG Element	RAC Recommendation for Corrective Action	Deficiency (D) or Corrective Action (ARCA)	LERO Response (ACTION)	Proposed Completion Date	FEMA Evaluation of LERO Response	Response Adequate (A) Inadequate (I)	Remedial Action Complete (C) Incomplete (I)
1	G.4.b, G.4.c	Insufficient copying capabilities at the ENC resulted in delays in the distribution of information. These delays affected the following two (2) areas: • Hard copies of EBS messages were not provided to the media in a timely manner. • Rumor control personnel were not able to answer questions received from the public because they were not given accurate up-to-date status reports. LERO should make provisions for reliable and rapid equipment to reproduce, in hard copy, all appropriate messages for distribution to the ENC staff.	D					

TABLE 3.4
SHOREHAM NUCLEAR POWER STATION - SCHEDULE FOR CORRECTING DEFICIENCIES
OR AREAS REQUIRING CORRECTIVE ACTION
February 13, 1986 Exercise
EMERGENCY NEWS CENTER (Cont'd)

No.	NUREG Element	RAC Recommendation for Corrective Action	Deficiency (D) or Corrective Action (ARCA)	LERO Response (ACTION)	Proposed Completion Date	FEMA Evaluation of LERO Response	Response Adequate (A) Inadequate (I)	Remedial Action Complete (C) Incomplete (I)
2	J.10.b	Maps and displays in the media briefing room were insufficient. The following displays should be posted in an area easily visible to reporters: • An EPZ map which tracks protective actions and plume pathway. • A status board which provides ECLs and their times of declaration.	ARCA					
7	N/R	Some hard copies of EBS messages that were provided to the press contained extraneous information (clearly marked for deletion) that should have been omitted to avoid possible confusion. Hard copies of EBS messages posted in the ENC for use by the press should contain only that information which was broadcast to the public.	ARCA					

TABLE 3.5
SHOREHAM NUCLEAR POWER STATION - SCHEDULE FOR CORRECTING DEFICIENCIES
OR AREAS REQUIRING CORRECTIVE ACTION
February 13, 1986 Exercise
PORT JEFFERSON STAGING AREA

No.	NUREG Element	RAC Recommendation for Corrective Action	Deficiency (D) or Corrective Action (ARCA)	LERO Response (ACTION)	Proposed Completion Date	FEMA Evaluation of LERO Response	Response Adequate (A) Inadequate (I)	Remedial Action Complete (C) Incomplete (I)
1	K.3.a, K.3.b	One (1) Bus Driver neglected to read his DRD at any time during the seventy-five (75) minutes he was working in the EPZ. All Bus Drivers should be trained to read their DRDs every fifteen (15) minutes as described in LERO Procedures.	ARCA					

TABLE 3.6
SHOREHAM NUCLEAR POWER STATION - SCHEDULE FOR CORRECTING DEFICIENCIES
OR AREAS REQUIRING CORRECTIVE ACTION
February 13, 1986 Exercise
PATCHOGUE STAGING AREA

No.	NUREG Element	RAC Recommendation for Corrective Action	Deficiency (D) or Corrective Action (ARCA)	LERO Response (ACTION)	Proposed Completion Date	FEMA Evaluation of LERO Response	Response Adequate (A) Inadequate (I)	Remedial Action Complete (C) Incomplete (I)
1	J.9, J.10.g	Bus drivers were not dispatched until two (2) hours after receipt of the Site Area Emergency ECL declaration. (1) An additional area should be established for the distribution of dosimetry to reduce Bus Driver processing time. (2) Additional trained staff should be provided to the Bus Dispatcher to assist him in deploying over three hundred (300) drivers and Transfer Point Coordinators who are deployed from the Patchogue Staging Area.	D					
2	N/R	OPIP 4.7.1 specifies that the only personnel entrance is to be the Main Entrance on the Conklin Avenue side of the building. The entrance actually	ARCA					

TABLE 3.6
SHOREHAM NUCLEAR POWER STATION - SCHEDULE FOR CORRECTING DEFICIENCIES
OR AREAS REQUIRING CORRECTIVE ACTION
February 13, 1986 Exercise
PATCHOGUE STAGING AREA (Cont'd)

No.	NUREG Element	RAC Recommendation for Corrective Action	Deficiency (D) or Corrective Action (ARCA)	LERO Response (ACTION)	Proposed Completion Date	FEMA Evaluation of LERO Response	Response Adequate (A) Inadequate (I)	Remedial Action Complete (C) Incomplete (I)
	Cont'd	used for this purpose was the one on the north side of the building (Main Street). Since the system actually used seems to be superior to the Plan due to reduced congestion, OPIP 4.7.1 should be revised to indicate that personnel are to enter the Patchogue Staging Area through the Main Street entrance to the building.						
3	N/R	LERO personnel entered the upper floor repeatedly to use telephones for emergency notification. This practice is explicitly prohibited by OPIP 4.7.1 (page 38, item #3). Either OPIP 4.7.1 should be revised to reflect the actual practice of using telephones on the second floor of the Patchogue Staging Area building, or more telephones should be provided on the first floor for LERO personnel to perform their emergency notifications.	ARCA					

TABLE 3.6

SHOREHAM NUCLEAR POWER STATION - SCHEDULE FOR CORRECTING DEFICIENCIES
OR AREAS REQUIRING CORRECTIVE ACTION

February 13, 1986 Exercise
PATCHOGUE STAGING AREA (Cont'd)

