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April 15, 1983

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In the Matter of
CONSOLIDATED EDISON COMPANY OF NEW YORK
(Indian Point, Unit 2)
POWER AUTHORITY OF THE STATE OF NEW YORK
(Indian Point, Unit 3)
Docket Nos. 50-247-SP and 50-286-SP

Dear Administrative Judges:

The Federal Emergency Management Agency hereby submits its Post Exercise Assessment of the March 9, 1983 Exercise of the Radiological Emergency Response Plans of New York State and Westchester, Rockland, Orange, and Putnam Counties for the Indian Point Nuclear Power Station.

Respectfully submitted,

Stewart M. Glass

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Enclosure: Assessment
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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)

CONSOLIDATED EDISON COMPANY)
OF NEW YORK (Indian Point, Unit 2))

POWER AUTHORITY OF THE STATE)
OF NEW YORK (Indian Point, Unit 3))

Docket Nos. 50-247-SP
'83 APR 21 50-286-SP

CERTIFICATE OF SERVICE

I hereby certify that copies of "FEMA's POST EXERCISE ASSESSMENT of the Exercise of March 9, 1983," in the above-captioned proceeding have been served on the following by deposit in the United States mail, first class or, as indicated by an asterisk, delivered by hand, this 15th day of April, 1983:

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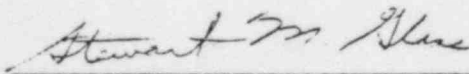
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POST EXERCISE ASSESSMENT



March 9, 1983 Exercise of the Radiological
Emergency Response Plans of New York State and
Westchester, Rockland, Orange and Putnam Counties
for the
INDIAN POINT NUCLEAR POWER STATION

April 14, 1983

Federal Emergency Management Agency
Region II

FRANK P. PETRONE
Regional Director

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DS03

POST EXERCISE
ASSESSMENT

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Federal Emergency Management Agency

Region II

Frank P. Petrone
Regional Director

26 Federal Plaza
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Federal Emergency Management Agency

Region II

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New York, New York 10278

April 14, 1983

Mr. Dave McLoughlin
Deputy Associate Director
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Dear Mr. McLoughlin:

This letter transmits the Post Exercise Assessment for the March 9, 1983 full scale exercise at the Indian Point nuclear generating station. FEMA had more than 50 observers and evaluators at the exercise.

Overall, I concluded that significant progress has been made since the first exercise on March 3, 198~~x~~.² It is my judgment that significant progress in offsite emergency planning has been made at the State level and in Orange and Putnam Counties. This is not to say that some minor deficiencies do not remain. There are still minor deficiencies. But, we have every reason to believe at this time, that these will be corrected in an expedited manner.

In early March, the Rockland County Legislature voted not to participate in the exercise. The County's role was that of permitting several of their officials to observe the exercise and making its Emergency Operating Center available to State personnel.

The original compensating measures by the State were to have State personnel supplement County resources not to take their place. New York decided to attempt to carry out the County's functions for the March 9th exercise. They did a commendable job under the circumstances. However, the State was not able to satisfactorily compensate for the lack of the County's participation and resources. There is not a completed plan for Rockland County. And, since no County capability was demonstrated on March 9th, the significant deficiency previously identified still remains.

In Westchester County, two significant developments have taken place regarding the transportation plan. Mr. O'Rourke, the County Executive, has developed a new option regarding the school children. If the situation were not a fast moving accident, he would order school children to be sent home at the alert stage. This was simulated at the March 9th exercise. In essence, this does away with the two-wave evacuation in most instances as well as it unites families before any general evacuation. The County Executive has also formed a Task Force on Transportation. The County has received a proposal to develop a comprehensive transportation program for Westchester County by the Transportation Safety Planning Group (TSPG). TSPG is a not-for-profit corporation made up of several of the bus company owners in the area. Westchester County is considering the proposal. It is estimated that if the proposal is funded in the near future, it will be completed in 1983. At this date, the significant deficiency earlier identified still remains.

A concern of FEMA's is the fact that the public education brochures have not been printed in Rockland and Westchester Counties. The circumstances in both Counties are somewhat parallel. In Rockland County, an accurate and effective brochure cannot be developed until a plan is completed to such a stage that the County Government will utilize it.

The Westchester County plan revisions, which were to be submitted to FEMA on January 15, 1983, were not actually received until March 24⁰¹ 1983. In order not to distribute misinformation to the public, the decision was made, with FEMA's concurrence, not to print the brochures until after the plan revisions were completed. It is our understanding that there are now ongoing discussions between Westchester officials and the utilities regarding the final format of the brochures.

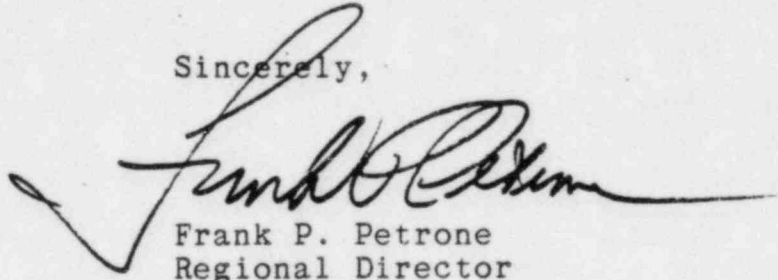
FEMA has been informed that the posters have been completed and distributed. A problem that has been noted is that no level of government has the authority to require the private sector to actually display the posters on private property. It has been suggested that the State give consideration to enacting legislation requiring prominent display of the posters.

While the situation regarding the brochures is of concern to me, we have reason to believe that they will be printed and distributed by June 1, 1983. However, if the brochures are not distributed to the general public in Westchester County by that time, I believe a significant deficiency would then exist.

As a final statement on offsite emergency preparedness as of this date around the Indian Point site, the following can be said. With respect to the State of New York, Orange and Putnam Counties, a statement of adequacy can be made where the few minor deficiencies noted in the exercise are corrected to FEMA's satisfaction. As for Rockland County, a judgement on adequacy will not be able to be made until the County plan is developed and exercised with full County participation. For Westchester County, a judgement of adequacy will not be able to be made until the transportation plan is revised based upon completion of sufficient action items in the TSPG proposal. As of this date, FEMA cannot assure that public health and safety can be protected in the 10 mile EPZ around Indian Point.

Again, I must reiterate in the interest of fairness a point that FEMA has made several times to the Nuclear Regulatory Commission. That is, the CFR 350 process of FEMA does not lend itself to tight deadlines. Substantial progress is being made almost on a daily basis. But, certain emergency planning activities require time, especially when there are limited resources. The general planning effort in Rockland County and the transportation planning effort in Westchester County are two such examples.

Sincerely,

A handwritten signature in black ink, appearing to read "Frank P. Petrone", with a long, sweeping horizontal line extending to the right.

Frank P. Petrone
Regional Director

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ABBREVIATIONS

ANL	Argonne National Laboratory
BNL	Brookhaven National Laboratory
CD	civil defense
CR	control room
CWP	County Warning Point
DOE	U.S. Department of Energy
DOH	Department of Health
DOT	U.S. Department of Transportation
DPC	Disaster Preparedness Commission
EBS	Emergency Broadcast System
EOC	emergency operations center
EOF	emergency operations facility
EPA	U.S. Environmental Protection Agency
EPZ	emergency planning zone
ERPA	emergency response planning area
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
IP 2	Indian Point Nuclear Power Station, Unit 2
KI	potassium iodide
LOCA	loss-of-coolant accident
NAWAS	National Warning System
NRC	U.S. Nuclear Regulatory Commission
ODP	Office of Disaster Preparedness
OSC	operations support center
PAG	Protective Action Guide
PASNY	Power Authority of the State of New York
PIO	public information officer
PMC	personnel monitoring center
RAC	Regional Assistance Committee
RACES	Radio Amateur Civil Emergency Service
RECS	Radiological Emergency Communications System
REPP	Radiological Emergency Preparedness Plan
RERP	Radiological Emergency Response Plan
TCP	traffic control point
TLD	thermoluminescent dosimeter
TSC	technical support center
SOP	standard operating procedure
USCG	U.S. Coast Guard
USDA	U.S. Department of Agriculture

SUMMARY

An exercise of the plans and level of preparedness for off-site emergency response organizations and personnel was conducted for the Indian Point Nuclear Power Station Unit No. 2 (IP 2) on March 9, 1983. Following the exercise, an evaluation was made by a 48-member federal observer team and a preliminary briefing for exercise participants and the general public was held on March 10, 1983, at the Indian Point Joint Media Center in Verplanck, New York. Subsequently, detailed evaluations were prepared and are included in this document.

STATE OF NEW YORK

The State of New York was responsible for coordinating response activities in Westchester, Rockland, Orange, and Putnam counties and providing support as needed. The state, operating from the state emergency operations center (EOC) in Albany and the EOC in the Southern District Office of Disaster Preparedness in Poughkeepsie, demonstrated a good capability to activate and staff the EOCs, manage emergency operations and public relations, carry out accident assessment functions, recommend actions to protect the public, and coordinate reentry and recovery operations. However, there was approximately a 30-60 minute delay between the declaration of Alert classification by the licensee and notification of the state, Westchester, Orange and Putnam Counties. The delay in notification of the emergency status is especially important because the dismissal of students from school may be initiated at the Alert classification.

The emergency operations facilities and resources at the EOCs in Albany and Poughkeepsie were good. External communications systems were improved by the addition of a new "executive hot line" with the county EOCs and a backup radio system. Maps and displays were also improved since the 1982 exercise.

New York State's role in implementing compensating measures for Rockland County is evaluated in the Rockland County sections of this report.

WESTCHESTER COUNTY, NEW YORK

The emergency facilities and equipment in the Westchester County EOC were good. Since the 1982 exercise the county has secured a new electronic display board for the EOC that shows, by means of light indicators, both evacuated emergency response planning areas (ERPAs) and host areas. The county has also established a new communications system providing individual telephone lines for each agency representative. A new dedicated communications line between the EOC and the utility's Emergency Operations Facility (EOF) has also been installed since the 1982 exercise and has improved communications between the facilities. All of these new communications systems worked very well.

The Westchester County Commissioner of Public Safety/Sheriff (Commissioner/Sheriff) is responsible for notifying EOC personnel; the

Westchester County Department of Public Safety communications center is staffed 24 hours a day.

The management of emergency operations in Westchester County was good. Management of the county EOC was excellent. The County Executive was clearly in charge of these operations. The public alerting and notification system worked well. However, the new public education brochure, which is currently in review, had not been distributed and there was little evidence that the emergency education program carried out during recent months had been effective. The public interviewed on the day of the exercise generally did not know that they should turn on their radios to the Emergency Broadcast System (EBS) station after hearing the sirens.

Westchester County demonstrated good accident assessment capability. The field monitoring and personal dosimetry equipment used in this exercise were improved over previously observed equipment. All of the monitoring instruments had recently been calibrated. The coordination of accident assessment activities between the EOF and the Westchester County EOC has been substantially improved. The utility's field monitoring data were received at the EOC in a timely manner.

It was evident that the transportation personnel have not been adequately trained regarding evacuation procedures, the routes they should follow to pick up evacuees, and the location of reception centers. Therefore, the capability to implement an evacuation of the general population in Westchester County remains questionable. All buses to be used for evacuation services are scheduled to be equipped with radio communications equipment by the end of April 1983. Transportation companies involved in the exercise apparently did not have an adequate supply of dosimetry equipment and potassium iodide (KI), and drivers were not consistently trained in radiological exposure control measures.

The scenario used for the March 9 exercise provided a good test of Westchester County's ability to mobilize local emergency response personnel and work with the state and surrounding New York counties. The cooperation and participation of county officials, professional response organizations, and volunteers contributed to the success of the exercise as a training experience for most of the participants.

ROCKLAND COUNTY, NEW YORK

The radiological emergency response demonstrated in Rockland County at the March 9, 1983 exercise was inadequate for two reasons:

- Rockland County has not prepared a radiological emergency preparedness plan, and did not participate in the exercise as required by the Federal Emergency Management Agency's (FEMA's) proposed regulations;
- The demonstration by the State of New York of its compensating measures did not conform to its own plan, which explicitly requires the state, in directing radiological emergency response activities, to involve

county as well as state resources and personnel. In the March 9, 1983, exercise, state employees substituted for Rockland County employees in all levels of emergency response in Rockland County.

Recognizing that the county had not completed its ongoing planning process, the state adopted a draft of the Rockland County Radiological Emergency Preparedness Plan prior to the exercise to implement compensating measures. These compensating measures were designed to supplement county resources with state resources, not to replace county resources.

When Rockland County recently decided not to participate in the exercise, with the exception of emergency services personnel before normal business hours, the state made a commendable effort to mount an emergency response that relied entirely on state, rather than county resources. In effect, the state attempted to replace, rather than supplement, the county resources.

The state utilized a draft of the Rockland County Radiological Emergency Preparedness plan. However, the plan is not complete and has not been adopted by the county legislature. Since FEMA's regulations require each county to have a plan and exercise it, Rockland County's level of preparedness must be evaluated as inadequate at this time.

The state's efforts to develop and implement compensating measures with a relatively short lead time are to be applauded. But these compensating measures can only work if county resources and personnel are available. At the exercise, it was observed that the state substituted its own employees for county emergency response personnel. As the compensating measures are described, one would have expected to observe state employees controlling the response with the assistance of county resources. What was actually observed was that state employees assumed the responsibility for implementation of the emergency response and for all management and control functions, as well as for all support emergency response functions that are the responsibility of county employees. Therefore, it must be concluded that New York State's implementation of its compensating measures during the exercise was inadequate.

In addition, federal observers found both strengths and weaknesses in the state's implementation of its own responsibilities prescribed in the compensating measures in Rockland County. After some initial confusion early in the exercise, the state demonstrated a strong response in the Rockland County EOC. State personnel generally made timely, accurate decisions based on information that was received and verified on a well-operated communications system. The initial confusion was due to the delayed arrival of key state personnel who had to travel long distances. It took as much as an hour and a half for some of these people to arrive from as far away as Poughkeepsie, Monticello, and Albany.

The exercise revealed several deficiencies in planning and preparedness. Revised public education brochures have not been mailed to Rockland County residents during the last year due to continuing planning activities which, when completed, will be incorporated into a forthcoming brochure. Based on spot-check interviews with people on the day of the

exercise, the public is generally unaware of actions to be taken in a radiological emergency at IP 2. Evacuation plans and procedures in New York State's compensating measures for Rockland County lack sufficient detail. Bus drivers and staff at the reception center in Rockland County need additional personal dosimetry equipment and training in its use.

ORANGE COUNTY, NEW YORK

Orange County emergency response personnel operated competently and effectively throughout the exercise. The EOC staff functioned well, responding to all events. However, news releases issued from the joint media center by the Orange County public information officer's (PIO) were not timely.

Field teams performed well in radiological monitoring and accident assessment. Actions to protect the public were acceptable. Evacuation was successfully demonstrated, and the congregate care center adequately performed its functions. The reception center was well managed but did not have provisions for the handicapped, a deficiency which was also noted in the 1982 exercise.

In general, health, medical, and exposure control measures were acceptable. Most emergency personnel in the 10-mile plume exposure pathway emergency planning zone (EPZ) had dosimetry and KI. The personnel monitoring center was an excellent facility and was staffed with well-trained personnel. Emergency personnel showed improvement over the 1982 exercise in monitoring evacuees, workers, and vehicles. Continued additional training will help speed up their procedures. Recovery and reentry operations were successfully simulated.

PUTNAM COUNTY, NEW YORK

EOC facilities and resources, including internal communications, displays, and security, adequately supported emergency operations at the EOC. All personnel were promptly alerted and mobilized, and 24-hour continuous emergency response capability was demonstrated through shift changes. The EOC was effectively managed throughout the entire exercise, and activities and decision making were effectively coordinated between the emergency response director and all staff. All public information activities in the EOC were fully coordinated with the joint media center. Public alerting and notification were accomplished with sirens and tone alert radios. Brochures recently mailed to all residents, and posters displayed in a limited number of locations, have provided the public with additional information concerning emergency response activities.

Accident assessment in the EOC and the activities of the field monitoring teams were acceptable; however, additional review of established procedures and equipment is needed. Training in radiological exposure control varied considerably in Putnam County. Although field monitoring teams were knowledgeable about dosimeter reporting requirements and threshold limits, other emergency workers were not properly trained. Reception centers and congregate care centers activated for the exercise were well equipped.

Personnel were knowledgeable about procedures for handling large numbers of evacuees, and radiological monitoring capabilities at these and the personnel monitoring centers were generally good.

DUTCHESS COUNTY, NEW YORK

Dutchess County is a host area for evacuees from Putnam and Westchester counties. The Dutchess County EOC was activated to coordinate the activities at the John Jay High School reception center/congregate care center in Hopewell Junction. The EOC had good facilities and resources to support these emergency operations. Displays were good and clearly visible to EOC staff. The communication system functioned effectively throughout the exercise. The EOC was fully staffed by dedicated and informed personnel, and it was well managed throughout the exercise.

BERGEN COUNTY, NEW JERSEY

Bergen County, New Jersey, is a host area for evacuees from Rockland County requiring congregate care. The Bergen County EOC was activated on a limited basis, and the Red Cross established a congregate care center at the Arcola Methodist Church. At the EOC, activation procedures and staffing were good. Facilities were generally adequate, but additional maps should be acquired. Communication and coordination with Rockland County requires improvement with both planning and practice.

The Red Cross demonstrated the ability to set up a full-service congregate care center on short notice. Cots, and blankets as well as nursing care and counseling were available. The facility and operations were well managed.

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.
- 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. Food and Drug Administration (FDA)

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

Formal submission of the Indian Point Radiological Emergency Response Plans (REPPs) to the RAC by the state and involved local jurisdictions was followed closely by the critiquing, and evaluation of these plans. An exercise was then held on March 3, 1982 and two public meetings were held in June 1982, to acquaint the public with the plan contents, answer questions, and receive suggestions on the plans.

A radiological emergency exercise was conducted on March 9, 1983, between the hours of 5:15 a.m. and 5:45 p.m., to assess the capability of the state and local emergency preparedness organizations to implement their radiological emergency plans and procedures and protect the public in a radiological emergency involving the Indian Point Nuclear Power Station.