No.	NUREG Element	RAC Recommendation for Corrective Action	Deficiency (D) or Corrective Action (ARCA)	LERO Response (ACTION)	Proposed Completion Date	FEMA Evaluation of LERO Response	Response Adequate (A) Inadequate (I)	Remedial Action Complete (C) Incomplete (I)
4	N/R	The south door was not locked for security as specified in OPIP 4.7.1. All doors required to be locked by the Plan should be verified as actually locked by the Staging Area Coordinator or a designee.	ARCA					
5	N/R	Unauthorized entrance to the staging area could be achieved through the open fire escape on the second floor of the east side of the building. The fire escape on the second floor of the east side of the building should be designated as a guard post in the Plan and an individual should be assigned to staff this guard post.	ARCA					
6	J.9, J.10.g	A Bus Driver took two (2) hours and ten (10) minutes to proceed from the staging area to the transfer point. Another driver went to the wrong	D					

TABLE 3.6
SHOREHAM NUCLEAR POWER STATION - SCHEDULE FOR CORRECTING DEFICIENCIES
OR AREAS REQUIRING CORRECTIVE ACTION
February 13, 1986 Exercise
PATCHOGUE STAGING AREA (Cont'd)

No.	NUREG Element	RAC Recommendation for Corrective Action	Deficiency (D) or Corrective Action (ARCA)	LERO Response (ACTION)	Proposed Completion Date	FEMA Evaluation of LERO Response	Response Adequate (A) Inadequate (I)	Remedial Action Complete (C) Incomplete (I)
	Cont'd	transfer point, and his mistake was not recognized by the Transfer Point Co-ordinator. Yet another driver missed a segment of an assigned evacuation route. (1) Bus Drivers for general population evacuation routes should receive training to assure their ability to follow directions given to them so they can (a) follow routes from the staging area to bus garages and then to transfer points, and (b) follow an assigned bus route. (2) OPIP 3.6.4, Attachment 2 (Pages 13-14) and Attachment 1 (Pages 10-12) should be revised to require, respectively, the Bus Driver to present, and the Transfer Point						

TABLE 3.6

SHOREHAM NUCLEAR POWER STATION - SCHEDULE FOR CORRECTING DEFICIENCIES
OR AREAS REQUIRING CORRECTIVE ACTION

February 13, 1986 Exercise

PATCHOGUE STAGING AREA (Cont'd)

No.	NUREG Element	RAC Recommendation for Corrective Action	Deficiency (D) or Corrective Action (ARCA)	LERO Response (ACTION)	Proposed Completion Date	FEMA Evaluation of LERO Response	Response Adequate (A) Inadequate (I)	Remedial Action Complete (C) Incomplete (I)
	Cont'd	Coordinator to verify, each Bus Driver's copy of the Bus/Van Dispatching Form (OPIP 3.6.4, Attachment 7, Page 62) to assure that the Bus Driver has arrived at the proper transfer point.						
7	J.9, J.10.g	Traffic Guides do not have complete or correct information on the appropriate destination for evacuees. All Traffic Guides should be trained to advise motorists with questions to tune to the EBS station (WALK-FM) for the latest information on all matters related to the emergency, including the location of the Reception Center.	ARCA					
8	J.10.k	Appropriate personnel and equipment were not dispatched to clear the multiple vehicle accident simulated as an impediment to evacuation. The	ARCA					

TABLE 3.6

SHOREHAM NUCLEAR POWER STATION - SCHEDULE FOR CORRECTING DEFICIENCIES
OR AREAS REQUIRING CORRECTIVE ACTION

February 13, 1986 Exercise
PATCHOGUE STAGING AREA (Cont'd)

No.	NUREG Element	RAC Recommendation for Corrective Action	Deficiency (D) or Corrective Action (ARCA)	LERO Response (ACTION)	Proposed Completion Date	FEMA Evaluation of LERO Response	Response Adequate (A) Inadequate (I)	Remedial Action Complete (C) Incomplete (I)
	Cont'd	appropriate personnel at the Patchogue Staging Area should be trained to request more information from the LERO EOC when impediments to evacuation are indicated.						
9	J.10.d	Instructions for the driver of the non-institutionalized mobility-impaired bus to proceed to the Reception Center were not properly transmitted to the Bus Driver at the Brookhaven National Laboratory Transfer Point. Transfer Point Coordinators should be trained to follow instructions forthcoming from the staging area regarding directions that are to be given to special population evacuation route Bus Drivers, since they are trained to return to the transfer point for instructions as specified in the LERO Plan.	ARCA					

TABLE 3.6
SHOREHAM NUCLEAR POWER STATION - SCHEDULE FOR CORRECTING DEFICIENCIES
OR AREAS REQUIRING CORRECTIVE ACTION
February 13, 1986 Exercise
PATCHOGUE STAGING AREA (Cont'd)

No.	NUREG Element	RAC Recommendation for Corrective Action	Deficiency (D) or Corrective Action (ARCA)	LERO Response (ACTION)	Proposed Completion Date	FEMA Evaluation of LERO Response	Response Adequate (A) Inadequate (I)	Remedial Action Complete (C) Incomplete (I)
10	J.10.d	Residences of some non-institutionalized mobility-impaired persons were difficult to find. Drivers designated to pick up non-institutionalized mobility-impaired evacuees at their residences should be provided with more detailed maps and clearer descriptions of pickup points.	ARCA					
11	J.9, J.10.g	It took forty (40) minutes from receipt of a LERO request to dispatch a Bus Driver to simulate the evacuation of forty (40) school children. The Bus Dispatcher at the Patchogue Staging Area should be provided with trained staff support so that Bus Drivers can be dispatched in a more timely manner.	ARCA					