An observer team consisting of personnel from FEMA Region II, the RAC, FEMA's contractors, and federal and state agencies evaluated the March 9 exercise. Forty-eight observers were assigned to evaluate activities of state and local jurisdictions. Observers were trained in radiological emergency planning concepts and given an evaluation kit, which included information on exercise objectives, the exercise scenario, and other issues relating to the exercise. Team leaders coordinated team operations.

Following the exercise, the federal observers met to compile their evaluations. Observers presented observations specific to their assignments, and the teams of observers developed preliminary assessments for each jurisdiction and team leaders consolidated the evaluations of individual team members. This final exercise report is based on these preliminary assessments. A public critique of the exercise for exercise participants and the general public was held at 2:00 p.m. on Thursday, March 10, 1983, at the joint media center in Verplanck, New York.

The findings presented in this report are based on evaluations of federal observers, which were reviewed by FEMA Region II. FEMA requests that state and local jurisdictions submit a schedule of remedial actions for correcting the deficiencies discussed in this report. The Regional Director of FEMA is responsible for certifying to the FEMA Associate Director of State and Local Programs and Support, Washington, D.C., that all negative findings observed during the exercise have been corrected and that such corrections have been incorporated into state and local plans, as appropriate.

1.2 FEDERAL OBSERVERS

Forty-eight federal observers evaluated off-site emergency response functions. These individuals, their affiliations, and their exercise assignments are given below.

<u>Observer</u>	<u>Agency</u>	<u>Exercise Location/Function</u>
F. Petrone	FEMA	General Observation/Region II Director
R. Kowieski	FEMA	General Observation/RAC Chairman
S. McIntosh	FEMA	State Emergency Operations Center (EOC)/Team Leader
J. Feldman	EPA	State EOC/Accident Assessment
R. Archila	FEMA	State EOC/Public Information Officer
P. Weberg	FEMA	State EOC/Communications
R. Conley	USDA	Southern District EOC; Westchester Co./Ingestion Pathway Samplings; Dutchess Co. EOC
T. Jackson	NRC	Indian Point Emergency Operations Facility (EOF)/Liaison
M. Jackson	FEMA	Joint Media Center/Public Information Officer

<u>Observer</u>	<u>Agency</u>	<u>Exercise Location/Function</u>
H. Fish	DOE	Joint Media Center/Public Information Officer
H. Rand	FEMA	Joint Media Center/Public Information Officer
C. Connolly	FEMA	Westchester Co. EOC/Team Leader
R. Bernacki	FDA	Westchester Co./Medical Drill, Accident Assessment; Rockland Co./Medical Drill
R. Kinard	FEMA	Westchester Co. EOC/Communications
L. Dillon	FEMA	Westchester Co. EOC/Public Information Officer
T. Baldwin	ANL ^a	Westchester Co./Evacuation, Congregate Care
F. Fishman	FEMA	Westchester Co./Evacuation
C. Saricks	ANL	Westchester Co./Evacuation
D. Tinsman	USCG ^b	Westchester Co./Evacuation, Alert and Notification
T. Holliday	FEMA	Westchester Co./Evacuation, Traffic Control Points
L. Robertson	FEMA	Westchester Co./Evacuation of Mobility-Impaired Persons
N. Chipman	INEL ^c	Westchester Co./Radiological Monitoring
N. Rchrig	BNL ^d	Westchester Co./Radiological Monitoring, Reception Center
T. Maynard	FEMA	Rockland Co. EOC/Team Leader
J. Keller	INEL	Rockland Co. EOC/Accident Assessment
R. Garelik	FEMA	Rockland Co. EOC/Communications
J. Asher	FEMA	Rockland Co. EOC/Public Information Officer
Y. Klein	ANL	Rockland Co./Evacuation, Traffic Control Points, Alert and Notification
E. Tanzman	ANL	Rockland Co./Evacuation, Traffic Control Points, Alert and Notification
D. Petranech	FEMA	Rockland Co./Evacuation, Reception Center
R. Hellriegel	FEMA	Rockland Co./Evacuation, Congregate Care
R. Huchton	INEL	Rockland Co./Radiological Monitoring, Personnel Monitoring
D. Hulet	ANL	Rockland Co./Radiological Monitoring, Personnel Monitoring
J. Picciano	FEMA	Orange Co. EOC/Team Leader
A. Hull	BNL	Orange Co. EOC/Accident Assessment
A. Davis	FEMA	Orange Co. EOC/Communications
G. Seidenfeld	FEMA	Orange Co. EOC/Public Information Officer
P. Becherman	ANL	Orange Co./Evacuation, Traffic Control Points, Reception Center, Alert and Notification

<u>Observer</u>	<u>Agency</u>	<u>Exercise Location/Function</u>
L. Hoffman	INEL	Orange Co./Radiological Monitoring
J. Opelka	ANL	Orange Co./Radiological Monitoring, Personnel Monitoring
R. Reynolds	FEMA	Putnam Co. EOC/Team Leader
L. Olmer	EPA	Putnam Co. EOC/Accident Assessment
S. Barisas	ANL	Putnam Co./Evacuation, Traffic Control Points, Alert and Notification
R. Rodriguez	FEMA	Putnam Co./Reception, Congregate Care, Alert and Notification
B. Motes	INEL	Putnam Co./Radiological Monitoring, Personnel Monitoring
R. Honkus	INEL	Putnam Co./Radiological Monitoring, Personnel Monitoring
K. Lerner	ANL	Bergen Co. EOC/Communications, Congregate Care
N. Kelly	FEMA	New York City/WABC Radio Station

^aANL = Argonne National Laboratory, U.S. Department of Energy.

^bUSCG = U.S. Coast Guard, U.S. Department of Transportation.

^cINEL = Idaho National Engineering Laboratory, U.S. Department of Energy

^dBNL = Brookhaven National Laboratory, U.S. Department of Energy.

1.3 EVALUATION CRITERIA

Radiological emergency response activities were evaluated by federal observers in accordance with the following scheme:

- Capability outstanding: no deficiencies noted, no improvements necessary.
- Capability good: only minor deficiencies noted.
- Capability acceptable: deficiencies noted that limit effective performances.
- Capability weak: significant deficiencies noted.
- Capability lacking: response called for but not demonstrated.

1.4 EXERCISE OBJECTIVES

The objectives of state and local jurisdictions in this exercise were to demonstrate the adequacy of radiological emergency response plans, the capability to mobilize needed personnel and equipment, and familiarity with procedures required to cope with an emergency at the Indian Point Nuclear Power Station, Unit 2 (IP 2), which is operated by the Consolidated Edison Co. of New York, Inc. The State of New York Radiological Emergency Response Group developed the following objectives for this exercise.

1. Radiological Emergency Preparedness Plans

- a. Evaluate the adequacy of radiological emergency plans for New York State; the counties of Westchester, Rockland, Orange, and Putnam; and IP 2.
- b. Demonstrate the emergency response capabilities of state authorities, local support agencies, IP 2, and appropriate federal agencies.
- c. Demonstrate the capabilities of the counties of Westchester, Rockland, Orange, and Putnam; New York State; and IP 2 to implement their respective radiological emergency plans in a manner satisfying FEMA/NRC acceptance criteria.

2. Notification Procedures

- a. Demonstrate the capability of the IP 2 staff to classify actual or potential emergencies according to on-site emergency procedures for:
 - Notification of Unusual Event
 - Alert
 - Site Area Emergency
 - General Emergency
- b. Demonstrate the capability of the IP 2 staff to notify the state, local, and federal governments in accordance with federal guidelines and established protocols.
- c. Demonstrate the capabilities of IP 2; the state; and the counties of Westchester, Rockland, Orange, and Putnam to communicate technical information. Indian

Point 2 should also demonstrate communication of technical information with the NRC over the NRC hot lines.

- d. Demonstrate the capability of the state, the four counties, and IP 2 to notify and activate emergency response personnel in accordance with established protocols.
- e. Demonstrate the capability of the state and counties to alert and notify the affected permanent and transient public within the 10-mile plume exposure pathway emergency planning zone (EPZ) of an incident at the IP 2 site and provide follow-up information as required. This capability should include activation of the prompt notification system (sirens and tone alert radios) and the Emergency Broadcast System (EBS).
- f. Demonstrate, as appropriate, the notification of and request for assistance from federal agencies, such as radiological assistance from the DOE.
- g. Demonstrate, as appropriate, the notification of states and counties within the 50-mile ingestion exposure pathway EPZ and of agencies such as railroads by the state and appropriate county.

3. Emergency Communications

- a. Demonstrate the IP 2 communications among the control room (CR), technical support center (TSC), EOF, operations support center (OSC), and the joint media center, and ability to maintain communications with the federal government.
- b. Demonstrate the the capability for emergency communications among Westchester, Rockland, Orange, and Putnam counties; the state; and IP 2, including the Radiological Emergency Communications System (RECS) hot line. Commercial telephone, radio, and/or the National Warning System (NAWAS) should be used if the RECS line is postulated to be inoperative.
- c. Demonstrate the adequacy of IP 2, local, and state emergency communications to:
 - Transmit instructions to activate essential staff.

- Disseminate essential information to assisting agencies.
 - Operate a 24-hour/day alert and notification system.
- d. Demonstrate the ability of IP 2 and Westchester, Rockland, Orange, and Putnam counties to coordinate, control, and deploy radiological monitoring teams with their respective field communications systems.

4. Emergency Response Facilities

- a. Demonstrate the adequacy of staffing, the timeliness in setting up emergency response facilities, and the adequacy of space and habitability for management of a radiological emergency at:
- IP 2 CR
 - IP 2 TSC
 - IP 2 OSC
 - IP 2 EOF
 - State EOC
 - Office of Disaster Preparedness (ODP), Southern District EOC
 - Westchester County EOC
 - Rockland County EOC
 - Orange County EOC
 - Putnam County EOC
 - Joint Media Center
- b. Demonstrate the activation of the EOC in host (support) counties, as appropriate.
- c. Demonstrate the adequacy of internal communications in the state and county EOCs, including the use of status boards, charts, maps, diagrams, and other displays.

- d. Evaluate the adequacy and competency of state, county, and IP 2 staff to operate the emergency response facilities.
- e. Evaluate the adequacy of access control and security at emergency response facilities.

5. Direction and Control

- a. Demonstrate the ability of key emergency personnel at all levels of government and IP 2 to initiate and coordinate timely and effective decisions during a radiological emergency and clearly demonstrate "who is in charge."
- b. Demonstrate effective organizational control and integrated radiological emergency response, including deployment of field monitors; acquisition of field monitoring data; receipt and analysis of field data; and effective sharing of field data among the licensee, state, and counties for evaluation and verification.
- c. Demonstrate the capability of federal, state, and county emergency response agencies to identify and provide for resource requirements. Any required federal response activity may be simulated.
- d. Demonstrate the capability of coordinating (internally/externally) actions among organizations in order to obtain support and to make appropriate decisions.
- e. Demonstrate the capability of elected and appointed officials to implement appropriate radiological emergency response actions.

6. Public Information

- a. Demonstrate the adequacy of the operation of and interaction among the state, county, and IP 2 public information actions.
- b. Demonstrate activation and staffing of the joint media center news center by licensee, state, and local public information personnel and provision for periodic public information releases and rumor control. As appropriate, the transfer of the

responsibility for the preparation and transmission of official public information on required protective actions from the joint media center to an alternate location should be demonstrated for an EBS message.

- c. Demonstrate that the off-site authorities and the licensee can work effectively with the media in the event of an accident.

7. Accident Assessment and Evaluation

- a. Demonstrate the activation, operations, and reporting procedures of IP 2 and county field monitoring teams. IP 2 teams should be dispatched within and beyond the site boundary. Referees should give field monitoring teams simulated data consistent with the simulated release from the plant.
- b. Demonstrate the ability of IP 2, the counties, and the state to receive and assess radiological data from both county and licensee field teams in accordance with their respective radiological emergency plans.
- c. Demonstrate the ability of IP 2, the state, and the counties to calculate dose projections, compare projections to the Protective Action Guides (PAGs), and determine appropriate protective actions.

8. Protective Response

- a. Demonstrate the capability of the state and county emergency response organizations to make decisions and implement appropriate protective actions. The response options include:
 - Sheltering and evacuation (simulated) of on-site and off-site areas;
 - Informing the public of the accident development and any required protective actions;
 - Activation of reception and congregate care centers and provision for monitoring evacuees for contamination;
 - Identification of and provision for special populations, including provision for identification,

notification, and evacuation of noninstitutionalized, mobility-impaired persons;

- Analysis and determination of ingestion exposure pathway considerations;
- Provision for removal of impediments from evacuation routes.

9. Radiological Exposure Control

- a. Demonstrate the decision process for limiting exposure of emergency workers.
- b. Demonstrate the processing of state and local emergency workers through personnel monitoring centers (PMCs) including monitoring and decontamination.
- c. Evaluate the capability of off-site emergency response personnel to implement access control procedures.
- d. Demonstrate methods and resources for distributing dosimetry equipment and thyroid blocking agents to emergency workers.
- e. Demonstrate record keeping and use of dosimetry equipment and thyroid blocking agents for the protection of emergency workers.

10. Medical Support

- a. Demonstrate the initial treatment of contaminated injured persons and their transport to and subsequent treatment at hospitals on both sides of the Hudson River. The medical drill in Westchester County should involve a simulated injury at IP 2. The Rockland County medical drill should involve an off-site person.

11. Reentry and Recovery

- a. Demonstrate the capability of emergency personnel to identify requirements, assess the situation, and identify procedures for reentry.

- b. Demonstrate the capability of emergency personnel to identify requirements, programs, and policies governing damage assessment and recovery.

1.5 EXERCISE SCENARIO

1.5.1 Major Sequence of Events on Site

<u>Approximate Time</u>	<u>Event</u>
5:15 a.m.	Start of exercise - medical drill with on-site injury begins.
5:45 a.m.	<u>Notification of Unusual Event</u> classification declared.
8:00 a.m.	Declaration of <u>Alert</u> classification.
9:30 a.m.	Indications of occurrence of large-break loss-of-coolant accident (LOCA). Escalation to the <u>Site-Area Emergency</u> classification. Wind shifts to up-valley flow conditions. Weather forecast projects frontal passage within 8 hours with shift in wind direction toward the south.
12:00 p.m.	Escalation to the <u>General Emergency</u> classification. Major airborne release begins with no projection for duration of release.
2:00 p.m.	Wind speed increases to cross-valley flow conditions and results in wind shift.
4:30 p.m.	Releases to environment terminated. De-escalation to the <u>Site-Area Emergency</u> classification.
4:35 p.m.	Break in exercise play.
4:45 p.m.	Date advance of two days for consideration of reentry and recovery planning and ingestion exposure pathway problems.
5:45 p.m.	Secure from exercise.

1.5.2 Scenario Summary

The IP 2 is initially operating at 100% power. The 13.8 kV feed is out of service for maintenance. The staff has been monitoring a reactor coolant leak into containment from an unknown source. The leak rate is below technical specification limits. A decision has been made previously to not enter the containment to investigate. The operators are unaware that this leak is on the discharge of reactor coolant pump No. 21 and will be the cause of the subsequent LOCA.

A fire lasting over 10 minutes occurs in a radioactive material handling area, resulting in injury and contamination to workers. This event results in a Notification of Unusual Event classification.

There is an interruption of service on 138-kV feeder No. 95332 into the station. Subsequently, reactor coolant pump No. 21 develops high vibration, trips due to a locked rotor, and in turn trips the unit. As a result of the locked rotor, fuel cladding failure occurs and reactor coolant activity exceeds technical specification limits. Subsequent to the locked rotor of the reactor coolant pump, there is a step jump increase in the leakage rate as well as an increase in the atmospheric activity in the containment. Again unknown to the operators, the leak is the result of the aggravation of the already existing leak. These events result in an Alert classification.

Developments that follow the above sequence indicate that a large-break LOCA has occurred. The indications to the operator are:

- Low pressurizer pressure reactor trip,
- Safety injection signal,
- High containment pressure,
- High containment sump level and humidity,
- Containment isolation signal.

These indications result in a Site-Area Emergency classification. The operator implements large-break LOCA emergency operating procedures and subsequently, when the water reaches the level where transfer to the recirculation mode is required, recirculation pumps Nos. 21 and 22 are started. Normal recirculation takes place for a short period of time until the failure of one of the recirculation pumps. The other pump continues to operate normally. However, during this time, there is a slow build-up of hydrogen in containment along with slowly increasing core temperatures and radiation levels in containment. Attempts to light off the hydrogen recombiners are delayed due to the delay in delivery of oxygen. The second recirculation pump fails. The operator's attempt to align recirculation through the RHR system is unsuccessful due to the inoperability of valve MOV 885-A (RHR suction from the containment sump), which fails to open from the control room. The SWS must then dispatch an NPO to open the valve locally. The time lapse to perform these operations is sufficient to partially uncover the reactor core and the operator receives indications of severe core degradation from the following:

- area radiation monitor (ARM) R-10 is greater than 330 mR/h
- In-core thermocouple measurements exceed 700°F

These events result in a General Emergency classification.

After this, the operator receives indication of a hydrogen burn by a muffled sound from containment and containment pressure suddenly reading off-scale.

Containment purge exhaust valves are damaged and appear to be partially open as the station vent radiation monitors indicate high activity levels.

Eventually, efforts to close containment purge valve FCV-1173 (outside containment) are successful. The operator continues in the long-term cooling mode to cold shutdown.

1.5.3 Description of State and Local Resources

It was to be the responsibility of all emergency response agencies to ensure that their resources were actually deployed in adequate numbers to provide a reasonable test of their notification, mobilization, command, coordination, and communications capability. Except as noted below, state and county agencies were to have total authority in determining the degree of mobilization and deployment of their resources in a radiological emergency at IP 2. 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 the state and local governments to demonstrate the capabilities of their emergency resources. Also provided below are specific off-site demonstration objectives.

Public Notification

During the exercise an actual test of the sirens and an accompanying EBS announcement and EBS-activated tone alert radios were to be demonstrated. Additional exercise EBS messages were to be prepared. Actual transmission of these additional messages to the primary insert station (CPCS-1), WABC, and broadcasting by the EBS network were to be simulated.

Radiological Field Monitoring Teams

In addition to off-site monitoring teams to be dispatched by IP 2, the following county radiological monitoring field teams were to participate:

Westchester County	2 teams
Rockland County	2 teams (state teams)
Orange County	2 teams
Putnam County	2 teams

Each team was to be supplied with a controller. The controllers were to have simulated field data, which were to be provided to the field teams to determine local dose rate readings consistent with the scenario. Each team was to have had the necessary equipment to determine both actual area gamma dose rates and airborne radioiodine concentrations. The monitoring teams were not to be suited up in anticontamination clothing.

Completion of Bus Routes for Evacuees

Each of the four 10-mile plume exposure pathway EPZ counties was to activate evacuee bus routes as follows:

Westchester County	5 bus routes
Rockland County	3 bus routes
Orange County	1 bus route
Putnam County	1 bus route

In general, bus routes were not to be preselected, although federal observers were to be preassigned to specified transportation companies. The exercised bus routes were to be "free played" except in Westchester County. This approach was to contribute to the realism of the exercise by allowing the federal observers to select which bus routes were to be demonstrated on the day of the exercise. Westchester County, in addition to four general-population bus evacuation routes, was to demonstrate the peripheral bus route linking the various reception centers. Rockland County was to demonstrate a bus route from a school within the affected area to a host (reception) school in addition to two general-population bus evacuation routes. The bus drivers were to assemble at their normal dispatch location and were to be assigned appropriate routes, briefed, and deployed in accordance with the appropriate procedures. The buses were to complete their assigned route but not pick up any volunteer evacuees. Upon completion of the general population route, the buses were to report to appropriate reception/congregate care centers. The buses and drivers were then to be released.

Evacuation of Noninstitutionalized, Mobility-Impaired Persons

Each county was to demonstrate procedures for the identification and notification of noninstitutionalized, mobility-impaired persons and to determine the availability of appropriate transportation for their evacuation. In addition, federal observers were to select a limited number of addresses for mobility-impaired persons in both Westchester and Rockland Counties. Vehicles for transporting the handicapped were to be dispatched to these addresses for simulated evacuation.

Traffic Control Points

Local agencies, supplemented by state resources, were to deploy personnel to demonstrate activation of a sample of traffic control points (TCPs) for major evacuation routes in each county.

<u>County</u>	<u>TCPs</u>
Westchester	6
Rockland	4
Putnam	2
Orange	1

Traffic control points were not to be preassigned or 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 observers were to provide information on the locations of traffic control points to be demonstrated during the course of the exercise.

Once traffic control points were established and observed by federal observers, local officials were to release personnel to normal duties and simulate the continuation of control points where required. For training purposes, selected traffic control personnel were to report to personnel monitoring centers after they were secured from their exercise assignment.

Impediments to Evacuation

Federal observers at the county EOCs were to introduce free play events to test the procedures for the removal of impediments from evacuation routes. This demonstration was to include the actual dispatch of a police or other emergency vehicle to the scene, a report from the scene to the EOC requesting appropriate resources, the identification of the availability of the required resources (e.g., tow truck, public works equipment), and an estimation of the times of arrival at the scene and for clearing the impediment.

Westchester County	2 locations
Rockland County	1 location
Putnam County	1 location
Orange County	1 location (simulated dispatch of emergency vehicle)

Personnel Monitoring Centers

Each county was to set up and demonstrate a PMC for local emergency workers. During the exercise, the processing of selected emergency workers

who had completed their exercise participation was to be demonstrated. Decontamination actions were to be simulated. At the PMC, anything that may damage property (such as parking vehicles on grass) was to be simulated. All necessary equipment was to be assembled at the PMC. Detailed simulation actions were to be implemented at the center by the PMC leader. In addition, the state was to demonstrate the activation of a PMC for state emergency workers.

Relocation Centers

At least one reception/congregate care center was to be opened and staffed for evacuees of each of the four counties in accordance with respective local emergency response plans. Supplies required for long-term mass care (cots, blankets, food, etc.) were not to be acquired or brought to the centers. However, the center was to estimate how many evacuees would be arriving if the exercise were a real emergency. The center personnel were then to make the necessary estimates of supplies required for the potential evacuees. Sources of the required supplies were then to be located and the means for transportation of the supplies was to be determined. A limited number of volunteers were to be processed through the registration area. Procedures for monitoring and decontaminating evacuees were to be demonstrated at reception centers. Federal observers were to introduce free play problems to test procedures for handling evacuees arriving at a congregate care center without appropriate documents from the referral reception center. Because of logistics and the need to arrange access to relocation centers before an exercise, these relocation centers were to be preselcted before the exercise.

Westchester County	1 - Reception/Congregate Care 1 - Congregate Care (in Putnam Co.)
Rockland County	1 - Reception 1 - Congregate Care (in Bergen Co., N.J.)
Orange	1 - Reception 1 - Congregate Care
Putnam	1 - Reception/Congregate Care (in Dutchess Co.)

Medical Drills

Medical drills were to demonstrate the treatment of contaminated injuries at hospitals on both sides of the Hudson River. These drills were to involve the following types of problems:

Westchester County - on-site contaminated injury
Rockland County - off-site contaminated injury

Ingestion Sampling

The state was to demonstrate the analysis and decision-making process for selection of ingestion exposure pathway samples consistent with the hypothetical problem posed by the exercise parameters. Ingestion pathway samples were to be collected primarily from open sources of public drinking water. Analysis of the samples was to be simulated.

Volunteer Organizations

Volunteer response organizations identified in the plans were to participate in the exercise. However, for purposes of the exercise, the staffing of these volunteer organizations was to be on an as-available basis.

2 EXERCISE EVALUATION: DEFICIENCIES AND RECOMMENDATIONS

On the basis of criteria set forth in NUREG-0654/FEMA-REP-1/REV.1 (November 1980), objectives established for the March 9, 1983, exercise of IP 2 and the evaluations of federal observers present at the exercise, this section provides a detailed assessment for each emergency function. Recommendations to correct deficiencies identified at this exercise are summarized at the conclusion of each section. FEMA will participate with the state and local governments in determining the corrective actions needed to resolve the deficiencies in accordance with established criteria and guidelines.

2.1 STATE AND SOUTHERN DISTRICT EOCs

2.1.1 Emergency Operations Facilities and Resources

Both the southern district and state EOCs are large, well-planned facilities with rooms located to accommodate different functions and minimize distracting noises. Internal communications and the system of message distribution were good. A new executive hot line between the state and county EOCs was in operation. This new system for direct communications corrects a deficiency identified at the 1982 exercise. A backup radio system also existed to supplement any possible disruption in telephone line communication and to verify messages. The public information officer's (PIO's) office was well equipped with telephones and telefax machines.

Internal information, maps, charts, and message boards were clearly displayed. Two maps that were readily observed summarized the distribution of populations within emergency response planning areas (ERPAs) and field sampling locations.

Only one minor interruption, which delayed the transmission and receipt of telefaxed messages from the EOF, was observed.

Security was outstanding, and unauthorized persons were not permitted in restricted areas.

- Deficiency: Telefaxed messages required an excessive amount of time for complete message transmissions between the EOF and the state EOC (NUREG-0654, II.F.1.d).
- Recommendations: EOC and EOF messages should be brief. An investigation should be made to examine the possible use of a second telefax machine.

2.1.2 Alerting and Mobilization of Officials and Staff

Two representatives were available from each state agency and schedules were provided for 24-hour coverage. Because of state trooper coverage, communications can easily be maintained in the EOC on a 24-hour basis. Observers were not able to see an actual shift change. The demonstration of this capability should be included in future exercises.

There was approximately a 30-60 minute delay between the declaration of the Alert classification by the licensee and receipt of the Alert classification notification by the state, Westchester, Orange and Putnam Counties. The lack of timely receipt and/or handling of the notification of the emergency status is especially important because the dismissal of students from schools, which is precautionary to a potential evacuation of the general population, may be initiated at the Alert classification.

- Deficiency: Officials of the state, Westchester, Orange and Putnam Counties who are responsible for the mobilization of emergency resources did not receive notification of the Alert classification in a timely manner (NUREG-0654, II.E.1).
- Recommendation: Representatives of the state, Westchester, Orange and Putnam Counties should meet with the utility to review and modify, if necessary, the procedures for ensuring that notification messages are verified by county officials responsible for the mobilization of emergency resources.

2.1.3 Emergency Operations Management

The demonstration of leadership on the part of the decision makers was very good. Decisions were based upon clear understanding of the issues and the Chairman of the Disaster Preparedness Commission (DPC), who has been involved in several exercises, demonstrated complete control of the situation. The roles of all participants were clearly defined. Decision makers displayed the ability to anticipate, analyze, and synthesize the information received.

Twenty-four-hour coverage is maintained by delegation of authority to predesignated state officials.

Briefings were held frequently, approximately every half hour, in order to keep state agency representatives aware of decisions and the status of the emergency situation. This procedure was in response to recommendations made at the 1982 exercise.

2.1.4 Public Alerting and Notification

These functions were not observed by federal observers reviewing activities at the state facilities in Albany and Poughkeepsie, New York, which are both outside the 10-mile plume exposure EPZ.

2.1.5 Public and Media Relations

At the state EOC in Albany, the PIO was well informed and provided evidence of 24-hour coverage in the EOC. The PIO apparently had personnel available to circulate within the EOC to gather information.

At the joint media center, state PIOs assumed the lead PIO function after the Governor's declaration of a state disaster emergency. The emergency public information system functioned well. State PIOs had access to pertinent information and there were adequate channels for obtaining additional information to meet press inquiries. All EBS messages were approved by lead government officials on hot lines. (See Sec. 2.3 for further discussion of joint media center operations.)

2.1.6 Accident Assessment

Staffing for the radiological assessment unit was adequate to process and analyze the data telemetered to the state EOC by the utility. Meteorological data were used to estimate the plume location by computer. The EOC accident assessment staff was in constant contact with the utility. In addition, the capability in the use of county and utility field data for locating and monitoring the plume boundaries has been improved compared to capabilities demonstrated at the 1982 exercise.

Programmable calculators are now available to expedite the calculations of projected dose to the general population. In the 1982 exercise the absence of this equipment was identified as a minor impediment to the speedy analysis of technical data.

2.1.7 Actions to Protect the Public

Adequate staff was available to implement protective action procedures, based on needs at the state EOC.

The state demonstrated the capability to obtain and analyze a surface water sample. Plans were also in place to continue analysis until acceptably low levels of radiation are reached for recovery and reentry.

Information on the location of dairy farms within the 50-mile ingestion exposure pathway EPZ was used in deciding how long farmers should keep cows on stored food.

2.1.8 Health, Medical, and Exposure Control Measures

Radiological exposure control procedures were acceptable at the state's PMC. The operations space may be too confined at the state police substation in Hawthorne, New York, to provide for the acceptable separation of contaminated and noncontaminated emergency personnel. Monitoring staffs need additional training to properly monitor incoming individuals in a timely manner.

Radiological exposure control functions were not observed at the state EOCs in Albany and Poughkeepsie, New York, which are outside the 10-mile plume exposure pathway EPZ.

2.1.9 Recovery and Reentry Operations

Recovery and reentry operations were not called for in the scenario. Decision makers did, however, present a method by which recovery of the contaminated area would be accomplished.

2.1.10 Relevance of the Exercise Experience

Some weaknesses in the scenario were identified and questioned by state EOC radiological assessment staff. Generally, however, the exercise was seen by federal observers as a good training experience for the participants at the state and southern district EOCs.

2.2 NEAR-SITE EOF

2.2.1 Emergency Operations Facilities and Resources

Overall facilities and resources were good at the EOF; only minor problems were noted. The communications system included separate telephone lines with radio backup for each county and for the state representatives assigned to the EOF. The southern district defense preparedness officer is assigned to the state staff at the EOF. This individual had a hand-held radio and a mobile radio (in the defense preparedness officer's vehicle), both of which are available for backup communications from the EOF to the state and county EOCs. The availability of this equipment corrects the deficiency in backup communications equipment identified at the 1982 exercise.

Working space within the EOF was good. The county and state representatives had separate working space on the balcony above the utility's work area. It was observed, however, that internal communications between state and county representatives and utility personnel were sometimes hampered. On

several occasions it was difficult to get utility personnel to answer the telephone intercom. It may be helpful to add a light to the intercom telephone to signal incoming calls from the balcony area. Despite this minor difficulty, technical interaction between state and county representatives and utility personnel were good. The state and county representatives had access to the utility's work area and technical information.

Appropriate maps showing the locations of field monitoring points, projection of the plume path, and the distribution of population by ERPAs were on display at the EOF. The improvement of these displays in response to recommendations from the 1982 exercise has corrected the previous deficiency.

2.2.2 Alerting and Mobilization of Officials and Staff

The alerting and mobilization of staff assigned to the EOF was good overall. State and some county personnel arrived at the facility during the alert classification.

The capability for 24-hour continuous emergency operations varied among the state and county staff observed at the EOF. The state did not demonstrate a shift change and did not have sufficient staff at the EOF to cover all functions on a 24-hour basis. However, although a shift change of personnel was not observed, based on a review of the roster available at the exercise, it is assumed that 24-hour staffing of state functions can be accomplished in a timely manner. The counties generally had enough personnel available at the EOF to cover all functions on a 24-hour basis.

2.2.3 Emergency Operations Management

The EOF was activated as part of the overall emergency response for the IP 2 exercise. The active participation by all state, county, and utility organizations at the EOF as well as their knowledge and conduct of their responsibilities was outstanding.

County representatives at the EOF had roles similar to those of the state representatives, which involved relaying technical data to their respective EOCs. Technical information was compiled at the EOF and transmitted to the EOCs by the liaison officers at the EOF. The roles of state and county personnel at the EOF are clearly defined in the plans as liaison officers in supplying the utility's data to their EOCs for use in accident/dose assessment. The clarification of the role of these liaison officers in the Westchester, Orange, and Putnam county plans is in response to the RAC's previous recommendation that the role of county representatives at the EOF needed to be better defined.

2.2.4 Public Alerting and Notification

These functions were not observed at the EOF.

2.2.5 Public and Media Relations

These functions were not observed at the EOF.

2.2.6 Accident Assessment

All accident assessment analyses are carried out at the state and county EOCs. The EOF serves as the central point for the collection and distribution of radiological field monitoring data. Overall, the EOF capabilities to perform these functions were good.

Technical data were rapidly sent from the EOF to the state and county EOCs. However, as mentioned above, the transmission of these data tied up the telefax machine and on several occasions delayed the receipt of hard copy communications at the EOF.

County field survey report forms were received at the EOF without county names included on them. It was possible to identify the reporting county by identifying the locations of the samples being reported, but inclusion of the county name on the report form would facilitate handling of the field data at the EOF. Westchester County transmitted a field summary sheet over the telefax telecommunications line which could not be read as received at the EOF. The standard data reporting forms were transmitted legibly throughout the exercise. All counties should use this standard form when transmitting data to the EOF.

2.2.7 Actions to Protect the Public

These functions were not observed at the EOF.

2.2.8 Health, Medical, and Exposure Control Measures

All state and county personnel at the EOF had dosimeters except the volunteer civil defense (CD) representative from the southern district ODP. This individual reported to the EOF from work rather than from the ODP where dosimeters are stored. All personnel at the EOF should be trained in radiological exposure control procedures and should be aware that they should wear recommended dosimeters when they leave the EOF. The utility monitored doses at the EOF.

2.2.9 Recovery and Reentry Operations

These functions were not observed at the EOF.

2.2.10 Relevance of the Exercise Experience

The exercise was generally considered an outstanding training experience for participants at the EOF.

2.3 JOINT MEDIA CENTER

Overall, the emergency public information system functioned in a timely and effective manner. The Westchester County PIO, in coordination with other county and state PIOs issued EBS messages and news releases from the joint media center in Verplanck, New York. PIOs at the joint media center had open telephone links with their respective EOCs along with telecopy capability. All EBS messages, as well as news releases, were approved by lead officials on the executive hot line and reviewed by PIOs, including utility PIOs, at the joint media center. Hardcopy of EBS messages and news releases were telecopied back to the EOCs.

During the simulated evacuation of the joint media center, transfer of the EBS function from the Verplanck joint media center to the Westchester EOC in White Plains, New York was successfully demonstrated. The demonstration included notifying the press, simulating issuance of an EBS message from the new joint media center, and providing other information.

There was no evidence of communication among the counties to ensure that the notification of early dismissal of school children is coordinated at the local level. The early school dismissal notification system should be reviewed to insure coordination of early dismissal announcements by all four counties to avoid confusion.

EBS messages for evacuation and sheltering are necessarily quite lengthy due to the need to include descriptions of ERPA boundaries and evacuation directions. Formulation of such lengthy EBS messages is time-consuming. The PIOs developed and used a system of pre-typed peel-off labels of each ERPA. Other ways to reduce the critical time being spent on EBS formulation should be explored (e.g., word-processing equipment).

ERPA maps and checklists were used to record and chart protective measures. County and state PIOs had access to pertinent information and adequate channels for obtaining addition information to meet press inquiries.

2.4 WESTCHESTER COUNTY, NEW YORK

2.4.1 Emergency Operations Facilities and Resources

Overall, the emergency facilities and equipment at the Westchester County EOC were good. Working space was acceptable. However, the central operations area was small and the noise level was high. Separate rooms were provided for radio communications, accident assessment, and management personnel. These separated work areas facilitated operations at the EOC. Internal communications within the EOC were good. Periodic briefings were delivered over a public address system and kept the entire EOC staff informed of the status of the emergency and actions that were being taken. Displays and maps were adequate. Since the 1982 exercise, the county has secured a new electronic display board that indicates both evacuated ERPAs and host areas.