TABLE 3.6

SHOREHAM NUCLEAR POWER STATION - SCHEDULE FOR CORRECTING DEFICIENCIES OR AREAS REQUIRING CORRECTIVE ACTION

February 13, 1986 Exercise

PATCHOGUE STAGING AREA (Cont'd)

No.	NUREG Element	RAC Recommendation for Corrective Action	Deficiency (D) or Corrective Action (ARCA)	LERO Response (ACTION)	Proposed Completion Date	FEMA Evaluation of LERO Response	Response Adequate (A) Inadequate (I)	Remedial Action Complete (C) Incomplete (I)
12	K.3, K.4	The Patchogue Staging Area Bus Dispatcher made repeated statements with a bullhorn which emphasized only that general population evacuation route Bus Drivers were to call in if a reading of 3.5 was reached on their DRD; he did not give the units associated with the 3.5 number nor mention the use of the 0-200 mRem DRD which is supposed to trigger the first call-in at a reading at or above 200 mRem. The verbal instructions given to the general population evacuation route Bus Drivers by the Patchogue Bus Dispatcher over the bullhorn should be more precise to emphasize the proper use of both dosimeters and the careful reading of exposure control instructions for emergency workers.	ARCA					

TABLE 3.6

SHOREHAM NUCLEAR POWER STATION - SCHEDULE FOR CORRECTING DEFICIENCIES OR AREAS REQUIRING CORRECTIVE ACTION

February 13, 1986 Exercise

PATCHOGUE STAGING AREA (Cont'd)

No.	NUREG Element	RAC Recommendation for Corrective Action	Deficiency (D) or Corrective Action (ARCA)	LERO Response (ACTION)	Proposed Completion Date	FEMA Evaluation of LERO Response	Response Adequate (A) Inadequate (I)	Remedial Action Complete (C) Incomplete (I)
13	K.3.a, K.3.b	One general population evacuation route Bus Driver read DRDs only twice at the instructions [illegible] the Transfer Point Coordinator and another read his DRDs only when it was convenient. General population evacuation route Bus Drivers should be trained to read their dosimeters approximately every fifteen (15) minutes when they are inside the 10-mile EPZ, stopping the bus to do so if necessary.	ARCA					
14	K.3.a, K.3.b	Traffic Guides at two (2) TCPs did not know dose authorization limits. Train the Traffic Guides so that they know the dose authorization limits.	ARCA					
15	J.10.e, J.10.f	The Route Alerting Driver observed believed he would receive KI authorization in an EBS message. This is inconsistent with OPIP 3.3.4,	ARCA					

TABLE 3.6

SHOREHAM NUCLEAR POWER STATION - SCHEDULE FOR CORRECTING DEFICIENCIES OR AREAS REQUIRING CORRECTIVE ACTION

February 13, 1986 Exercise

PATCHOGUE STAGING AREA (Cont'd)

No.	NUREG Element	RAC Recommendation for Corrective Action	Deficiency (D) or Corrective Action (ARCA)	LERO Response (ACTION)	Proposed Completion Date	FEMA Evaluation of LERO Response	Response Adequate (A) Inadequate (I)	Remedial Action Complete (C) Incomplete (I)
	Cont'd	Attachment 1, item #9. Route Alert Drivers should be trained to know that KI authorization is to be issued to them by their supervisor as specified in the LERO Plan.						
16	K.4	Traffic Guides at two (2) TCPs did not fully understand that the chain of command for excess exposure authorization gives the Lead Traffic Guide authority to authorize excess exposure by radio, and some Traffic Guides indicated that they might question the authority of the Lead Traffic Guide to issue the authorization for excess exposure. All Traffic Guides should be trained to know that the Lead Traffic Guide can authorize exposure in excess of the general population PAGs by radio.	ARCA					

TABLE 3.7

SHOREHAM NUCLEAR POWER STATION - SCHEDULE FOR CORRECTING DEFICIENCIES OR AREAS REQUIRING CORRECTIVE ACTION

February 13, 1986 Exercise

RIVERHEAD STAGING AREA

No.	NUREG Element	RAC Recommendation for Corrective Action	Deficiency (D) or Corrective Action (ARCA)	LERO Response (ACTION)	Proposed Completion Date	FEMA Evaluation of LERO Response	Response Adequate (A) Inadequate (I)	Remedial Action Complete (C) Incomplete (I)
1	N/R	While the status board was updated periodically, the time was not always included when new information was posted. Personnel should be trained to record the time that updated information is posted on the status board.	ARCA					
2	J.10.j	The time between deployment of Traffic Guides from the staging area and their arrival at TCPs was excessive, taking between fifty (50) and seventy (70) minutes; approximately thirty (30) minutes was spent in line at the staging area receiving field kits and procedures. A more expeditious means of dispatching the Traffic Guides from the staging area to the field should be developed.	D					

TABLE 3.7
SHOREHAM NUCLEAR POWER STATION - SCHEDULE FOR CORRECTING DEFICIENCIES
OR AREAS REQUIRING CORRECTIVE ACTION
February 13, 1986 Exercise
RIVERHEAD STAGING AREA (Cont'd)

No.	NUREG Element	RAC Recommendation for Corrective Action	Deficiency (D) or Corrective Action (ARCA)	LERO Response (ACTION)	Proposed Completion Date	FEMA Evaluation of LERO Response	Response Adequate (A) Inadequate (I)	Remedial Action Complete (C) Incomplete (I)
3	H	The access road at the Brookhaven Substation Transfer Point was narrow and curving and could be impassable in inclement weather. Consideration should be given to relocating the Brookhaven Substation Transfer Point to a different location.	ARCA					
4	K.3.b	One (1) of the drivers for the general population evacuation bus routes dispatched from the Riverhead Staging Area did not read his DRDs every fifteen (15) minutes as stated in OPIP 3.9.1. Bus Drivers for the general population bus routes should be given additional training to read their low- and mid-range DRDs every fifteen (15) minutes.	ARCA					

TABLE 3.7

SHOREHAM NUCLEAR POWER STATION - SCHEDULE FOR CORRECTING DEFICIENCIES
OR AREAS REQUIRING CORRECTIVE ACTION

February 13, 1986 Exercise

RIVERHEAD STAGING AREA (Cont'd)

No.	NUREG Element	RAC Recommendation for Corrective Action	Deficiency (D) or Corrective Action (ARCA)	LERO Response (ACTION)	Proposed Completion Date	FEMA Evaluation of LERO Response	Response Adequate (A) Inadequate (I)	Remedial Action Complete (C) Incomplete (I)
5	K.3.b	Two (2) of the eight (8) Traffic Guides did not fully understand the difference between low- and mid-range DRDs. Traffic Guides should be given additional training in the use of low- and mid-range DRDs.	ARCA					
6	J.10.e	One (1) Bus Driver simulated the ingestion of his KI tablet prematurely, prior to being assigned an evacuation route. Bus Drivers should be given additional training in procedures for ingesting KI.	ARCA					

TABLE 3.8

SHOREHAM NUCLEAR POWER STATION - SCHEDULE FOR CORRECTING DEFICIENCIES
OR AREAS REQUIRING CORRECTIVE ACTION
February 13, 1986 Exercise
EMERGENCY WORKER DECONTAMINATION FACILITY

No.	NUREG Element	RAC Recommendation for Corrective Action	Deficiency (D) or Corrective Action (ARCA)	LERO Response (ACTION)	Proposed Completion Date	FEMA Evaluation of LERO Response	Response Adequate (A) Inadequate (I)	Remedial Action Complete (C) Incomplete (I)
		No recommendations.						

TABLE 3.9

SHOREHAM NUCLEAR POWER STATION - SCHEDULE FOR CORRECTING DEFICIENCIES
OR AREAS REQUIRING CORRECTIVE ACTION

February 13, 1986 Exercise
RECEPTION CENTER

No.	NUREG Element	RAC Recommendation for Corrective Action	Deficiency (D) or Corrective Action (ARCA)	LERO Response (ACTION)	Proposed Completion Date	FEMA Evaluation of LERO Response	Response Adequate (A) Inadequate (I)	Remedial Action Complete (C) Incomplete (I)
1	J.12	On several occasions, personnel radiological monitoring took approximately four (4) to five (5) minutes per individual, which is considerably longer then the ninety (90) seconds specified in the LERO Procedures. All monitoring personnel assigned to the Reception Center should be trained to monitor individuals within ninety (90) seconds as prescribed in the LERO Procedures.	ARCA					

TABLE 3.10

SHOREHAM NUCLEAR POWER STATION - SCHEDULE FOR CORRECTING DEFICIENCIES
OR AREAS REQUIRING CORRECTIVE ACTION
February 13, 1986 Exercise
CONGREGATE CARE CENTERS

No.	NUREG Element	RAC Recommendation for Corrective Action	Deficiency (D) or Corrective Action (ARCA)	LERO Response (ACTION)	Proposed Completion Date	FEMA Evaluation of LERO Response	Response Adequate (A) Inadequate (I)	Remedial Action Complete (C) Incomplete (I)
1	J.10.h	Neither of the two (2) congregate care facilities activated for the February 13, 1986 exercise are identified in the latest submission of the LERO Plan. The Plan should be revised to include all facilities intended for use as shelter facilities during a radiological emergency at SNPS. These facilities should be included in the list attached to LERO's letter of agreement with the American Red Cross.	ARCA					

TABLE 3.11
SHOREHAM NUCLEAR POWER STATION - SCHEDULE FOR CORRECTING DEFICIENCIES
OR AREAS REQUIRING CORRECTIVE ACTION
February 13, 1986 Exercise
MEDICAL DRILL

No.	NUREG Element	RAC Recommendation for Corrective Action	Deficiency (D) or Corrective Action (ARCA)	LERO Response (ACTION)	Proposed Completion Date	FEMA Evaluation of LERO Response	Response Adequate (A) Inadequate (I)	Remedial Action Complete (C) Incomplete (I)
		No recommendations.						

4 SUMMARY OF DEFICIENCIES AND AREAS REQUIRING CORRECTIVE ACTIONS

Section 3 of this report provides a schedule for the correction of deficiencies or areas requiring corrective action noted during the February 13, 1986 exercise. Tables 4.1 through 4.6 summarize recommendations to correct those deficiencies or areas requiring corrective action.

TABLE 4.1
SHOREHAM NUCLEAR POWER STATION -- SUMMARY OF DEFICIENCIES
AND AREAS REQUIRING CORRECTIVE ACTION
February 13, 1986
LERO EOC