There were sufficient lines to accommodate telecommunications and the equipment necessary to transmit and receive hard copy messages was available and operational. Since the 1982 exercise, Westchester County has established a new communications system providing individual telephone lines for each agency representative. This new communications system reduced the confusion that was observed during the last exercise. Radio Amateur Civil Emergency Service (RACES) radio support and backup communications capabilities were adequate. The hot lines, including the new dedicated communications line between the EOC and EOF, worked very well.

Security was adequate at the Westchester EOC and the reception/congregate care center at Fox Lane High School in Bedford, New York.

2.4.2 Alerting and Mobilization of Officials and Staff

The overall alerting, mobilization, and capability for 24-hour staffing of emergency operations was acceptable in Westchester County. The Westchester County Department of Public Safety was responsible for the notification of EOC personnel and the Westchester County Department of Public Safety communications center is staffed on a 24-hour basis.

Staffing was very good at the county EOC and the various emergency response organizations evidenced depth of staff, organization of responsibilities, and change of shift capabilities.

Notification and response of field staff was generally good for the radiological monitoring teams, PMCs, and evacuation personnel. Backup support was evident for all functions.

2.4.3 Emergency Operations Management

The overall management of emergency operations during the exercise in Westchester County was good. Management of the EOC was excellent. The County Executive's staff and commissioners were highly qualified and well trained in emergency practices and procedures. The County Executive was clearly in charge of operations at the EOC and the structure and lines of authority of the county's emergency preparedness organization were evident. The County Executive requested and received reports from county staff regarding emergency recommendations and resource requirements. In several instances, the County Executive demonstrated independent leadership and anticipatory management of decisions involving the evacuation of parks, EBS messages, declaration of the emergency, public evacuation, and theft control.

The internal flow of information at the county EOC was facilitated by periodic general briefings of the staff, which were given approximately every hour, and individual management sessions with key personnel. Briefings on the status of the plant and emergency classification updates were given as soon as the information was received at the EOC. In addition, field observers reported that the PMC and reception/congregate care center were well managed and that these staffs had been informed of recovery progress and activities pertaining to closeout of the exercise.

The county was concerned over the state role and its assumption of a leadership position during the exercise. Westchester County officials felt that the state role should be to supplement county emergency response efforts. These officials also felt that the state assumed control when events were clearly within the capabilities of county government. The role taken by the state may have been necessitated by scenario events and circumstances.

2.4.4 Public Alerting and Notification

Public alerting and notification in Westchester County were good. The siren system for alerting the public was activated in a timely manner and worked well. However, based on spot-check interviews on the day of the exercise, the public apparently has limited understanding of the appropriate response to these alert sirens.

Sirens followed by an EBS message were used to alert the public of a Site-Area Emergency at approximately 9:45 a.m. The sirens were simultaneously activated by the county commissioner/sheriff in Hawthorne and the county Office of Disaster and Emergency Services at the EOC in White Plains. There are no verification procedures or equipment such as control panel lights to insure that the sirens are sounding. FEMA currently is developing guidance and regulations which will constitute the requirements for fully testing alerting and notification systems. Until this process is complete, only spot-check observations can be made of the effectiveness of these systems. With

the exception of populations at Kings College in Briarcliff Manor and St. Augustine School in Ossining, most of the people interviewed in the field on the day of the exercise reported to federal observers that they heard the alerting sirens. However, based on spot-checks by the federal observers, most of the public interviewed did not understand the meaning of the sirens nor did they know that they were to listen to EBS messages broadcast over WABC (AM 770). (See Sec. 2.3.5 for a discussion of public education issues.)

A spot-check of schools, nursery schools, and special facilities including nursing homes and hospitals indicated that such institutions were equipped with tone alert radios that worked well. The successful notification of schools with tone alert radios was verified by federal observers in the field and staff at the county EOC. The EBS worked well. PIO staff at the Westchester County EOC coordinated the preparation of EBS messages and simulated their dissemination through the joint media center in Verplanck, New York.

2.4.5 Public and Media Relations

Overall public and media activities need improvement. However, the system for handling media relations through the joint media center in Verplanck, New York, was very effective; no inquiries were received at the Westchester County EOC. (See Sec. 2.3 for further discussion of joint media center operations.)

Despite efforts by Westchester County in recent months including releasing public service announcements and newspaper advertisements, there was little evidence that the public understands what they should do in a radiological emergency. The new public information brochure has not yet been distributed to the public, nor was there evidence that notices had been posted to inform transients of the alert and notification system and actions they should take in the event of a radiological emergency at the Indian Point Nuclear Power Station. Although the public education program is on-going in Westchester County, a new instructional brochure that is being finalized had not been distributed during the last year prior to the March 9 exercise. Spot-checks on the day of the exercise of hotels and motels showed that signs or notices had not been distributed to or posted in hotels and motels to provide emergency information to transient populations within the 10-mile plume exposure pathway EPZ. The lack of awareness among some Westchester County residents regarding what they should do in the event of a radiological emergency limits the effectiveness of the prompt alerting and notification systems. (See Sec. 2.4.4 above.)

The rumor control telephone number was tested by federal observers in Westchester County and the information obtained was excellent.

- Deficiency: The annual public education brochure, currently in review, has not yet been distributed in Westchester County (NUREG-0654, II.G.1).
- Recommendation: Publication and distribution of the public education brochure for Westchester County should be expedited.
- Deficiency: There was no evidence of signs or notices posted in hotels and motels within the 10-mile plume exposure pathway EPZ to provide helpful emergency information to the transient population (NUREG-0654, II.G.2).
- Recommendation: As soon as possible, the necessary public information materials should be distributed and posted in public places for the use of transient populations who may come into the 10-mile plume exposure pathway EPZ.

2.4.6 Accident Assessment

The overall accident assessment capability demonstrated by Westchester County was good. The field monitoring instruments and personal dosimetry equipment used in this exercise were a significant improvement over previously observed equipment. All of the monitoring equipment observed during the exercise had been recently calibrated.

The technical staff at the EOC was well managed and able to accurately assess the accident using data received from the field. Map overlays were used to project the potential magnitude of doses to the population. However, the means of communications for transferring technical data from the field to accident assessment personnel at the county EOC needs to be improved. Standardized forms should be established to report field data. This standardization would reduce the number of repeated messages that were required during the exercise and would lessen the potential for errors.

Coordination of the field monitoring teams improved since the previous exercise. Specific monitoring locations were used and the travel times between locations were acceptable. Monitoring teams also collected some field data while moving into the plume. The coordination of accident assessment activities between the EOC and Westchester County as well as between the state and the county was good.

New equipment was available for the monitoring teams and allowed the two teams to independently measure for radioiodine. The use of silver zeolite absorption media for monitoring radioiodine was simulated. Only one of the two field monitoring teams was asked to take an air sample for radioiodine. A few more measurements would have better demonstrated this capability.

Permanent radiation dose recording devices, thermoluminescent dosimeters, (TLDs) were worn by all field monitoring personnel throughout the exercise. Also, 0-5 R dosimeters were worn by all field monitoring personnel and most also wore a 0-200 R dosimeter.

Twenty-four-hour response capabilities were evidenced for accident assessment personnel at the EOC and the field monitoring teams by lists of trained personnel assigned to second shifts. Alternate field monitoring personnel were also provided for the exercise.

There were large differences in the ability of the two field monitoring teams that were observed during the exercise. Additional training of personnel is required to ensure that field measurements are properly taken.

Coordination was good between EOF and county personnel and between state and county accident assessment personnel. The development of protective action recommendations was well coordinated between Westchester County and New York State. County and state health officials were in communication throughout the exercise and the county's independent dose assessment calculations were frequently compared with the state's dose assessment calculations.

2.4.7 Actions to Protect the Public

In the event of a radiological emergency at IP 2 an evacuation of Westchester County would be accomplished by means taken either by private individuals (e.g., privately owned vehicles) or with county assistance (e.g., buses, vans, ambulances). During the exercise, federal observers reviewed both modes of evacuation and numerous issues regarding the capability to accomplish a significant evacuation of the county were assessed.

At the Alert classification, the County Executive ordered the schools closed and school children sent home. County transportation resources were notified at the Site-Area Emergency classification. Buses were activated and dispatched for evacuation of the general population at 11:50 a.m. It was evident that the transportation personnel have not all been adequately trained regarding evacuation procedures, the routes they should follow to pick up evacuees, and the location of reception centers.

Buses for evacuation were tested using preselected routes. A brief summary of the observation of these routes follows:

- Route A - Initially would not participate and was not prepared.
- Route B - Driver departed the dispatch point prematurely at the siren (approximately 9:45 a.m.) instead of awaiting the evacuation order.

- Route C - Driver had previously driven the route and did a good job.
- Route D - Driver did not know the evacuation route for which the driver was responsible.
- Route E - Driver knew the peripheral route tested but had not been trained regarding requirements for a radiological emergency.

In general, sufficient personnel and resources were available to complete all of the four general-population bus evacuation routes tested during the exercise. Emergency transportation workers had received guidance regarding their involvement in the March 9 exercise, including maps and instructions regarding the evacuation routes they would drive. However, despite the guidance that was given prior to the exercise, it was evident that additional training is necessary to insure that the bus dispatchers and drivers are properly acquainted with the evacuation procedures, the routes they should follow to pick up evacuees, and the location of reception centers. Therefore, the capability to implement an evacuation of the general population in Westchester County remains questionable. All buses except one were equipped with radio communications, and all buses are due to be installed with radios in April 1983. Communications between the bus companies and the Westchester County Department of Transportation were good.

A comprehensive study of bus routes and evacuation procedures is currently under way and is expected to be completed in December 1983. This study should address possible alternatives to street pick-up points, such as grouping evacuees in secure buildings, resulting in an improved evacuation plan for Westchester County.

Evacuation of selected noninstitutionalized, mobility-impaired persons was tested in accordance with free play provided in the scenario. On the basis of this demonstration, ambulance personnel did not know their responsibilities, were not trained in evacuation procedures for a radiological emergency, and did not have the necessary dosimetry equipment. Procedures for evacuating institutionalized, mobility-impaired persons are still being finalized. The responsibility for this function is shared by four agencies led by the County Department of Hospitals.

Selected traffic control points were activated as part of the free play of the exercise. However, these traffic control points were not observed due to scenario events and federal observers' time constraints. Observers at the Westchester County EOC were informed that the county Department of Public Safety had made major changes in the scope and location of evacuation traffic control points. These changes should be incorporated in the Westchester County Radiological Emergency Response Plan.

Impediments to evacuation were handled in accordance with the free play provided by the off-site scenario and the test appeared successful.

Other issues affecting evacuation capabilities in Westchester County include the following:

- Vehicle evacuation - Most people would be evacuated from the 10-mile plume exposure pathway EPZ by privately owned vehicles. The success of this effort in Westchester County is a function of time, events, and available resources.
- Evacuation of the elderly - During the exercise, several county officials, including the County Executive and Commissioner of Health, requested that sheltering rather than evacuation be considered for the elderly. It was suggested that moving the elderly would involve more risk of injury than would they risk from radiation if they remained sheltered.
- Training of bus drivers - Bus personnel are in need of training for evacuation route location and radiological health and exposure control measures. Radiological training should be conducted for volunteers who may be recruited for evacuation service. (See Sec. 2.3.8 for a discussion of the need for training in radiological exposure control measures.)

Emergency response personnel at reception and congregate care centers appeared to be well trained to perform their responsibilities. However, monitoring personnel at the reception center at the Fox Lane High School in Bedford, New York, utilized a slow scan rate in monitoring evacuees as they arrived. The monitoring capability observed at this facility could be improved by training the existing staff; these resources may need to be supplemented with additional monitoring personnel and equipment. It was suggested that consideration be given to colocating reception and congregate care facilities. The congregate care facility observed at the exercise was too small to accommodate the capacity indicated in the plan.

- Deficiency: Westchester County transportation personnel have not been adequately trained regarding evacuation procedures, the routes they should follow to pick up evacuees and the location of reception centers (NUREG-0654, II.J.10.a, II.J.10.g).
- Recommendation: Bus drivers responsible for evacuation services should be trained regarding evacuation procedures and supplied with better maps and instructions concerning the routes and locations of reception centers.

- Deficiency: Additional training and possibly additional resources, including personnel and vehicles, are needed for the evacuation of institutionalized and noninstitutionalized, mobility-impaired persons (NUREG-0654, II.J.10.d).
- Recommendation: Transportation personnel responsible for the evacuation of mobility-impaired persons should be trained in evacuation procedures, and the supply of ambulances for the evacuation of nursing homes should be reviewed.
- Deficiency: The capacity of the congregate care facility is too small to accommodate the capacity specified in the plan (NUREG-0654, II.J.10.h).
- Recommendation: The capacity of congregate care facilities in Westchester County should be reviewed and additional facilities should be identified if necessary.

2.4.8 Health, Medical, and Exposure Control Measures

The overall procedures for controlling radiological exposure of emergency workers was acceptable. The thyroid blocking agent potassium iodide (KI) was, in accordance with the plan, available for distribution to emergency workers. Emergency workers had been instructed in its use and some workers simulated its use during the exercise. Transportation companies involved in the exercise apparently did not have adequate supplies of KI and some drivers who may be called upon to enter the 10-mile plume exposure pathway EPZ were not trained in how they would receive instructions for its use.

Centers for the monitoring and decontamination of emergency workers and vehicles were tested and considered acceptable. The control of water that becomes contaminated as a result of decontaminating the general population, emergency workers, and vehicles was simulated at the PMCs and reception centers.

The reception centers and decontamination areas observed during the exercise did not have arrangements to provide an adequate supply of clothing to replace any contaminated clothing which may have been worn to the center. The medical drill at the hospital demonstrated adequate response capabilities.

Personal dosimetry equipment was worn by most of the emergency workers in Westchester County. However, transportation companies did not have an adequate supply of dosimeters and the bus and ambulance drivers were not consistently trained in the use of these devices.

- Deficiency: Transportation companies involved in the exercise apparently did not have adequate supplies of dosimeters (NUREG-0654, II.K.3.a).

- Recommendation: Permanent record dosimeters (e.g., film badges, TLDs) should be provided to emergency workers.
- Deficiency: Bus and ambulance drivers who may be called upon to enter the 10-mile plume exposure pathway EPZ were not consistently trained in the use of dosimeters and KI (NUREG-0654, II.K.3.b).
- Recommendation: All emergency workers should be fully trained in radiological exposure control including the use of dosimeters and KI.

2.4.9 Recovery and Reentry Operations

Reentry operations were tested using simulated events as specified in the scenario. Based on interviews with personnel at the Westchester County EOC, it was determined that a generally acceptable capability exists to recover and reenter the area after a radiological emergency in Westchester County.

The scenario used for the March 9 exercise did not call for a thorough assessment of recovery and reentry operations. However, county officials did their best to simulate the necessary response functions. For example, the Commissioner of Health reported that the department would take air and water samples in those areas that were exposed to radiation and work with the Agriculture and Markets Department to impound contaminated food. In addition, the County Executive appointed a fact-finding committee to ensure that the proper data would be collected and a recovery committee to direct the reentry operations.

2.4.10 Relevance of the Exercise Experience

The overall relevance of the exercise was good. The scenario provided a good test of Westchester County's ability to mobilize local emergency response personnel, as well as its capability to work with the state and surrounding New York counties. The scenario of exercise events was complemented with free play of traffic control points, response for the evacuation of noninstitutionalized mobility-impaired persons, and police response to impediments that would hinder evacuation of the population. Selected evacuation bus routes also were tested. The cooperation and participation of county officials, professional response organizations, and volunteers contributed to the success of the exercise as a training experience for most of the participants. The participants generally felt that the exercise encouraged them to become more familiar with the Westchester County RER plan, helped point out deficiencies that will lead to the resolution of identified problems, was a

good learning experience, and provided training for primary and backup personnel.

2.5 ROCKLAND COUNTY, NEW YORK

Rockland County Nonparticipation. At this writing, Rockland County has not completed a radiological emergency response plan for the Indian Point Nuclear Power Station. Under the authority of Resolution No. 320 of 1982, as amended by Resolution No. 829 of 1982, the county disavowed the "Radiological Emergency Response Plan prepared for Rockland County by Con Edison and PASNY," and has undertaken the preparation of a new plan. Since the draft Rockland County Radiological Emergency Preparedness Plan being developed by Rockland County was not yet approved, Rockland County decided, pursuant to Resolution No. 156 of 1983, not to participate in the March 9, 1983, radiological emergency preparedness exercise. However, Office of Emergency Preparedness staff did undertake emergency functions up until the beginning of normal business hours at 9:00 a.m. Several county officials observed the exercise as nonparticipants. These included the Chairman of the Legislature, the Commissioner of Health, the Sheriff, the Transit Coordinator and the Emergency Preparedness staff. State personnel used the Rockland County EOC to direct state employees and some local employees and emergency response volunteers in Rockland County. No employee of Rockland County participated in the March 9 emergency preparedness exercise for IP 2.

In accordance with Resolution No. 320 of 1982, the Rockland County Legislature directed its Chairman "in the event of a nuclear occurrence at the Indian Point Facilities ... to take any and all action in coordinating and cooperating with any and all Federal and State agencies to protect the lives and property of the citizens of Rockland County ...".

State Compensating Measures. The New York State Indian Point Site-Specific Radiological Emergency Preparedness Plan (REPP) contains provisions intended to assure adequate protection of the public during radiological accidents in counties that are unable, or do not elect, to respond themselves. The state decided to implement these "compensating measures" at the March 9, 1983, exercise when it learned that Rockland County would not participate. Therefore, the only evaluation that can be made of the actual performance of radiological emergency response personnel in Rockland County is of the New York State employees who substituted for Rockland County personnel pursuant to the compensating measures in the New York State Indian Point Site-Specific RERP.

An accurate evaluation of the state's performance in implementing its compensating measures in Rockland County requires an understanding of how the compensating measures are to operate. The New York State Indian Point

Site-Specific RERP (p. III-6) provides that the Governor is to declare a state disaster emergency in any nonparticipating county and is to direct various state agencies, under the direction of the Disaster Preparedness Commission (DPC), to implement the emergency response using the county plan as a framework. As its compensating measures for Rockland County, the DPC has elected to use the draft Rockland County Radiological Emergency Preparedness Plan. In two different places in the New York State Indian Point Site-Specific RERP (pp. I-12 and III-6), it is stated that the compensating measures are to be carried out using "State and local resources and personnel." That the compensating measures contemplate state employees acting at the behest of the Governor to direct both state and county emergency response personnel to implement the county plan is confirmed by section 2 of S.B. 7122, as reproduced in the New York State Indian Point Site-Specific RERP (second page following p. A-31), which states that "[u]pon declaration of a disaster arising from a radiological accident, the Governor or his designee, shall direct one or more chief executives ... to ... take appropriate protective actions pursuant to the radiological emergency preparedness plan ...". Thus, the state's RERP compensating measures require state employees to direct the response, but also involve county resources and personnel as well as local and volunteer resources and personnel acting in accordance with the county plan.

The state's exercise of the New York State Indian Point Site-Specific RERP compensating measures did not demonstrate this assignment of responsibility. Rather than directing the participation of county emergency response personnel, the state substituted its own employees for all demonstrated functions that are the responsibility of county employees. As the compensating measures are described, one would have expected to observe state employees controlling the response with the assistance of county resources. What was actually observed was that state employees assumed the responsibility for implementation of the emergency response and for all management and control functions as well as all support emergency response functions that are the responsibility of county employees.

Conclusion. The radiological emergency response demonstrated in Rockland County at the March 9, 1983, exercise was inadequate for two reasons.

First, Rockland County has not finalized and adopted a radiological emergency response plan and did not participate in the exercise. FEMA's operative regulations, 47 Fed. Reg. 36,388 (1982) (to be codified at 44 C.F.R. pt. 350) (proposed August 19, 1982), in section 350.7(a), cites Part I.E of NUREG-0654/FEMA-REP-1, Rev. 1, in order to explain what must be included in local government plans. Part I.E (p. 19) states that "[t]he concept of Emergency Planning Zones necessarily implies mutually supportive emergency planning and preparedness arrangements by several levels of government: Federal, State, and local governments, including counties, townships, and even villages ...". Section 350.5(a)(14) requires exercises to be conducted to

evaluate emergency response capabilities. In failing both to adopt a radiological emergency response plan and to exercise it in the March 9, 1983, exercise, Rockland County did not adequately comply with these regulatory requirements.

Second, by substituting its own resources and personnel for those of Rockland County, New York State did not implement its plans at the exercise as required by 44 C.F.R. Section 350.9. Therefore, it must be concluded that New York State's implementation of its compensating measures during the exercise was inadequate.

- Deficiency: Rockland County has not finalized and adopted a radiological emergency response plan and procedures to respond to an emergency at IP 2 (NUREG-0654, I.E.).
- Recommendation: Rockland County should finalize and adopt a radiological emergency response plan and procedures to respond to an emergency at IP 2.
- Deficiency: Rockland County officials and personnel did not participate in the IP 2 exercise of March 9, 1983 (NUREG-0654, II.N.1.b).
- Recommendation: Rockland County should participate fully in the next exercise of radiological emergency response plans and preparedness for IP 2.
- Deficiency: New York State did not implement its compensating measures in a manner consistent with its plan or procedures (NUREG-0654, II.A.1.b).
- Recommendation: New York State should improve its capability to implement compensating measures in light of the nonparticipation by Rockland County emergency response personnel at the March 9, 1983, exercise.

The sections that follow are an evaluation of the emergency response capabilities implemented by state personnel, demonstrating the New York State compensating measures in Rockland County.

2.5.1 Emergency Operations Facilities and Resources

Emergency operations facilities and resources were acceptable, with the exception of deficiencies noted below. Communications systems with contiguous state and local governments, the nuclear facility, and the near-site EOF were good. Dedicated telephone lines were used as the primary communications systems with radio backup by the New York ODP and RACES. Communications

between the Rockland County and Bergen County EOCs need improvement: two systems were used, a radio channel and telephone. However, because the radio channel also was used for communications with field monitoring teams in Rockland County, the large volume of communications traffic between field monitoring teams and the Rockland County EOC limited the availability of this system to the Bergen County, New Jersey, EOC. On several occasions, the Bergen County EOC director had difficulty in reaching his counterpart in Rockland County on the telephone.

Deficiencies in equipment and procedures for external communications were noted at the 1982 exercise. Equipment deficiencies have been corrected by the installation of a backup radio system between the EOC and both the EOC and County Warning Point (CWP), and an extension of the RECS line in the dose assessment room. Staff support was adequate once the state takeover of the EOC was complete.

The working space and amenities of the EOC were good. The dose assessment function was performed in a large, well-equipped room. This improvement corrects a deficiency identified at the 1982 exercise.

Internal communications within the EOC were acceptable. Status boards were posted and, in general, kept up to date. Since the 1982 exercise, internal communications have been improved by the installation of several status boards. These status boards were clearly visible in the operations room, and were frequently updated. At the early stages of the exercise, when the EOC was not fully staffed, delays arose in relaying information to the operations staff.

Maps, displays, and EOC security were acceptable. Maps of population distribution, by ERPA, and evacuation routes were posted in the main operations room. Maps of evacuation routes and field sampling points were posted in the accident assessment room. A number of maps also were posted in the PIO room and in the command room; it is recommended that a full set of maps be posted in each room. A map of congregate care and reception centers listed the centers in Rockland County, but not those in Bergen County.

- Deficiency: Communications systems between the EOCs in Rockland County and Bergen County, New Jersey, need improvement (NUREG-0654, II.F.1.b).
- Recommendation: Another communications link between the Rockland County and Bergen County EOCs is desirable, whether another radio channel, a dedicated telephone line, or an extension of RECS.
- Deficiency: Maps showing the location of congregate care centers in Bergen County, New Jersey, were not posted in the Rockland County EOC (NUREG-0654, II.J.10.a).

- Recommendation: A map of congregate care centers in Bergen County should be posted in the Rockland County EOC.

2.5.2 Alerting and Mobilization of Officials and Staff

Alerting and mobilization of officials and staff were acceptable. However, inevitable delays of 60-90 minutes were observed in the arrival of some New York State personnel who served as officials and staff in the place of Rockland County personnel in the exercise.

The capability for 24-hour initial emergency response is provided by the CWP, which is staffed on a 24-hour basis and is located on the same floor as the county EOC. The state warning point, which is also staffed on a 24-hour basis, was used to notify state personnel called in to participate in the state compensating measures.

The ability to sustain 24-hour continuous operations was not fully demonstrated in the March 3, 1982, exercise. This year, the state demonstrated an acceptable capability to sustain continuous operations in Rockland County. Sufficient backup personnel were available, and shift changes were demonstrated. However, the Department of Health (DOH) personnel from Monticello did not demonstrate a shift change; they were unaware of procedures for 24-hour operations and are in need additional training.

Procedures for notifying emergency response organizations and for alerting, notifying, and mobilizing emergency response personnel were good, given the inherent delays in mobilizing those state personnel from outside Rockland County. The utility notified the CWP of an Unusual Event classification. Because Rockland County did not participate in the exercise, a request was made to the Southern District ODP in Poughkeepsie for state assistance, which carried out the alerting and notification of state emergency response personnel. Initial activation and staffing of the EOC by state personnel took 60-90 minutes. This is about the best that could be expected in light of the distances traveled: personnel were mobilized from Albany, Monticello, Poughkeepsie, and Rockland County.

Telephone and radio communications equipment used for alerting and activating emergency response personnel were good. The notification and mobilization of evacuation bus drivers were not demonstrated; drivers were prepositioned at the Haverstraw Transit Co. depot. According to the dispatcher at the Haverstraw Transit Co., past experience in snow and other emergencies indicates that 90 drivers can be notified by telephone and mobilized within 30 minutes. It is recommended that the bus company acquire radios to communicate with its buses and the Rockland County EOC so that telephones need not be relied on as the sole communications system. The capability to communicate with fixed and mobile medical support facilities was good: all ambulances have radio links directly with all hospitals and with the ambulance coordinator in his car or through the sheriff's office.

- Deficiency: DOH personnel based in Monticello were unfamiliar with procedures for 24-hour continuous emergency response operations (NUREG-0654, II.A.4).
- Recommendation: DOH personnel with duties in Rockland County should be given additional training in Rockland County plans and procedures.
- Deficiency: The bus company communications which were activated for the exercise to communicate with both the EOC and its drivers depend on commercial telephone lines exclusively; these lines may be unreliable during an actual emergency (NUREG-0654, II.E.1, II.E.2).
- Recommendation: Each Rockland County transportation company with an emergency response mission should acquire equipment to permit radio communications with its vehicles and with the transit coordinator in the EOC.

2.5.3 Emergency Operations Management

Emergency operations management by the state management team in the EOC was good. The state DPC representative demonstrated effective control of emergency response and held staff briefings on a regular basis. The emergency classification system was used correctly. The state established field monitoring teams, PMCs for monitoring and decontaminating emergency workers, and a reception center for evacuees. State personnel at these facilities demonstrated good capabilities.

2.5.4 Public Alerting and Notification

Public alerting and notification in Rockland County were good. The systems used for prompt notification of the public included outdoor sirens and tone alert radios at special facilities. The siren system and tone alert radios were activated at the Site-Area emergency classification in a timely fashion.

FEMA currently is developing guidance and regulations that will constitute the requirements for fully testing alerting and notification systems. Until this process is complete, only spot-check observations can be made of the effectiveness of these systems.

Field observers reported, on the basis of personal observation and interviews with residents, that the sirens generally were audible within the 10-mile plume exposure pathway EPZ. This is a marked improvement from the 1982 exercise, at which the siren system was reported by many observers to be inaudible. A number of facilities that were to receive tone alert radios were

surveyed. Many reported that the units functioned properly. However, some locations have not yet received their radios, and other facilities where the radios had been installed reported that their personnel had not been trained in their use.

Activation of the EBS system was coordinated with the sounding of sirens within the 10-mile plume exposure pathway EPZ and it functioned in an acceptable manner. However, the public has not yet received the new brochure containing instructions to turn to the EBS station for information when the sirens are sounded. This may limit the effectiveness of public alerting and notification in Rockland County. (See Sec. 2.5.5 for a discussion of public education issues.)

During the exercise, the early dismissal of school children was simulated at the Alert classification. This activity was reported in a (simulated) press release at 9:45 a.m., and in the first rumor-control tape shortly thereafter. However, early school dismissal was not announced in an EBS message until 11:38 a.m. The state's compensating measures and the school evacuation procedures should clarify procedures for notifying parents of early dismissal of school children.

2.5.5 Public and Media Relations

Public and media relations in Rockland County need improvement. The 1982 post-exercise assessment questioned the effectiveness of the public education program in Rockland County. As the Rockland County plan has not been completed, no public education brochure has been distributed to Rockland County residents during the last year. Spot-check interviews with residents on the day of the exercise indicate that, although the sirens were heard, the public is not aware that instructions are to be transmitted via EBS, and have no understanding of what protective actions may be required. Several hotels in Rockland County within the 10-mile plume exposure pathway EPZ were visited on March 8 and 9, 1983; none were equipped to advise their guests on steps to take during a radiological emergency at the Indian Point Nuclear Power Station. Thus, the public education program for the permanent and transient population in the 10-mile plume exposure pathway EPZ needs to be improved. The limited public education program in Rockland County impacts the effectiveness of the prompt alerting and notification systems (see Sec. 2.5.4, above).

Communications between the Rockland County EOC and the joint media center in Verplanck, New York were good. State personnel demonstrated a good capability to replace county PIOs at the Rockland County EOC and the joint media center in Verplanck. State PIOs at the two facilities communicated over a telephone line that was kept open throughout the exercise. Hard copy press releases and EBS messages were exchanged over the telefax. At the joint media center, the telefax machine was not operating at one point, but this situation was rectified. (See Sec. 2.3 for further discussion of joint media center operations.)

Coordinated arrangements for rumor control were good. The rumor control system was operated from the joint media center. Test calls by federal observers demonstrated that individuals staffing the telephones had up-to-date information and were able to obtain additional information as needed. Radiological conditions required officials to transfer the media center to an alternate location. The capability to maintain rumor control activities during the (simulated) process of relocating the joint media center was adequately demonstrated.

- Deficiency: The annual public education brochure has not been distributed in Rockland County (NUREG-0654, II.G.1).
- Recommendation: Publication and distribution of the public education brochure for Rockland County should be expedited.
- Deficiency. There was no evidence of signs or notices posted in hotels and motels within the 10-mile plume exposure pathway EPZ to provide helpful emergency information to transient population (NUREG-0654, II.G.2).
- Recommendation: As soon as possible, the necessary public information materials should be posted in hotels and motels to inform transient populations who may come into the 10-mile plume exposure pathway EPZ in Rockland County.

2.5.6 Accident Assessment

Accident assessment functions which were carried out by state personnel normally based in Albany and Monticello were good. The two state field monitoring teams demonstrated a good capability to take radiological measurements within the 10-mile plume exposure pathway EPZ; adequate equipment was available, and teams demonstrated acceptable to good levels of familiarity with field monitoring procedures. The three models of monitoring instruments available to field monitoring teams spanned the recommended range of 0.1 to 50 R/hour. All instruments had been calibrated according to the schedule specified in the state plan, and operability checks were performed immediately prior to use. The two field monitoring teams were familiar with their procedures; readings in mR/hour and counts per minute were accurately taken, properly recorded on data sheets, and transmitted to the EOC. The air sample was taken and analyzed as specified; procedures for measuring radioiodine concentrations in the plume, including the use of silver zeolite cartridges, were well understood.

Several areas for improvement, however, were noted; one field monitoring team was not aware of the requirement for cloud gamma surveys at six inches and three feet above ground level, with open and closed window on the CDV-700 instruments, nor of the three-point, equilateral triangle survey

pattern called for in the procedure in the kit. Collection of the air sample was performed correctly. However, it required an excessive time; this could be detrimental under actual field conditions. Additional training for members of field monitoring teams beyond the 10 to 12 hours each received could significantly improve performance in these areas.

The Rockland County EOC was established as a central point for the receipt and analysis of field data and samples. The state field monitoring teams in Rockland County demonstrated a good capability to relay data to the EOC, using RACES. However, some minor delays in communications were noted.

Dose assessment staff in the Rockland County EOC demonstrated a good capability to independently evaluate the potential magnitude and location of radiological hazards. This assessment was coordinated with the state and utility through the use of telefax and dedicated telephone line communications systems in the Rockland County EOC. Dose calculations, which were made using hand-held calculators, could be improved by using preprogrammed calculators.

The state dose-assessment staff in the Rockland County EOC demonstrated an excellent capability to develop independent protective action recommendations based on projected or actual conditions. Recommendations were coordinated with the state EOC.

2.5.7 Actions to Protect the Public

State personnel demonstrated several protective actions in Rockland County during the exercise. Although these actions were capably performed, they were not performed according to written plans or procedures, since evacuation of the transit-dependent population is not covered in the state compensating measures. The bus company that was used, and the routes that were driven, are not specified in the draft Radiological Emergency Response Plan for Rockland County. Therefore, the actions that were performed during the exercise do not show that the public could be protected in an actual radiological emergency at the Indian Point Nuclear Power Station. Simulation of procedures for identifying and dealing with potential impediments to evacuation was good. State police were dispatched to the scene of a simulated impediment and coordinated with state and local fire protection personnel to identify the resources needed to clear the impediment.

The bus company demonstrated an acceptable capability to mobilize the vehicles and drivers required to serve two evacuation bus routes for the general population; several noninstitutionalized, mobility-impaired persons; and a school. All drivers were briefed on their assignments before being dispatched and drove their routes easily. Buses used for evacuation were not equipped with radios. (See Sec. 2.5.2, above.)

The capability for processing evacuees at a reception center was acceptable. State employees performed all functions that would normally be

carried out by Rockland County personnel. Personnel contamination scans were demonstrated; instrumentation and procedures complied with requirements of the "New York State Emergency Worker Reference Manual." Measures for separation of contaminated and clean persons, waste disposal, record keeping, and communications were adequately demonstrated. However, staff at the facility had only four to five hours of training in the use of radiological survey equipment; additional training is needed to familiarize staff with the use of survey equipment and the interpretation of survey results.

- Deficiency: Due to the absence of detailed evacuation plans and procedures for Rockland County in the state compensating measures plan, the capability to implement actions to protect the public could not be measured against a plan (NUREG-0654, II.J.10.g).
- Recommendation: Detailed evacuation plans and procedures should be developed and incorporated within the plans.
- Deficiency: The buses used for evacuation were not equipped with radios (NUREG-0654, II.J.10.g).
- Recommendation: Each bus used for evacuation should be equipped with a radio.

2.5.8 Health, Medical, and Exposure Control Measures

Health, medical, and exposure control measures in Rockland were acceptable, with the exception of the deficiencies noted below. State personnel at the Rockland County EOC, field monitoring teams, reception center staffs, and state police in the field demonstrated a good capability to implement health, medical, and some radiological exposure control measures. However, many of the emergency response personnel lacked either radiological exposure-control equipment, training, or both.

Potassium iodide was distributed to field monitoring teams, workers at PMC, and New York State Police, all of whom had been trained in its use. Bus company personnel had not received KI, although as emergency workers they should be given KI and trained in its use. Provisions at the EOC for use of KI by emergency workers were outstanding; periodic projections were made of radioiodine doses for emergency workers. These projections were compared with the action level (25 R) specified in the plan; the EOC would have directed emergency workers to take KI if doses of 25 R were projected.

The capability to determine doses received by emergency workers, including frequent readings of dosimeters and maintenance of dosage records, was highly variable:

- The monitoring teams and PMC personnel demonstrated an outstanding capability. All team members had 0-5 R dosimeters, took frequent readings, maintained records, and relayed readings to the EOC. Team members also had TLDs.
- Capability of state police needs improvement. Protective clothing was available, as specified in the plan. Although state police stationed at the Rockland County EOC has TLDs, not all state police assigned to field locations were issued those devices. Both 0-5 R and 0-200 R dosimeters were available; state police took periodic readings and maintained dose-record cards.
- Capability of staff at the reception center needs to be improved. Staff were issued 0-200 R dosimeters, but did not have permanent-record dosimeters or dosimetry record cards. Moreover, they were not adequately trained in dosimetry; one monitor reported a reading of 7 R at 12:30 p.m., after having zeroed the dosimeter that morning. The monitor showed no awareness of allowable dose or of procedures for reporting an accumulated dose beyond the 100 mR specified in the plan.
- Capability of the bus company dispatcher and drivers was lacking. Nine 0-200 R dosimeters and one charger were available for 90 drivers. The dispatcher acknowledged unfamiliarity with dosimetry procedures, including re-charging of dosimeters and maintenance of records. Drivers had not been trained in the reading of dosimeters, nor had they received instructions to report their accumulated dose to the dispatcher. No permanent-record dosimeters were available for bus company personnel.