No.	Recommended Corrective Action	NUREG-0654 FEMA-REP-1 Rev. 1, Reference	Recommended Corrective Action: Exercise 2/13/86	Recommended Corrective Action: Present Status
	DEFICIENCY			
1	Delays in responding to the two (2) evacuation impediment free-play messages inserted at the LERO EOC were caused by the failure to inform the Evacuation Coordinator in a timely manner. In addition there was a lack of internal communication in response to these impediment problems. Pertinent information was not included on the 1045 and 1106 LERO Message Forms from the Evacuation Route Coordinator to the Evacuation Support Communicator for Route Spotters/Road Crews regarding the simulated impediment involving the gravel truck and fuel truck problems. As a result of this lack of information, the impediment problems were not analyzed in a timely fashion and incomplete equipment was dispatched to handle the gravel truck impediment in the field. Internal communications procedures should be reviewed and revised as necessary to ensure that information on impediments is promptly passed both up the chain of command to the Evacuation Coordinator and downward and laterally to all lead coordinators under the Evacuation Coordinator and their staffs. Additional training is needed to ensure that the procedures, whether new or current, are properly implemented. All coordinators at the EOC, and those who initiate messages, must be trained to include all pertinent information on the LERO message forms and to analyze the equipment requirements to clear impediments.	J.10.k	X	I
	AREAS REQUIRING CORRECTIVE ACTION			
1	There was some confusion regarding the method for notifying the Federal Aviation Administration (FAA).	F.1.c		
	(1) The LERO procedures should be reviewed and revised as necessary to ensure that a point of contact with the FAA has been designated.		X	I
	(2) The LERO EOC staff should be trained in the appropriate procedures so that the FAA can be notified in a timely manner.		X	I

TABLE 4.1
SHOREHAM NUCLEAR POWER STATION — SUMMARY OF DEFICIENCIES
AND AREAS REQUIRING CORRECTIVE ACTION
February 13, 1986
LERO EOC (Cont'd)

No.	Recommended Corrective Action	NUREG-0654 FEMA-REP-1 Rev. 1, Reference	Recommended Corrective Action: Exercise 2/13/86	Recommended Corrective Action: Present Status
2	Since there are no procedures for notification of the Long Island Railroad (LIRR) in the Plan, the LIRR was not notified during the exercise.	E.1, F.1.a		
	(1) The LERO procedures should be revised to establish a point of contact and a means for notifying the LIRR.		X	I
	(2) The LERO EOC staff should be trained in the revised procedures so that the LIRR can be notified in a timely manner.		X	I
3	The dose assessment status board in the accident assessment area had to accommodate both DOE RAP and LILCO field monitoring data. There were not enough columns on the board to keep the two (2) sources of data separated. LERO should enlarge the dose assessment status board to accommodate a clear separation between the data reports from the DOE RAP and LILCO field monitoring teams.	I.10	X	I
4	The downwind distance of the sample was incorrectly reported as 7000 meters instead of 700 meters for one of the thyroid doses reported by a DOE RAP field monitoring team. This error was caused by a decimal point misplaced during the conversion of the distance units and meant that the initial calculation of thyroid dose based on this measurement was 9000 mRem/hr at 4.3 miles downwind instead of 9000 mRem/hr at about 0.5 miles downwind. About five (5) minutes elapsed before this error was found and corrected. All downwind distances from the field should be reported consistently in either miles or meters.	I.10, F.1.d	X	I
5	During the reporting of the initial DOE RAP thyroid doses, only one field measurement, the 1400 mRem/hr measurement made at about 1204 at two (2) miles from the plant, was available. This value was used at the LERO EOC to extrapolate values at other distances. These extrapolated data were reported as actual measurements at other distances rather than as projected data on the dose assessment status board. It took two and one half (2.5) hours to identify and correct this error. LERO reporting procedures should be reviewed to ensure proper coordination and proper reporting.	I.10		I

TABLE 4.1
SHOREHAM NUCLEAR POWER STATION — SUMMARY OF DEFICIENCIES
AND AREAS REQUIRING CORRECTIVE ACTION
February 13, 1986
LERO EOC (Cont'd)

No.	Recommended Corrective Action	NUREG-0654 FEMA-REP-1 Rev. 1, Reference	Recommended Corrective Action: Exercise 2/13/86	Recommended Corrective Action: Present Status
6	Although he later quoted the PAG correctly when asked to do so by a Federal evaluator, during a briefing held at the LERO EOC at about 1110, the Health Services Coordinator misstated the EPA PAG as being mandatory evacuation when the projected thyroid dose was five (5) Rem. The Health Services Coordinator should review the EPA PAG guidance in order to avoid any possible confusion that could result due to misinformation given during briefings.	I.10	X	I
7	Prior to the exercise, LILCO management made the decision that the siren system would not be activated as part of the February 13, 1986 exercise. Activation of the siren system should be actually tested in the future.	E.6	X	I
8	There was a delay of about forty-five (45) minutes between the LERO EOC's first attempt to have Route Spotter #1005 verify the fuel truck impediment and the dispatch of that spotter from the Port Jefferson Staging Area. This delayed timely verification of the impediment. Personnel need to be trained in the development of alternative approaches when delays are reasonably anticipated in the field verification of impediments to evacuation. Development of alternatives should include consultation between, at a minimum, the Evacuation Coordinator and the Evacuation Route Coordinator.	E.2	X	I
9	Only the Shoreham-Wading River School District participated in the February 13, 1986 exercise. Prior to the exercise, LILCO management made the decision that other school districts were not to be included in the exercise. In the future all schools must be included in all Federally evaluated exercises and drills.	N/R	X	I
10	Dosimetry and training have not been provided to the Bus Drivers used for school evacuation.	K.3, K.5.a		
	(1) Bus Drivers used for school evacuation should be trained in the use of dosimeters.		X	I
	(2) Adequate supplies of dosimetry should be provided for Bus Drivers used for school evacuation.		X	I

TABLE 4.1
SHOREHAM NUCLEAR POWER STATION — SUMMARY OF DEFICIENCIES
AND AREAS REQUIRING CORRECTIVE ACTION
February 13, 1986
LERO EOC (Cont'd)