Personnel at the PMC demonstrated an outstanding capability to determine the need for decontaminating personnel and equipment, and had established adequate procedures, facilities, and supplies for carrying out the decontamination operations. Personnel were identified for continuous 24-hour operation of the facility.

A separate medical drill was conducted the evening of March 8, 1983. An ambulance transported an off-site radiological accident victim to Good Samaritan Hospital in Suffern; the hospital was notified by the ambulance crew to prepare for a contaminated patient. The capabilities of the hospital were good. The hospital had calibrated monitoring instruments and adequate procedures for monitoring and decontaminating the patient. The procedures for decontaminating a compound fracture were adequately demonstrated. A health physicist on the hospital staff was available for assistance during this procedure.

- Deficiency: Permanent-record dosimeters and self-reading pocket dosimeters were not available in sufficient numbers for all emergency workers (NUREG-0654, II.K.3.a).
- Recommendations: Both permanent-record dosimeters and self-reading pocket dosimeters should be procured for distribution to all emergency workers.
- Deficiency: Bus drivers and dispatchers were untrained in exposure control procedures (NUREG-0654, II.K.3.b).
- Recommendation: All emergency workers should be fully trained in radiological exposure control procedures, including the use of dosimeters and KI.

2.5.9 Recovery and Reentry Operations

State personnel in the Rockland County EOC demonstrated a good capability for recovery and reentry operations. The EOC director consulted with heads of all departments. Dose assessment personnel considered the data on radiation levels and made recommendations as to when each affected ERPA could be safely reentered. On the basis of these recommendations, the EOC director consulted with the state EOC in Albany for a final decision on reentry. The PIO, after consultation with the radiological specialist, drafted an EBS message on reentry. In an actual emergency, this message would have been telefaxed to the joint media center, where PIOs for all jurisdictions would coordinate a joint EBS message. A committee was established to plan long-range recovery operations, particularly for the 50-mile ingestion exposure pathway EPZ.

2.5.10 Relevance of the Exercise Experience

The scenario provided a good test of the ability of the state to supplement county resources as called for in the compensating measures.

2.6 ORANGE COUNTY, NEW YORK

2.6.1 Emergency Operations Facilities and Resources

Overall, the Orange County emergency operations facilities and resources were good. The emergency response personnel in the Orange County EOC in Goshen operated in a professional manner throughout the exercise. In response to a deficiency identified during the 1982 exercise, office space was

reorganized to facilitate better use of the facility and the deficiency is corrected.

The equipment for Orange County's external communications with the two state EOCs as well as the Orange County executive hot line worked well. This equipment was deficient in the 1982 exercise and has been corrected. The support provided by the County of Orange Emergency Volunteer Service, which is the local RACES organization, was outstanding. Nine new telephone lines, including three dedicated lines, were added and operational, also correcting deficiencies noted in the 1982 exercise.

Internal communications deficiencies identified in the 1982 exercise were corrected by maintaining up-to-date status boards and displaying well-marked maps showing evacuation routes, sampling points, and reception and congregate care centers. Each player was also provided with a county population map, and agency log sheets were distributed to all players. After the 1982 exercise, the RAC recommended that radiological field monitoring data should be transmitted directly to the accident assessment room; however, the chief radiological officer felt this would be distracting. The communications center handled the data expeditiously, and the deficiency identified in the 1982 exercise stands corrected.

The EOC working space and equipment were adequate to support the required emergency responses. Adequate security measures were taken and comprehensive logs were kept, again ensuring the smooth operation of the EOC.

2.6.2 Alerting and Mobilization of Officials and Staff

The alerting and mobilization of officials and staff were good. The activation and staffing of the Orange County EOC were accomplished efficiently, with key personnel arriving within 25 minutes of the Alert classification. Full staffing was achieved 45 minutes after the declaration of Alert classification. The utility notified the CWP over the RECS telephone system and verified the receipt of notification by land lines. The county also has a private telephone company which can call officials and staff. This private system was not used during the exercise because it is quite expensive to operate. Most of the personnel responsible for other emergency response activities outside the EOC were notified expeditiously and facilities were promptly activated.

Sufficient staff were available to provide 24-hour emergency response capability. There are backup staff for key personnel, and they have been trained and have attended meetings to discuss EOC operations, thereby correcting a deficiency noted in the 1982 exercise.

Communications systems among all county response agencies and field support staff operated effectively. These systems include civil defense radios, RACES, RECS, and walkie-talkies. Meetings have been held to provide

additional training to facilitate communications with field personnel and the deficiency noted in the 1982 exercise has been corrected.

A county representative was not dispatched to the EOF, since the representative chosen is being trained.

2.6.3 Emergency Operations Management

Emergency operations management was good. The Orange County Executive was responsible for overall management of the EOC with the Assistant Director of the Office of Natural Disaster and Civil Defense delegated responsibility for internal operating decisions. The County Executive was directly involved in major decisions. However, it is suggested that additional support staff be provided to handle routine activities, thereby freeing senior management for more-critical functions.

An emergency classification system consistent with that of the utility was effectively used and conveyed to EOC staff and other emergency response organizations.

All emergency response organizations listed in the plan were represented in the exercise (at least one of each category was activated -- PMC, congregate care center, reception center, etc.) and were effectively managed. Response organizations were familiar with their standard operating procedures (SOPs) which served as action checklists. There was some initial confusion with the evacuation of school children but the school superintendent quickly clarified the problem. The bus coordinator at the bus company servicing the evacuation route tested in this exercise responded in an especially professional manner indicating familiarity with all procedures related to evacuation.

Staff briefings were held on a regular basis at the EOC, occurring approximately every half hour. In the 1982 exercise, a deficiency indicated that the wall between the executive room and the main operations area of the EOC should be removed to facilitate effective communication. However, it was demonstrated during the March 9, 1983, exercise that this wall actually minimizes noise and provides privacy required for the County Executive's decision-making responsibilities. Therefore, it was determined that the previously recommended change in the EOC layout is no longer necessary.

2.6.4 Public Alerting and Notification

Public alerting and notification in Orange County were good. FEMA currently is developing guidance and regulations which will constitute the requirements for fully testing alerting and notification systems. Until this process is complete, only spot-check observations can be made of the effectiveness of these systems. Most of the people interviewed in the field

on the day of the exercise reported to federal observers that they heard the alerting sirens. However, it was also determined that most of those interviewed neither understood the meaning of the sirens nor knew that they were to listen to EBS messages broadcast over WABC (AM 770). The sheriff effectively simulated procedures for notifying residents and transients in parks and trails.

School administrators were notified by telephone to effect an early dismissal of school children. There was some internal confusion related to the dismissal of school children and adequate notification of the public. However, schools were promptly closed and there was simulated notification of radio stations that students should remain at home.

EBS messages were posted and distributed to staff, thus correcting a deficiency identified in the 1982 exercise. The telefax machine linking the Orange County EOC with the joint media center in Verplanck, New York was not operating at one point, but this situation was rectified. (See Sec. 2.3 for further discussion of joint media center operations.) Federal observers made telephone calls to the rumor control number which were answered by a recording correctly reporting the emergency situation..

2.6.5 Public and Media Relations

Public and media relations were acceptable. Public information brochures had been disseminated to the public within the 10-mile plume exposure pathway EPZ during the week prior to the exercise. Public information posters were posted throughout the county, providing radiological emergency information for residents and transients. These actions correct a deficiency from the 1982 exercise by providing additional public education.

The PIO at the EOC served competently as a liaison between the Chief Executive Officer and the county PIO at the joint media center, communicating via an open telephone line.

The county PIO at the EOC viewed major media briefings on monitors, correcting a deficiency from the 1982 exercise. There were no media briefings at the EOC since the media were not admitted to the facility. The exchange and release of information went well between all counties and between the Orange County EOC and other Orange County emergency response facilities. However, there were several problems involving the timeliness and accuracy of news releases for Orange County issued from the joint media center.

- Deficiency: Some Orange County news releases were issued late and contained inaccuracies (NUREG-0654, II.G.4.b).
- Recommendation: The timeliness and accuracy of Orange County news releases should be improved.

2.6.6 Accident Assessment

Accident assessment was good. The accident assessment teams in both the Orange County EOC and the field demonstrated competency in completing their tasks. The teams demonstrated that they had been thoroughly trained.

The chief radiological officer directed the dose assessment effort. This officer chose to activate both primary and secondary teams to maximize the training value of the exercise. Even with excessive staff, the team performed smoothly.

The field survey teams thoroughly checked their equipment prior to leaving the EOC for their assigned locations. The teams had both low- and high-range monitoring instruments, correcting a deficiency noted in the 1982 exercise. All instruments were labeled with records indicating that they had been calibrated within the prescribed time period. The teams had silver zeolite filters for air sampling equipment, also correcting a deficiency noted in the 1982 exercise.

The teams followed the monitoring procedures. However, measurements could be taken faster with more practice. The independent external dose projections agreed with those made by the State Health Department.

Radiological field monitoring data was transmitted to the communications staff at the EOC. Although it was recommended after the 1982 exercise that these data go directly to the EOC assessment staff, the internal EOC communications personnel expeditiously transmitted the data to the accident assessment staff.

2.6.7 Actions to Protect the Public

Actions to protect the public were acceptable, although several areas need some improvement. Sufficient personnel and resources were available to implement protective actions.

The capability to evacuate the general population was successfully demonstrated. The ten bus drivers responsible for driving evacuation routes serviced by the bus company observed at the exercise have recently completed a comprehensive training program. Although the exercise required that only one route actually be demonstrated, six drivers were placed on standby at the Alert classification. Each driver is assigned one specific route, but all drivers are familiar with the area and can easily interchange route assignments.

The county has vehicles (ambulances and specially-equipped buses) to relocate noninstitutionalized, mobility-impaired persons. The state has identified those individuals in Orange County who may require special arrangements. This list should be provided to the county and maintained at

the county EOC. The capability to relocate noninstitutionalized, mobility-impaired persons was simulated.

The establishment of traffic control points was simulated, and one traffic control point was partially demonstrated. Although there was some confusion as to the exact location for setting up the barricades, the sheriff was clearly aware of the procedures for controlling traffic.

The reception center at Temple Hill School was located about 10 miles outside the 10-mile plume exposure pathway EPZ. The center has a clear management structure, adequate space, good communication facilities, and sufficient parking for segregating clean and contaminated vehicles.

The Orange County RERP requires that a reception center provide one set of directions, i.e., a map to the congregate care center for each group of four evacuees who require congregate care. When maps for one congregate care center have run out, that center can be assumed to be full. However, the reception center staff prefers to keep track of the number of people sent for congregate care; the staff informs the Commissioner of Social Services, who then makes the decision to activate another congregate care center. If the reception center chooses to use this system, the Orange County plan should be changed accordingly and personnel should be clearly informed of the changed procedures. The reception center does not have provisions for the handicapped such as wheelchairs and ramps. This is a deficiency that was also noted in the 1982 exercise.

The congregate care center that was activated at the Newburgh Free Academy was adequately staffed by the American Red Cross. The facility had adequate supplies and equipment, parking space, communications equipment, sleeping accommodations, and a nurse for health care. An evacuee who arrived at the congregate care center without papers indicating he had undergone monitoring was sent to the reception center for monitoring. This procedure is preferable to that specified in the plan, which requires that a monitoring team be dispatched to the congregate care center. The plan should be changed to reflect the procedure that was used during the exercise.

- Deficiency: Provisions for care of the handicapped such as wheelchairs and ramps, should be considered at the reception centers. This deficiency was also noted at the 1982 exercise (NUREG-0654, II.J.10.d).
- Recommendation: Provisions for care of the handicapped should be considered at reception centers.

2.6.8 Health, Medical, and Exposure Control Measures

Health, medical, and exposure control measures were acceptable. The Orange County Department of Health was aware of the criteria for issuance of

KI to emergency workers and KI was included in the field monitors' and bus drivers' kits.

The sheriff's forces were deployed quickly to provide traffic control. However, they were not aware of the procedures for radiological exposure control and did not have KI or dosimeters. The sheriff's personnel who are involved in evacuation activities should be trained in exposure control measures.

Other than the sheriff's personnel, all emergency response personnel observed in the Orange County portion of the 10-mile plume exposure pathway EPZ had KI, self-reading dosimeters, and permanent record dosimeters. All of the emergency personnel observed knew how and when to read the dosimeters issued to them.

The method for radiological monitoring of evacuees at the reception center and emergency workers at the PMC did not follow the procedures in the plan, which calls for scanning at a rate of approximately one foot per second at a distance of one inch from the surface of the area being monitored, and establishes a dose rate of 0.1 mR/hour or above for decontamination. The monitoring of evacuees and emergency personnel was completed at a slower rate than prescribed in the plan and this could potentially inhibit the flow of persons. Additional training would speed up their activities. Also, the method in the plan could be utilized for initial monitoring of evacuees and vehicles at the reception center. Any evacuee or vehicle contaminated with more than the 0.1 mR/hour limit should be sent for more comprehensive scanning. Levels for decontamination should be posted in the reception center. Procedures for decontamination at the reception center should be reviewed; it is not necessary to shower when only a portion of the hand is contaminated. Waste disposal bags should be provided for permanently disposing of contaminated clothing. As was recommended after the 1982 exercise, workers performing radiation monitoring and decontamination have undergone additional training, and the deficiency noted in the 1982 exercise is corrected. However, additional ongoing training will certainly further benefit emergency workers.

The PMC personnel did an excellent job of decontaminating personnel, equipment, and vehicles.

- Deficiency: The sheriff's personnel who are responsible for traffic control were not aware of the procedures for exposure control and did not have KI or a dosimeter (NUREG-0654, II.K.3.b).
- Recommendation: All emergency workers should be fully trained in radiological exposure control including the use of dosimeters and KI.

2.6.9 Recovery and Reentry Operations

Recovery and reentry operations were good. Agency representatives at the EOC were aware of their recovery and reentry responsibilities as described in the plan. Operations were successfully simulated but these simulations were limited by the duration of the exercise. Simulated activities included soil and water sampling, air monitoring, and spot-checks on food supplies and buildings. The determination to permit reentry was based on this simulated information.

2.6.10 Relevance of the Exercise Experience

The relevance of the exercise was good. The exercise was beneficial for players, allowing them to demonstrate capabilities and receive on-the-job training and experience. Players did not indicate a preknowledge of the off-site emergency response activities called for by the scenario.

The scenario was adequate but limited the functions which the county was called on to perform. Orange County appeared capable of successfully demonstrating many more activities. In fact, the bus coordinator indicated a desire to run more evacuation routes.

All county agencies participated fully in their required response activities. All elements of the plan and county response agencies were tested. The county successfully demonstrated the capability to work with the state, other affected counties, and local resources.

2.7 PUTNAM COUNTY, NEW YORK

2.7.1 Emergency Operations Facilities and Resources

Emergency operations and facilities in the Putnam County EOC were good. The EOC was promptly activated, fully staffed, and well managed throughout the exercise. Space within the EOC is limited, but this did not impair emergency response operations. Effective security was quickly established. A sheriff's deputy was stationed at the EOC entrance and controlled access throughout the exercise. A log was kept of persons entering and leaving the EOC. Displays in the EOC were generally good. A status board and maps showing evacuation routes, ERPAs, population distribution, and monitoring points were all visible, but a clearly marked map showing congregate care centers and reception centers was not displayed.

Communication links were effectively and efficiently monitored. The primary system for communication with state and local governments within the 10-mile plume exposure pathway EPZ was by RECS line, with radio and commercial telephones available as backup. Communication from the EOF was by radio,

verified with hard copy from a telefax. During the morning of the exercise, the EOF did not receive radiological data transmissions from the Putnam County EOC because the telefax telephone line used by the Putnam County staff was not the one over which staff at the EOF expected to receive data. This problem was corrected at one over 2:00 p.m. Internal communications were very good and consisted of frequent briefings, as well as distribution of messages to players.

2.7.2 Alerting and Mobilization of Officials and Staff

The overall alerting, mobilization, and capability for 24-hour staffing of emergency operations were good in Putnam County. Emergency response personnel were quickly alerted and mobilized. All personnel were notified approximately 20 minutes after activation of the EOC, and the EOC was fully staffed within 90 minutes. In particular, the field monitoring teams responded expeditiously. The RACES volunteers proved to be an outstanding communications resource.

The county possesses sufficient staff for continuous operations on a 24-hour basis, although the proficiency of the individuals varies. The field teams demonstrated two shift changes. However, a shift change for the radiological officer was not observed.

2.7.3 Emergency Operations Management

Emergency operations management at the EOC was good. All response organizations sent representatives to the EOC, and these representatives effectively coordinated the actions of their organizations. The County Executive, the County Executive's deputy, and the Civil Defense Director provided outstanding leadership and actively participated in decision-making. Both the County Executive and Civil Defense Director periodically gave effective and professional staff briefings. The limited size of the EOC made effective control essential, and control was maintained throughout the exercise. The emergency classification system was used in the initial notification and changes in the emergency status were clearly displayed in the EOC throughout the exercise.

Written SOPs were available for all emergency response personnel. Each agency representative reported to the EOC with their action guides and contact list. These players referred to these materials as the exercise progressed.

2.7.4 Public Alerting and Notification

Public alerting and notification in Putnam County were good. Public alerting was accomplished by the use of sirens and tone alert radios within the 10-mile plume exposure pathway EPZ. The sirens sounded at approximately 9:45 a.m.; public interviews indicated that people heard the sirens.