No.	Recommended Corrective Action	NUREG-0654 FEMA-REP-1 Rev. 1, Reference	Recommended Corrective Action: Exercise 2/13/86	Recommended Corrective Action: Present Status
11	Some of the Ambulette Drivers were not aware of when to take their KI. Training on KI procedures should be given to the Ambulette Drivers.	J.10.e	X	I
12	Bus Drivers used for school evacuation have not been trained in KI policy and the use of KI. Sufficient supplies of KI are not available for school evacuation Bus Drivers.	J.10.e		
	(1) Bus Drivers used for school evacuation should be trained in KI policy and the use of KI.		X	I
	(2) Adequate supplies of KI should be provided for Bus Drivers used for school evacuation.		X	I
13	Ambulette Drivers were not all trained regarding who can authorize doses in excess of and what to do in the event of exposure above the general public PAGs. Ambulette Drivers should be trained on excessive exposure authorization and applicable procedures.	K.4	X	I
14	Bus Drivers used for school evacuation have not been trained regarding who can authorize exposure in excess of the general public PAGs. Bus Drivers used for school evacuation should receive training regarding who can authorize exposure in excess of the general public PAGs.	K.4	X	I

TABLE 4.2
SHOREHAM NUCLEAR POWER STATION — SUMMARY OF DEFICIENCIES
AND AREAS REQUIRING CORRECTIVE ACTION
February 13, 1986
EMERGENCY OPERATIONS FACILITY

No.	Recommended Corrective Action	NUREG-0654 FEMA-REP-1 Rev. 1, Reference	Recommended Corrective Action	
			Exercise 2/13/86	Present Status
1	No recommendations.			

TABLE 4.3
SHOREHAM NUCLEAR POWER STATION -- SUMMARY OF DEFICIENCIES
AND AREAS REQUIRING CORRECTIVE ACTION
February 13, 1986
BROOKHAVEN AREA OFFICE

No.	Recommended Corrective Action	NUREG-0654 FEMA-REP-1 Rev. 1, Reference	Recommended Corrective Action: Exercise 2/13/86	Recommended Corrective Action: Present Status
1	No recommendations.			

TABLE 4.4
SHOREHAM NUCLEAR POWER STATION -- SUMMARY OF DEFICIENCIES
AND AREAS REQUIRING CORRECTIVE ACTION
February 13, 1986
EMERGENCY NEWS CENTER

No.	Recommended Corrective Action	NUREG-0654 FEMA-REP-1 Rev. 1, Reference	Recommended Corrective Action: Exercise 2/13/86	Recommended Corrective Action: Present Status
	DEFICIENCY			
1	Insufficient copying capabilities at the ENC resulted in delays in the distribution of information. These delays affected the following two (2) areas: • Hard copies of EBS messages were not provided to the media in a timely manner. • Rumor control personnel were not able to answer questions received from the public because they were not given accurate up-to-date status reports. LERO should make provisions for reliable and rapid equipment to reproduce, in hard copy, all appropriate messages for distribution to the ENC staff.	G.4.b, G.4.c	X	I
	AREAS REQUIRING CORRECTIVE ACTION			
1	Maps and displays in the media briefing room were insufficient. The following displays should be posted in an area easily visible to reporters: • An EPZ map which tracks protective actions and plume pathway. • A status board which provides ECLs and their times of declaration.	J.10.b	X	I
2	Some hard copies of EBS messages that were provided to the press contained extraneous information (clearly marked for deletion) that should have been omitted to avoid possible confusion. Hard copies of EBS messages posted in the ENC for use by the press should contain only that information which was broadcast to the public.	N/R	X	I

TABLE 4.5
SHOREHAM NUCLEAR POWER STATION -- SUMMARY OF DEFICIENCIES
AND AREAS REQUIRING CORRECTIVE ACTION
February 13, 1986
PORT JEFFERSON STAGING AREA

No.	Recommended Corrective Action	NUREG-0654 FEMA-REP-1 Rev. 1, Reference	Recommended Corrective Action Exercise 2/13/86	Present Status
	AREAS REQUIRING CORRECTIVE ACTION			
1	One (1) Bus Driver neglected to read his DRD at any time during the seventy-five (75) minutes he was in the EPZ. All Bus Drivers should be trained to read their DRDs every fifteen (15) minutes as described in LERO Procedures.	K.3.a, K.3.b	X	I

TABLE 4.6
SHOREHAM NUCLEAR POWER STATION — SUMMARY OF DEFICIENCIES
AND AREAS REQUIRING CORRECTIVE ACTION
February 13, 1986
PATCHOGUE STAGING AREA

No.	Recommended Corrective Action	NUREG-0654 FEMA-REP-1 Rev. 1, Reference	Recommended Corrective Action: Exercise 2/13/86	Recommended Corrective Action: Present Status
	DEFICIENCIES			
1	**Bus drivers were not dispatched until two (2) hours after receipt of the Site Area Emergency ECL declaration.**	J.9, J.10.g		
	(1) An additional area should be established for the distribution of dosimetry to reduce Bus Driver processing time.		X	I
	(2) Additional trained staff should be provided to the Bus Dispatcher to assist him in deploying over three hundred (300) drivers and Transfer Point Coordinators who are deployed from the Patchogue Staging Area.		X	I
2	A bus driver took two (2) hours and ten (10) minutes to proceed from the staging area to the transfer point. Another driver went to the wrong transfer point, and his mistake was not recognized by the Transfer Point Coordinator. Yet another driver missed a segment of an assigned evacuation route (NUREG-0654, II, J.9, J.10.g).	J.9, J.10.g		
	(1) Bus Drivers for general population evacuation routes should receive training to assure their ability to follow directions given to them so they can (a) follow routes from the staging area to bus garages and then to transfer points, and (b) follow an assigned bus route.		X	I
	(2) OPIP 3.6.4, Attachment 2 (Pages 13-14) and Attachment 1 (Pages 10-12) should be revised to require, respectively, the Bus Driver to present, and the Transfer Point Coordinator to verify, each Bus Driver's copy of the Bus/Van Dispatching Form (OPIP 3.6.4, Attachment 7, Page 62) to assure that the Bus Driver has arrived at the proper Transfer Point.		X	I
	AREAS REQUIRING CORRECTIVE ACTION			
1	OPIP 4.7.1 specifies that the only personnel entrance is to be the Main Entrance on the Conklin Avenue side of the building. The entrance actually used for this purpose was the one on the north side of the building (Main Street). Since the system actually used seems to be superior to the Plan due to reduced congestion, OPIP 4.7.1 should be revised to indicate that personnel are to enter the Patchogue Staging Area through the Main Street entrance to the building.	N/R	X	I

TABLE 4.6
SHOREHAM NUCLEAR POWER STATION — SUMMARY OF DEFICIENCIES
AND AREAS REQUIRING CORRECTIVE ACTION
February 13, 1986
PATCHOGUE STAGING AREA (Cont'd)

No.	Recommended Corrective Action	NUREG-0654 FEMA-REP-1 Rev. 1, Reference	Recommended Corrective Action: Exercise 2/13/86	Recommended Corrective Action: Present Status
2	LERO personnel entered the upper floor repeatedly to use telephones for emergency notification. This practice is explicitly prohibited by OPIP 4.7.1 (page 38, item #3). Either OPIP 4.7.1 should be revised to reflect the actual practice of using telephones on the second floor of the Patchogue Staging Area building, or more telephones should be provided on the first floor for LERO personnel to perform their emergency notifications.	N/R	X	I
3	The south door was not locked for security as specified in OPIP 4.7.1. All doors required to be locked by the Plan should be verified as actually locked by the Staging Area Coordinator or a designee.	N/R	X	I
4	Unauthorized entrance to the staging area could be achieved through the open fire escape on the second floor of the east side of the building. The fire escape on the second floor of the east side of the building should be designated as a guard post in the Plan and an individual should be assigned to staff this guard post.	N/R	X	I
5	Traffic Guides do not have complete or correct information on the appropriate destination for evacuees. All Traffic Guides should be trained to advise motorists with questions to tune to the EBS station (WALK) for the latest information on all matters related to the emergency, including the location of the Reception Center.	J.9, J.10.g	X	I
6	Appropriate personnel and equipment were not dispatched to clear the multiple vehicle accident simulated as an impediment to evacuation. The appropriate personnel at the Patchogue Staging Area should be trained to request more information from the LERO EOC when impediments to evacuation are indicated.	J.10.k	X	I
7	Instructions for the driver of the non-institutionalized mobility-impaired bus to proceed to the Reception Center were not properly transmitted to the Bus Driver at the Brookhaven National Laboratory Transfer Point. Transfer Point Coordinators should be trained to follow instructions forthcoming from the staging area regarding directions that are to be given to special population evacuation route Bus Drivers, since they are trained to return to the transfer point for instructions as specified in the LERO Plan.	J.10.d	X	I

TABLE 4.6
SHOREHAM NUCLEAR POWER STATION -- SUMMARY OF DEFICIENCIES
AND AREAS REQUIRING CORRECTIVE ACTION
February 13, 1986
PATCHOGUE STAGING AREA (Cont'd)

No.	Recommended Corrective Action	NUREG-0654 FEMA-REP-1 Rev. 1, Reference	Recommended Corrective Action: Exercise 2/13/86	Recommended Corrective Action: Present Status
8	Residences of some non-institutionalized mobility-impaired persons were difficult to find. Drivers designated to pick up non-institutionalized mobility-impaired evacuees at their residences should be provided with more detailed maps and clearer descriptions of pickup points.	J.10.d	X	I
9	It took forty (40) minutes from receipt of a LERO request to dispatch a Bus Driver to simulate the evacuation of forty (40) school children. The Bus Dispatcher at the Patchogue Staging Area should be provided with trained staff support so that Bus Drivers can be dispatched in a more timely manner.	J.9, J.10.g	X	I
10	The Patchogue Staging Area Bus Dispatcher made repeated statements with a bullhorn which emphasized only that general population evacuation route Bus Drivers were to call in if a reading of 3.5 was reached on their DRD; he did not give the units associated with the 3.5 number nor mention the use of the 0-200 mRem DRD which is supposed to trigger the first call-in at a reading at or above 200 mRem. The verbal instructions given to the general population evacuation route Bus Drivers by the Patchogue Bus Dispatcher over the bullhorn should be more precise to emphasize the proper use of both dosimeters and the careful reading of exposure control instructions for emergency workers.	K.3, K.4	X	I
11	One general population evacuation route Bus Driver read DRDs only twice at the instructions of the Transfer Point Coordinator and another read his DRDs only when it was convenient. General population evacuation route Bus Drivers should be trained to read their dosimeters approximately every fifteen (15) minutes when they are inside the 10-mile EPZ, stopping the bus to do so if necessary.	K.3.a, K.3.b	X	I
12	Traffic Guides at two (2) TCPs did not know dose authorization limits. Train the Traffic Guides so that they know the dose authorization limits.	K.3.a, K.3.b	X	I
13	The Route Alerting Driver observed believed he would receive KI authorization in an EBS message. This is inconsistent with OPIP 3.3.4, Attachment 1, item #9. Route Alert Drivers should be trained to know that KI authorization is to be issued to them by their supervisor as specified in the LERO Plan.	J.10.e, J.10.f	X	I