FEMA currently is developing guidance and regulations that will constitute the requirements for fully testing alerting and notification systems. Until this process is complete, only spot-check observations can be made of the effectiveness of these systems. Many of the people interviewed in the field on the day of the exercise were aware that they should turn their radios to the EBS station after hearing the sirens, and indicated that they were aware of this procedure from information received in utility brochures mailed to their homes and from radio reports.

The EBS system was promptly activated when the sirens sounded. Additional EBS messages were prepared throughout the day, and their transmission was simulated. (See Sec. 2.3 for further discussion of joint media center operations.) Tone alert radios functioned well. Calls were made to nearly all of the private and public schools, nursing homes, day care centers, convents, and monasteries that have tone alert radios. All but one confirmed the activation of tone alert radios at 9:45 a.m.

2.7.5 Public and Media Relations

Public and media relations were good in Putnam County. Public information activities were fully coordinated between the EOC and the joint media center. The county had a PIO in the joint media center and another in the EOC throughout the exercise. These individuals were in constant communication and exchanged hard copy news releases by telefax machine. The PIO in the EOC was in constant communication with the media center and with decision-makers in the EOC. Based on these conversations the PIO was able to produce timely and informative press releases. Backup capability was evident from a call list that showed several persons with PIO training. The county PIO spokespersons had access to pertinent information and there were adequate channels for obtaining additional information to prepare press releases. The appropriate agency representatives were consulted prior to preparing releases. Releases were received from other jurisdictions.

An adequate public information brochure has been developed, and was recently mailed to the public within the 10-mile plume exposure pathway EPZ. This is an improvement since the 1982 exercise.

Emergency procedures posters have been distributed; however, they were seen in only a few locations.

A separate telephone line was provided for the public in Putnam County to call and obtain emergency information. This telephone number was listed in the brochure mailed to the public. The telephone line was continually monitored and received approximately 12 calls on the day of the exercise. The operator was located in the EOC, within sight of the operations board, and had access to all up-to-date information.

2.7.6 Accident Assessment

Accident assessment in the EOC and the use of field monitoring teams were acceptable. However, operating procedures that appear to conflict with training received by field personnel need to be reviewed. Each monitoring team was furnished with the required equipment to carry out its duties. Information was effectively transmitted back to the EOC, but necessary updates were not transmitted to the field teams.

Radiological instruments available to the field monitoring teams included a CDV-700, a CDV-715, a RM-14, and a PRM-7. The instruments were checked before departure from the EOC, and all instruments had stickers indicating that they had been calibrated within the past year and mostly within the past month, correcting a deficiency from last year. Field data were easily transmitted to the EOC through the RACES operator. However, information flowed in only one direction, into the EOC. Therefore, field teams were not kept informed of current emergency escalation, meteorological data, or releases of radioactive material.

The radiological officer received and analyzed the field data. At one point some confusion arose concerning measurements requested by the EOC. The field team could not make the measurements requested and reported "off-scale" readings. The radiological officer was not familiar with the available instrumentation and procedures used by the field team. These field monitoring procedures were changed within the week prior to the exercise. Additional training for both the field teams and the radiological officer would improve capability.

Four monitoring teams were mobilized for the exercise. Two were dispatched to the field and two were held in standby to replace the first two teams. Twenty-six people can be available; however, there is no backup equipment for these teams. The teams were deployed to specific coordinates to take measurements requested by the EOC. The radiation readings were performed accurately; however, the plan calls for a 10-ft³ air sample, but the teams were instructed to take a 30-ft³ sample. Field teams knew it was necessary to leave the plume to count their air samples, but did not know the maximum background activity level in the plan (500 cpm) they must be below. Teams were not aware that they should notify the EOC if they reach a field which is 2 times background. Teams had not seen the procedure manual in their kits before the exercise. More training consistent with established procedures needs to be provided.

Field survey techniques (operation of hand-held instruments) were good, but could be improved if the teams took readings at ground level and at a height of about 3 feet to determine if they are in the plume. Air samples had silver zeolite cartridges available, which corrects a deficiency from the 1982 exercise.

- Deficiency: Although field teams demonstrated capability and resources for field monitoring within the 10-mile plume exposure pathway EPZ, they were not completely familiar with the procedures outlined in the procedure manual (NUREG-0654, II.I.7).
- Recommendation: Field teams need additional training consistent with procedures outlined in the procedure manual.
- Deficiency: Although field data were effectively transmitted back to the EOC, necessary information updates were not transmitted to the field monitoring teams (NUREG-0654, II.F.1.d).
- Recommendation: Information exchange between the EOC and field monitoring teams needs to be improved so that field teams are kept informed of emergency escalation and meteorological data.

2.7.7 Actions to Protect the Public

Actions to protect the public (evacuation, activation of reception and congregate care centers, and transportation) were generally good. The congregate care facility was fully staffed, equipped, and well organized. The evacuation capability, which relies on commercial buses, is acceptable; however, the number of trained drivers and radios for buses are limited. All mobility-impaired persons can be evacuated by county vans.

A reception/congregate care center located in Dutchess County, New York was activated for the March 9, 1983 exercise. The facility had radio communication with the Putnam County EOC, police and security protection, nursing staff, cots and blankets, sufficient space to handle the potential number of evacuees, and separate rooms available for persons with special needs. Shelter personnel were trained in handling mass evacuees. Registration and record-keeping procedures were good. The facility had radiological monitoring capability and a separate decontamination area. The personnel monitoring procedures were good. Traffic patterns were separated for contaminated and uncontaminated evacuees, and the monitoring personnel were very thorough.

One bus was dispatched to test evacuation procedures. The bus driver was given a map of the evacuation route and arrived at the first stop within five minutes of leaving the bus depot. The bus stopped at all designated pick-up points and completed the evacuation route in 13 minutes. The bus was not equipped with a radio. The bus driver had received emergency response training; however, other drivers at the bus company have not been trained.

All drivers need additional training in evacuation procedures, routes to follow to pick up evacuees, and the location of reception centers.

Two traffic control points were established during the exercise. County police officers were dispatched to each location and arrived promptly. Both officers were knowledgeable about procedures to direct and reroute traffic in case of an evacuation. In accordance with the free play provided by the scenario, a traffic impediment resulting from an accident was simulated. Sheriff's deputies and state police officers were dispatched to the site, responding in six minutes.

The county has identified approximately 12 noninstitutionalized, mobility-impaired persons who would require special assistance during an evacuation. This special assistance can easily be provided by existing public resources, and was demonstrated by a van which was dispatched to one person's address.

- Deficiency: Putnam County transportation personnel have not been adequately trained regarding evacuation procedures, the routes they should follow to pick up evacuees and the location of reception centers (NUREG-0654, II.J.10.a, II.J.10.g).
- Recommendation: Bus drivers responsible for evacuation services should be trained regarding evacuation procedures and supplied with better maps and instructions concerning the routes and the locations of reception centers.
- Deficiency: The bus used for evacuation was not equipped with a radio for communication (NUREG-0654, II.J.10.g).
- Recommendation: Each bus used for evacuation should be equipped with a radio.

2.7.8 Health, Medical, and Exposure Control Measures

The adequacy of health, medical, and exposure control measures varied considerably in Putnam County. Field monitoring teams displayed a good knowledge of dosimetry; however, county police officers and bus drivers were not sufficiently aware of procedures for reading dosimeters and maintaining dose records. Scanning at the PMCs was also generally good. Control of access to evacuated areas was not demonstrated for this exercise; however, county police officers were knowledgeable about the procedures that would be used.

Each field monitoring team member was given three dosimeters (0-200 R, 0-5 R, and 0-200 mR) before deployment to the field. Emergency personnel were aware that the dosimeters should be read every 30 minutes, and that the EOC

should be notified if dosimeter readings approached 1 R. However, the latest revision of the Putnam County Radiological Emergency Response Plan calls for the reporting of dose readings of 100 mR. The radiological officer had appropriate log sheets for recording doses; however, these records were not maintained for the exercise. Initially, field monitoring teams did not call in readings because they were not given any numbers by the controllers. Some numerical readings were called into the EOC later in the day, but were not received by the radiological officer. The radiological officer demonstrated the ability to estimate doses based on field data and the time spent by emergency workers in the field. Each team member also had a TLD, correcting deficiencies identified in the 1982 exercise.

The two county police officers monitoring the traffic control points and the bus driver had dosimeters (1-5 R) and TLDs; however, the bus company had only one dosimeter. Additional dosimeters need to be provided for all drivers who might be called upon in a real emergency. Bus drivers and county police officers need to be better informed about dosimetry. Instructions on how often to read a dosimeter, the threshold limit, and the recording of doses were either lacking or confusing.

Both the reception center at John Jay High School and the PMC at Carmel Fire Station used a level of 0.1 mR/hour above background as a criterion for decontaminating equipment, vehicles, evacuees and emergency personnel. At the Highland Fire Department PMC there was some confusion about the decontamination limit. The PMC director had been informed that the decontamination level should be significantly higher than 1 mR/hour, but when questioned he indicated he would decontaminate anything above background. Typically, personnel were knowledgeable about monitoring methods and the need for decontamination.

Emergency personnel were documented upon arrival. Both congregate care centers were aware that personnel arriving without forms from a reception center or PMC had to be monitored before entry. This was demonstrated at the George Fisher Middle School. Both the reception/congregate care center and the PMCs had appropriate monitoring and decontamination facilities, including registration and record keeping for personnel. However, the Hopewell Junction reception/congregate care center did not have capabilities for monitoring or decontaminating vehicles. Additionally, personnel monitoring at the reception/congregate care center required 5-6 minutes per person. This will limit the ability to handle large numbers of people. Both the reception center and PMCs had appropriate waste disposal capabilities for solid and liquid waste, which corrects a deficiency noted in the 1982 exercise.

All emergency workers had KI with them and were aware that it should not be taken without specific authorization. Most emergency response workers were aware that the State Commissioner of Health is responsible for any instructions on the use of KI.

Although actual control of access to evacuated areas was not demonstrated for this exercise, the county police officers were knowledgeable about the procedures that would be used. Both officers observed mentioned the need to find out from headquarters what specific kinds of emergency vehicles would be allowed back into the evacuated area and the type of identification that would be required.

- Deficiency: Bus drivers and county police officers are not familiar with procedures for reading dosimeters, reporting and recording doses, exposure threshold limits and the use of KI (NUREG-0654, II.K.3.b).
- Recommendation: All emergency response personnel should be fully trained in radiological exposure control procedures, including the use of dosimeters and KI.

2.7.9 Recovery and Reentry Operations

Reentry operations were tested using simulated events as specified in the scenario. Based on interviews with personnel at the Putnam County EOC, it was determined that a generally acceptable capability exists to recover and reenter the area after a radiological emergency. The County Executive gave a brief oral description of what would have been done according to the plan. The radiological officer and deputy were also questioned and were aware of the procedures for extended monitoring and sample collection.

2.7.10 Relevance of the Exercise Experience

The overall relevance of the exercise experience was good. The scenario tested the capability to activate the Putnam County EOC and carry out the emergency response functions according to the county RER plan. The scenario also provided the opportunity to free play traffic control points, a bus evacuation route, police response to impediments of evacuation, and evacuation of mobility-impaired persons. Although the ability to monitor traffic control points and execute an evacuation route was tested, these events in no way taxed the ability of county and local personnel to respond, due to the limited number of points selected.

Local and state players and volunteers in general responded very well, and participated fully by actively carrying out assignments and responsibilities. It appears that all players learned things which would improve their performances in future exercises or emergencies. Some of the participants in key roles in the EOC were new to their assignments. The exercise was particularly valuable to these persons since it was their first experience.

2.8 DUTCHESS COUNTY, NEW YORK

Dutchess County is a host area for evacuees from Putnam County. The Dutchess County EOC was mobilized to coordinate the activation of the John Jay High School reception/congregate care center in Hopewell Junction. Due to the limited role of Dutchess County in the IP 2 exercise, only certain limited functions were observed.

2.8.1 Emergency Operations Facilities and Resources

The Dutchess County EOC had good facilities and resources to support emergency operations. The facility was somewhat crowded; however, this did not impair performance. Security measures were good. A guard was posted at the door and a record was kept of all people entering and leaving the EOC. Displays in the EOC were good. Maps showing evacuation routes, relocation centers, shelter areas, and population distribution were available. All maps and status boards were clearly visible to EOC staff. Although there was no weather status board or chart, current weather information was announced at the podium with a microphone. The communication systems functioned effectively. The primary communication system with state and local governments was by telephone, with a two-way radio providing a backup capability.

2.8.2 Alerting and Mobilization of Officials and Staff

Although a federal observer was not present and did not observe the alerting and mobilization of EOC staff, a detailed plan was available that summarized procedures. When the federal observer arrived at 12:00 noon, all EOC staff were present. Although a shift change was not demonstrated, each organization has backup personnel capable of providing continuous 24-hour emergency response capability.

2.8.3 Emergency Operations Management

The Dutchess County EOC displayed outstanding emergency operations management capability. The facility was fully staffed by dedicated and informed personnel, and it was well managed throughout the entire exercise. The County Commissioner was present and participated in decision-making. Primary and support functions had been assigned to specific organizational elements, and written SOPs for the various emergency classification levels were available for all organizations. All staff members were briefed regularly and on an as-needed basis. Briefings were clear, concise, and professional.

2.8.4 Actions to Protect the Public

A reception/congregate care center was activated in Hopewell Junction to receive Putnam County evacuees.

2.8.5 Relevance of the Exercise Experience

The exercise scenario was adequate to test the capability of Dutchess County to act as a host county.

2.9 BERGEN COUNTY, NEW JERSEY

Bergen County, New Jersey, is a host area for evacuees from Rockland County who require congregate care. The Bergen County EOC was activated on a limited basis, along with one congregate care center at the Arcola Methodist Church. Due to the limited role of Bergen County in the IP 2 exercise, only certain limited functions were observed.

2.9.1 Emergency Operations Facilities

Emergency operations facilities were acceptable, given the limited role of Bergen County in the exercise. The EOC was small, but adequate to accomplish the required emergency response tasks. There was a separate communications room, equipped with various radio systems; only two units were actually used in the exercise. The EOC was staffed by a director and a communications officer, so internal message handling was not a problem. Radio messages were recorded on a message form, and a log was kept by the EOC director. Although maps of New Jersey and Bergen County were posted, the EOC should also have maps of the 10-mile plume exposure pathway EPZ, with population by ERPA, evacuation routes, reception centers and relocation centers designated. A status board was not used, nor was the emergency classification posted.

- Deficiency: Maps of the 10-mile plume exposure pathway EPZ, including population (by ERPA) and evacuation routes, and maps of reception centers and relocation centers in Rockland and Bergen Counties were not posted in the Bergen County EOC (NUREG-0654, II.J.10.a, II.J.10.b).
- Recommendation: Maps of population by ERPA, evacuation routes, reception centers, and relocation centers should be posted in the Bergen County EOC.

2.9.2 Alerting and Mobilization of Officials and Staff

Alerting and mobilization of EOC and relocation center staff were good. The county civil defense administrative telephone is staffed on a 24-hour basis by an answering service, which is instructed to notify the civil defense director and radio operator, or their alternates, in an emergency. The Bergen County Sheriff's Department monitors a NAWAS point on a continuous basis. The American Red Cross, which is responsible for activating the relocation center, maintains a 24-hour notification system with staff on page call.

Both EOC and relocation center (Red Cross) staff have a capability to sustain continuous (24-hour) operations. However, a shift change was not demonstrated.

2.9.3 Emergency Operations Management

Bergen County has not formally adopted a radiological emergency response plan, nor defined the role to be played by its EOC in an incident at the Indian Point Nuclear Power Station. The Bergen County EOC was activated and was staffed with capable, well-informed people, but they had little to do. Communications with Rockland County occurred on a sporadic basis.

The American Red Cross, operating through its own channels, established a congregate care center in Bergen County and the transfer of 1000 people from Rockland County to that facility was simulated. However, neither the Red Cross nor the Bergen County EOC coordinated this activity with New Jersey State or Bergen County law enforcement agencies that would be called upon to establish traffic control.

- Deficiency: The American Red Cross and the Bergen County, EOC did not coordinate their activities with New Jersey law enforcement agencies (NUREG-0654, II.A.1.a).
- Recommendation: The New York State compensating measures for Rockland County should include provisions enabling the American Red Cross and the Bergen County EOC to coordinate their activities with New Jersey law enforcement agencies responsible for traffic control.

2.9.4 Actions to Protect the Public

The American Red Cross demonstrated an excellent capability to establish, equip, and staff a congregate care facility in Bergen County, New Jersey. This facility, designed for occupancy by 80 persons, provided space for cooking, recreation, a nursing station, and offices. A one-step entrance was available for handicapped persons. Communications systems included

telephone, RACES, and American Red Cross radio. The Red Cross provided cots, blankets, food, and medical supplies. Congregate care center managers were clearly in charge. Red Cross staff were experienced in actual disaster relief, and were prepared to register and monitor evacuees and provide nursing care and basic services. Staff referred evacuees without papers from a reception center to a radiation monitoring station at a separate entrance. There was a "holding area" for contaminated persons, who would be sent elsewhere for actual decontamination.

2.9.5 Relevance of the Exercise Experience

The scenario was adequate to test Bergen County's role as a host area for Rockland County. The limited activity in the Bergen County EOC was a result of inadequate planning in Bergen County rather than deficiencies in the scenario itself.

3 SCHEDULE FOR CORRECTION OF DEFICIENCIES

Section 2 of this report lists deficiencies based on the findings and recommendations of the federal observers at the March 9, 1983, exercise of the Indian Point Nuclear Power Station, Unit No. 2. These evaluations are based on the applicable planning standards and evaluation criteria set forth in NUREG-0654-FEMA-1, Rev. 1 (November 1980) and objectives agreed upon for the exercise. The attached table summarizes recommendations to correct those deficiencies that were identified as requiring corrective actions based on this exercise. For purposes of verification, the attached table compares these recommendations with the recommendations based on the March 3, 1982, exercise. The present status is indicated for all recommendations.

The Regional Director of FEMA is responsible for certifying to the FEMA Associate Director, State and Local Programs and Support, Washington, D.C., that any deficiencies that require corrective actions have been corrected and that such corrections have been incorporated into the plans as appropriate.

FEMA requests that both the state and local jurisdictions submit the measures they have taken or intend to take to correct these deficiencies. FEMA recommends that a detailed plan, including dates of completion for scheduling and implementing recommendations, be provided if remedial actions cannot be instituted immediately.

Table 1 Recommendations to Correct Deficiencies Identified in Radiological Emergency Response Preparedness at Exercises for the Indian Point Nuclear Power Station of March 9, 1983, and March 3, 1982

No.	Recommendations	NUREG-0654 FEMA-REP-1 Rev. 1, Reference	Verification of Exercise		Present Status ¹
			Deficiency Identified		
			Exercise 3/9/83	Exercise 3/3/82	
<u>Introduction to Rockland County</u>					
	Rockland County should finalize and adopt a radiological emergency response plan and procedures to respond to an emergency at IP 2.	I.E	X		Rockland N
	Rockland County should participate fully in the next exercise of radiological emergency response plans and preparedness for IP 2.	II.N.1.b	X		Rockland N
	New York State should improve its capability to implement compensating measures in light of the nonparticipation by Rockland County emergency response personnel at the March 9, 1983, exercise.	II.A.1.b	X		State N
1.	<u>Emergency Operations Facilities Resources</u>				
	Communications systems between the state EOCs and other EOCs should be improved.	II.F		X	C
	Additional maps for displaying populations within ERPAs and field sampling locations should be provided in the Albany EOC.	II.J.10.a		X	C
	More space is needed for effective display of information in the EOF, and a single-floor area would ease communications.	II.H.2		X	C

Table 1 (Cont'd)

No.	Recommendations	NUREG-0654 FEMA-REP-1 Rev. 1, Reference	Verification of Exercise		
			Deficiency Identified		Present Status ¹
			Exercise 3/9/83	Exercise 3/3/82	
	The communications system needs improvement, and backup telephone lines should be available.	II.F		X	C
	EOF and state EOC messages should be brief. An investigation should be made to examine utilization of a second telefax machine.	II.F.1.d	X		State N
	The arrangement of tables and the locations for each emergency worker in the EOC should be reviewed in order to minimize the impact of the small space on the operation of the EOC.	II.H.2		X	Westchester C Orange C
	A dedicated line between the EOF and the EOC should be installed to improve communications.	II.F.1.d		X	Westchester C
	Orange County EOC executive hot line should be made operational so that all the county EOCs can communicate with each other readily (e.g., Orange with Westchester).	II.F.1.d		X	Orange C
	A population distribution map should be displayed in the EOC.	II.J.10.b		X	Westchester C
	Backup communications systems and procedures should be reviewed to reduce dependence on the commercial telephone system, since this may be overloaded in a real emergency.	II.F.1.e		X	Westchester C

Table 1 (Cont'd)

No.	Recommendations	NUREG-0654 FEMA-REP-1 Rev. 1, Reference	Verification of Exercise		Present Status ¹
			Deficiency Identified		
			Exercise 3/9/83	Exercise 3/3/82	
	It is recommended that workers in the EOC wear identification badges that give their names, their organizations (e.g., Red Cross, etc.) and their functions, in order to expedite the flow of messages and orders.	II.H.3		X	Westchester C
	Substantial improvement is needed in equipment and procedures for external communication. The RECS line system needs to be made more reliable. Staff support is needed to relieve principals from phoning tasks.	II.F.1.b		X	Rockland C
	Consideration should be given to allotting more space to the accident assessment room.	II.H.3		X	Rockland C
	A procedure is needed for keeping the operations-room staff better informed. It is suggested that the operation log be updated frequently and circulated to provide a chronological record of activities.	II.F.1.d		X	Rockland U
	The plan should be revised to coordinate contact between the counties, the Coast Guard, the railroad, and federal agencies where multiple contacting may also occur.	II.F.1.c		X	Rockland U
	Another communications link between the Rockland and Bergen County EOCs is desirable.	II.F.1.b	X		Rockland N

Table 1 (Cont'd)

No.	Recommendations	NUREG-0654 FEMA-REP-1 Rev. 1, Reference	Verification of Exercise		Present Status ¹	
			Deficiency Identified			
			Exercise 3/9/83	Exercise 3/3/82		
	A map of congregate care centers in Bergen County should be posted in the Rockland County EOC.	II.J.10.a	X		Rockland	N
	Additional telephone lines or equivalent systems should be provided in the EOC to serve as an additional backup for dedicated telephone.	II.F.1.b		X	Orange	C
	The plan for internal communications and dissemination of information within the EOC should be improved to increase efficiency and coordination. Radiological field monitoring data should be transmitted directly into the accident assessment room.	II.F.1.d		X	Orange	C
	EOC workers should be familiarized with displays.	no reference		X	Orange	C
	Maps of population by ERPA, evacuation routes, reception centers, and relocation centers should be posted in the EOC.	II.J.10.a, II.J.10.b	X		Bergen	N
	Procedures for security should be reviewed.	no reference		X	Putnam	C

Table 1 (Cont'd)

No.	Recommendations	NUREG-0654 FEMA-REP-1 Rev. 1, Reference	Verification of Exercise		
			Deficiency Identified		Present Status ¹
			Exercise 3/9/83	Exercise 3/3/82	
2.	<u>Alerting and Mobilization of Officials and Staff</u>				
	Improvement is needed in the flow of information back to the EOF from state and local response organizations.	II.F		X	
	Additional consideration should be given to staffing of critical positions by backup personnel.	II.A.1.e		X	Rockland U
	More effective methods are needed for initial call-out to emergency personnel.	II.E.2		X	Rockland U
	There was insufficient staff available for alerting and mobilizing emergency personnel and a 24-hr capability for most functions was not demonstrated. These have not been addressed.	II.A.1.e		X	Rockland U
	DOH personnel with duties in Rockland County should be given additional training in Rockland County plan and procedures.	II.A.4	X		Rockland N
	Each Rockland County transportation company with an emergency response mission should acquire equipment to permit radio communications with its vehicles and with the transit coordinator in the EOC.	II.E.1, II.E.2	X		Rockland N
	Provide more comprehensive training for key backup personnel.	II.A.4		X	Orange C

Table 1 (Cont'd)

No.	Recommendations	NUREG-0654 FEMA-REP-1 Rev. 1, Reference	Verification of Exercise		Present Status ¹	
			Deficiency Identified			
			Exercise 3/9/83	Exercise 3/3/82		
	Provide additional training and resources for communication with field support personnel.	II.F.1.d		X	Orange	C
	Alternates for the Civil Defense Director and RADEF Officer should be trained as soon as possible.	II.A.4		X	Putnam	C
	An emergency power generator should be considered for use during a power failure.	II.A.4		X	Putnam	C
	Monitoring teams should be dispatched to the field at the earliest possible time, so that they are in position to provide data for an independent early assessment of the emergency.	II.H.4, II.I.8		X	Putnam	C
	Procedures for transmitting meteorological data, plant emissions data, and data obtained by the utility field monitoring teams from the utility and EOF to the EOC should be reviewed and strengthened.	II.F.1.d, II.I.8		X	Putnam	C
	Representatives of the state, Westchester, Orange and Putnam Counties should meet with the utility to review and modify, if necessary, the procedures for ensuring that notification messages are verified by county officials responsible for the mobilization of emergency resources.	II.E.1	X		State Westchester Orange Putnam	N N N N

Table 1 (Cont'd)

No.	Recommendations	NUREG-0654 FEMA-REP-1 Rev. 1, Reference	Verification of Exercise		Present Status ¹
			Deficiency Identified		
			Exercise 3/9/83	Exercise 3/3/82	
3.	<u>Emergency Operations Management</u>				
	State support agencies should be given more involvement in the exercise.	II.A.1.b		X	State EOC C
	The role of county representatives at the EOF needs better definition.	II.B.6		X	EOF C
	Emergency staff would benefit from more familiarity with the response procedures.	II.A.1.b		X	Rockland U
	More effective management of the EOC is needed to ensure efficient operation.	II.A.1.d		X	Rockland U
	The divided floor plan within the EOC requires that effective communication flow and procedures be established to ensure efficient management.	II.F.1.d		X	Orange C
	The New York State compensating measures for Rockland County should include provisions enabling the American Red Cross and the Bergen County, New Jersey, EOC to coordinate their activities with New Jersey law enforcement agencies responsible for traffic control.	II.A.1.a	X		Rockland Bergen N
5.	<u>Public and Media Relations</u>				
	Intense efforts should be made to make the public aware of the meaning of the siren signals.	II.G.1		X	Westchester R Putnam C Rockland R Orange R
	Publication and distribution of the public education brochures for Westchester and Rockland Counties should be expedited.	II.G.1	X		Westchester N Rockland N

Table 1 (Cont'd)

No.	Recommendations	NUREG-0654. FEMA-REP-1 Rev. 1, Reference	Verification of Exercise		Present Status ¹
			Deficiency Identified		
			Exercise 3/9/83	Exercise 3/3/82	
	In conjunction with county PIOs, criteria should be developed to determine what type of information will be issued via EBS and what type via news releases.	II.E.5		X	C
	Procedures for quickly activating rumor-control telephone numbers and procedures should be formalized.	II.G.4.c		X	C
	Additional public education is needed so that the public will understand the locations of the areas that are to take protective actions, and will know how to carry out the protective actions. Consideration should be given to ascertain whether a significant number of people did not receive the pamphlets. If this is the case additional distribution should be made.	II.J.10a, II.G.1	X	X	Westchester R Rockland R Putnam C Orange C
	County PIOs should attend all major media briefings.	II.G.4a		X	Westchester C
	Emergency workers in the EOC should be kept better informed of the information being released to the public.	II.E.5		X	Orange C
	Will EOC emergency workers be instructed as to where they may find these posted messages?	no reference		X	Orange C
	Press briefings should be announced in advance so that PIOs can attend.	II.G.4.a		X	Orange C

Table 1 (Cont'd)

No.	Recommendations	NUREG-0654 FEMA-REP-1 Rev. 1, Reference	Verification of Exercise		Present Status ¹
			Deficiency Identified		
			Exercise 3/9/83	Exercise 3/3/82	
	The public education program should be reviewed to determine whether efforts are needed to improve its effectiveness.	II.G.2	X	X	Westchester R Rockland R Putnam C Orange C
	A very complete educational campaign regarding ERPAs should be implemented that includes distribution of detailed maps showing these areas.	II.J.10.a, II.G.1		X	Westchester not observed
	As soon as possible, the necessary public information materials should be distributed and posted in public places for the use of transient populations who may come into the 10-mile plume exposure pathway EPZ.	II.G.2	X		Westchester R
	As soon as possible, the necessary public information materials should be posted in hotels and motels to inform transient populations who may come into the 10-mile plume exposure pathway EPZ in Rockland County.	II.G.2	X		Rockland R
	The timeliness and accuracy of Orange County news releases should be improved.	II.G.4.b	X		Orange N
6.	<u>Accident Assessment</u>				
	Additional calculating equipment should be considered to expedite dose calculations.	II.I.8		X	State C

Table 1 (Cont'd)

No.	Recommendations	NUREG-0654 FEMA-REP-1 Rev. 1, Reference	Verification of Exercise		Present Status ¹
			Deficiency Identified		
			Exercise 3/9/83	Exercise 3/3/82	
	The state may wish to consider its own field monitoring capability which would allow the state to make an independent accident assessment.	II.I.7		X	State - Not observed
	Response time for analyzing changes in dose calculation parameters should be shortened.	II.I.8		X	EOF Not observed
	Procedures should be developed for obtaining the field data measured by the utility's field monitoring team in a timely manner.	II.I.8		X	Westchester C Putnam C
	An improved communications system is needed to support assessment activities and timely use of field data.	II.F.1.d	X	X	Rockland R
	Additional training of field teams would be beneficial to increase their familiarity with equipment and procedures. Responsibilities for field radioiodine measurements should be clearly defined.	II.I.8, II.I.9		X	Rockland U
	The duties of the county representative at the EOF should be more clearly defined.	II.C.2.a		X	Rockland U EOF

Table 1 (Cont'd)

No.	Recommendations	NUREG-0654 FEMA-REP-1 Rev. 1, Reference	Verification of Exercise		Present Status ¹
			Deficiency Identified		
			Exercise 3/9/83	Exercise 3/3/82	
	Silver zeolite filters should be used in the air sampling equipment that is used for measuring radioiodine. NOTE: Charcoal filters may be used during drills and exercises, but the silver zeolite filters must be in the instrument kits ready for use in an actual emergency.	II.I.9		X	Westchester C Orange C Putnam C
	The sequence of sample points used (routes driven by the monitoring teams) should be carefully chosen to give the maximum amount of data for use in making the early independent assessment.	II.I.8		X	Westchester C
	Field teams need additional training consistent with procedures outlined in the procedure manual.	II.I.7	X		Putnam N
	The number of samples needed for an independent early assessment, and the possible hindrances to fast deployment of the field monitoring teams, should be reviewed to assess the possible need for additional field monitoring teams.	II.I.8		X	Westchester C Putnam C
	Field teams should demonstrate familiarity with instruments having response ranges that might be needed during an actual event.	II.I.8		X	Orange C

Table 1 (Cont'd)

No.	Recommendations	NUREG-0654 FEMA-REP-1 Rev. 1, Reference	Verification of Exercise		Present Status ¹
			Deficiency Identified		
			Exercise 3/9/83	Exercise 3/3/82	
	Information exchange between the EOC and field monitoring teams needs to be improved so that field teams are kept informed of emergency escalation and meteorological data.	II.F.1.d	X		Putnam N
7.	<u>Actions to Protect the Public</u>				
	Procedures for staffing control points in a timely manner need to be reviewed and strengthened.	II.J.10.j		X	Westchester Not observed
	Procedures for dealing with impediments to evacuation need to be developed and exercised. These impediments include auto accidents, auto breakdowns, severe road conditions, and the unavailability of gasoline when needed.	II.J.10.k		X	Westchester C Putnam C
	Bus drivers responsible for evacuation services should be trained regarding evacuation procedures and supplied with maps and instructions concerning the routes and the locations of the reception centers.	II.J.10.a, II.J.10.g	X	X	Westchester R Putnam N
	Procedures and equipment for the evacuation of mobility-impaired persons need to be improved.	II.J.10.d	X	X	Westchester R
	Additional training is needed for the reception center personnel who do radiation surveying and decontamination.	II.J.12	X	X	Westchester R

Table 1 (Cont'd)

No.	Recommendations	NUREG-0654 FEMA-REP-1 Rev. 1, Reference	Verification of Exercise			Present Status ¹
			Deficiency Identified			
			Exercise 3/9/83	Exercise 3/3/82		
	Means for obtaining prompt and accurate field measurements of radiiodine should be specified to provide guidance on protective action decisions.	II.I.9		X	Orange	C
	Provisions for care of the handicapped should be considered at reception centers.	II.J.10.d	X	X	Orange	R
	Additional training for those workers performing radiation monitoring and decontamination procedures is recommended.	II.J.12		X	Orange	C
	Transportation personnel responsible for the evacuation of mobility impaired persons should be trained in evacuation procedures and the supply of ambulances for the evacuation of nursing homes should be reviewed.	II.J.10.d	X		Westchester	N
	The capacity of congregate care facilities in Westchester County should be reviewed and additional facilities should be identified if necessary.	II.J.10.h	X		Westchester	N
	Detailed evacuation plans and procedures for Rockland County should be developed and incorporated within the plans.	II.J.10.g	X		Rockland	N
	Each bus used for evacuation should be equipped with radios.	II.J.10.g	X	X	Futnam Westchester Rockland	R C N

Table 1 (Cont'd)

No.	Recommendations	NUREG-0654 FEMA-REP-1 Rev. 1, Reference	Verification of Exercise		Present Status ¹
			Deficiency Identified		
			Exercise 3/9/83	Exercise 3/3/82	
8.	<u>Health, Medical, and Exposure Control</u>				
	More sensitive self-reading dosimeters (e.g., 0-200 mR, 0-20 R) should be provided to emergency workers.	II.K.3.a		X	Westchester C Orange C Putnam C
	Permanent record dosimeters (e.g., film badges, TLDs) should be provided to emergency workers.	II.K.3.a	X	X	Westchester R Orange C Putnam R Rockland R
	Methods for permanently disposing of contaminated liquid and solid wastes need to be developed for the decontamination centers.	II.K.5.b		X	Westchester C Rockland - not observed Orange R
	Monitoring equipment should be recalibrated periodically according to the schedules set forth in the plan.	II.H.10		X	Westchester C
	On-the-job training would make procedures flow more smoothly at the congregate care centers.	II.J.12		X	Rockland C
	Additional training is needed at local hospitals on radiation monitoring.	II.L.1		X	Orange - not observed
	Both permanent record dosimeters and self-reading pocket dosimeters should be procured and distributed to all emergency workers.	II.K.3.a	X	X	Rockland R

Table 1 (Cont'd)

No.	Recommendations	NUREG-0654 FEMA-REP-1 Rev. 1, Reference	Verification of Exercise		
			Deficiency Identified		Present Status ¹
			Exercise 3/9/83	Exercise 3/3/82	
	Procedures should be clarified so that all personnel know which individual (e.g., the County Executive) can approve emergency workers receiving a radiation exposure in excess of the PAGs.	II.K.4		X	Putnam C
	All emergency workers should be fully trained in radiological exposure control including the use of dosimeters and KI.	II.K.3.b	X		Rockland N Putnam N Westchester N Orange N
10.	<u>Relevance of the Exercise Experience</u>				
	Future exercises should include more extensive participation by police, sheriff, fire, and ambulance services. Training needs in these areas should be identified.	II.B.9	X	X	Rockland R

¹R - Repeated deficiency from 1982 exercise.

C - Deficiency corrected based on verification.

N - New deficiency.

U - This deficiency, identical during the 1982 exercise, called for remedial action by Rockland County. Since Rockland County has not adopted a plan and state personnel substituted for county emergency response employees, Rockland County's capability for this activity could not be verified at the March 9, 1983, exercise.