TABLE 4.6
SHOREHAM NUCLEAR POWER STATION -- SUMMARY OF DEFICIENCIES
AND AREAS REQUIRING CORRECTIVE ACTION
February 13, 1986
PATCHOGUE STAGING AREA (Cont'd)

No.	Recommended Corrective Action	NUREG-0654 FEMA-REP-1 Rev. 1, Reference	Recommended Corrective Action: Exercise 2/13/86	Recommended Corrective Action: Present Status
14	Traffic Guides at two (2) TCPs did not fully understand that the chain of command for excess exposure authorization gives the Lead Traffic Guide authority to authorize excess exposure by radio, and some Traffic Guides indicated that they might question the authority of the Lead Traffic Guide to issue the authorization for excess exposure. All Traffic Guides should be trained to know that the Lead Traffic Guide can authorize exposure in excess of the general population PAGs by radio.	K.4	X	I

TABLE 4.7
SHOREHAM NUCLEAR POWER STATION -- SUMMARY OF DEFICIENCIES
AND AREAS REQUIRING CORRECTIVE ACTION
February 13, 1986
RIVERHEAD STAGING AREA

No.	Recommended Corrective Action	NUREG-0654 FEMA-REP-1 Rev. 1, Reference	Recommended Corrective Action: Exercise 2/13/86	Recommended Corrective Action: Present Status
	DEFICIENCY			
1	The time between deployment of Traffic Guides from the staging area and their arrival at TCPs was excessive, taking between fifty (50) and seventy (70) minutes; approximately thirty (30) minutes was spent in line at the staging area receiving field kits and procedures. A more expeditious means of dispatching the Traffic Guides from the staging area to the field should be developed.	J.10.j	X	I
	AREAS REQUIRING CORRECTIVE ACTION			
1	While the status board was updated periodically, the time was not always included when new information was posted. Personnel should be trained to record the time that updated information is posted on the status board.	N/R	X	I
2	The access road at the Brookhaven Substation Transfer Point was narrow and curving and could be impassable in inclement weather. Consideration should be given to relocating the Brookhaven Substation Transfer Point to a different location.	H	X	I
3	One (1) of the drivers for the general population evacuation bus routes dispatched from the Riverhead Staging Area did not read his DRDs every fifteen (15) minutes as stated in OPIP 3.9.1. Bus Drivers for the general population bus routes should be given additional training to read their low- and mid-range DRDs every fifteen (15) minutes.	K.3.b	X	I
4	Two (2) of the eight (8) Traffic Guides did not fully understand the difference between low- and mid-range DRDs. Traffic Guides should be given additional training in the use of low- and mid-range DRDs.	K.3.b	X	I
5	One (1) Bus Driver simulated the ingestion of his KI tablet prematurely, prior to being assigned an evacuation route. Bus Drivers should be given additional training in procedures for ingesting KI.	J.10.e	X	I

TABLE 4.8
SHOREHAM NUCLEAR POWER STATION — SUMMARY OF DEFICIENCIES
AND AREAS REQUIRING CORRECTIVE ACTION
February 13, 1986
EMERGENCY WORKER DECONTAMINATION FACILITY

No.	Recommended Corrective Action	NUREG-0654 FEMA-REP-1 Rev. 1, Reference	Recommended Corrective Action Exercise 2/13/86	Present Status
1	No recommendations.			

TABLE 4.9
SHOREHAM NUCLEAR POWER STATION — SUMMARY OF DEFICIENCIES
AND AREAS REQUIRING CORRECTIVE ACTION
February 13, 1986
RECEPTION CENTER

No.	Recommended Corrective Action	NUREG-0654 FEMA-REP-1 Rev. 1, Reference	Recommended Corrective Action: Exercise 2/13/86	Recommended Corrective Action: Present Status
	AREA REQUIRING CORRECTIVE ACTION			
1	On several occasions, personnel radiological monitoring took approximately four (4) to five (5) minutes per individual, which is considerably longer then the ninety (90) seconds specified in the LERO Procedures. All monitoring personnel assigned to the Reception Center should be trained to monitor individuals within ninety (90) seconds as prescribed in the LERO Procedures.	J.12	X	I

TABLE 4.10
SHOREHAM NUCLEAR POWER STATION — SUMMARY OF DEFICIENCIES
AND AREAS REQUIRING CORRECTIVE ACTION
February 13, 1986
CONGREGATE CARE CENTERS

No.	Recommended Corrective Action	NUREG-0654 FEMA-REP-1 Rev. 1, Reference	Recommended Corrective Action: Exercise 2/13/86	Recommended Corrective Action: Present Status
	AREA REQUIRING CORRECTIVE ACTION	J.10.h	X	I
1	Neither of the two (2) congregate care facilities activated for the February 13, 1986 exercise are identified in the latest submission of the LERO Plan. The Plan should be revised to include all facilities intended for use as shelter facilities during a radiological emergency at SNPS. These facilities should be included in the list attached to LERO's letter of agreement with the American Red Cross.			

TABLE 4.11
SHOREHAM NUCLEAR POWER STATION -- SUMMARY OF DEFICIENCIES
AND AREAS REQUIRING CORRECTIVE ACTION
February 13, 1986
MEDICAL DRILL

No.	Recommended Corrective Action	NUREG-0654 FEMA-REP-1 Rev. 1, Reference	Recommended Corrective Action Exercise 2/13/86	Present Status
1	No recommendations.			