

JUL 22 1994

*See Lpt.*

Docket Nos. 50-286

Mr. Leslie M. Hill, Jr.  
Resident Manager  
New York Power Authority  
Indian Point 3 Nuclear Power Plant  
Post Office Box 215  
Buchanan, New York 10511

Dear Mr. Hill:

Subject: Federal Emergency Management Agency (FEMA) Exercise Report for the Indian Point Nuclear Station Radiological Emergency Preparedness (REP) Exercise

Enclosed is the report from FEMA Region II for the September 23, 1992 exercise.

There were no deficiencies identified during the exercise; however, 21 Areas Requiring Corrective Action, four Planning Issues, and 16 Areas Recommended for Improvement were identified. Please provide assistance to offsite officials to address and resolve these matters.

We request that you provide a copy of this report to your counterpart at Consolidated Edison Company's Indian Point Unit 2.

If you have any questions concerning this enclosure, please contact us.

Sincerely,

Original Signed By;  
James H. Joyner

James H. Joyner, Chief  
Facilities Radiological Safety and  
Safeguards Branch  
Division of Radiation Safety and  
Safeguards

Enclosure: As Stated

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50-286

INDIAN POINT 3

PASNY

POST EXERCISE ASSESSMENT RADIOLOGICAL EMERGENCY  
PREPAREDNESS PLAN

REC'D W/LTR DTD 7/22/94...9408020071

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# POST EXERCISE ASSESSMENT

September 23, 1992, Exercise of the New York State Radiological Emergency

Preparedness Plan for the

## INDIAN POINT NUCLEAR POWER STATION

Including

New York State

New York Risk Counties of Westchester, Putnam, Orange, and Rockland  
Support Counties of Dutchess County, New York and Bergen County, New Jersey

June 10, 1994

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## FEDERAL EMERGENCY MANAGEMENT AGENCY

REGION II

26 FEDERAL PLAZA

NEW YORK, NY 10278

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9406230149 148 pp.

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## PARTICIPATING GOVERNMENTS

The State of New York

Orange County, New York - Risk County

Putnam County, New York - Risk County

Rockland County, New York - Risk County

Westchester County, New York - Risk County

Dutchess County, New York - Host County

Bergen County, New Jersey - Host County

## NON-PARTICIPATING GOVERNMENTS

None

## ACRONYMS

AA&E	Accident, Assessment and Evaluation
ANL	Argonne National Laboratory
ARC	American Red Cross
ARCA	Area Requiring Corrective Action
ARFI	Area Recommended for Improvement
BCEOC	Bergen County Emergency Operations Center
CADEMO	County Assistant Director of the Emergency Management Office
DCEOC	Dutchess County Emergency Operations Center
DOC	U.S. Department of Commerce
DOE	U.S. Department of Energy
DOI	U.S. Department of Interior
DOT	U.S. Department of Transportation
DRD	Direct Reading Dosimeter
EBS	Emergency Broadcast System
ECL	Emergency Classification Level
EMT	Emergency Medical Technician
EOC	Emergency Operations Center
EOF	Emergency Operations Facility
EPA	U.S. Environmental Protection Agency
EPZ	Emergency Planning Zone
ERPA	Emergency Response Planning Area
FEMA	Federal Emergency Management Agency
FDA	U.S. Food and Drug Administration
GE	General Emergency
GPM	Gallons Per Minute
HHS	U.S. Department of Health and Human Services
INEL	Idaho National Engineering Laboratory
IPNPS	Indian Point Nuclear Power Station (New York Power Authority)
JNC	Joint News Center
KI	Potassium Iodide
KLT	K.L. Travis & Associates
LOCA	Loss of Coolant Accident
MIDAS	Meteorological Information and Dispersion Assessment System
NFO	Nuclear Facility Operator
NRC	U.S. Nuclear Regulatory Commission
NUE	Notification of Unusual Event
NYSP	New York State Police
OCEOC	Orange County Emergency Operations Center

PAD	Protective Action Decision
PAG	Protective Action Guide
PAR	Protective Action Recommendation
PCEOC	Putnam County Emergency Operations Center
PIO	Public Information Officer
PIP	Palisades Interstate Parkway
PMC	Personnel Monitoring Center
RAC	Regional Assistance Committee
RACES	Radio Amateur Civil Emergency Services
RASCAL	Radiological Assessment System for Consequence Analysis
REA	Radiological Exposure Area
RCS	Reactor Coolant System
RCEOC	Rockland County Emergency Operations Center
REA	Radiation Exposure Area
RECS	Radiological Emergency Communications System
RERP	Radiological Emergency Response Plans
SAE	Site Area Emergency
SDEOC	Southern District Emergency Operations Center
SEMO	State Emergency Management Office
SEOC	State Emergency Operations Center
TCP	Traffic Control Point
TDD	Telephone Device for the Deaf
TLD	Thermoluminescent Dosimeter
USDA	U.S. Department of Agriculture
WCEOC	Westchester County Emergency Operations Center

## SUMMARY

On September 23, 1992, a team of 30 Federal evaluators and contractors assessed the level of State and County preparedness in responding to a radiological emergency at the Indian Point Nuclear Power Station (IPNPS). This exercise involved IPNPS Unit 3, which is owned by the New York Power Authority. It was a full-participation, announced exercise which occurred between 0715 and 1600. Following the exercise, a preliminary evaluation was made by the Regional Assistance Committee (RAC) Chairperson and the Federal evaluation team. A briefing for County and State exercise participants, emergency management staff, and utility representatives was held on Friday, September 25, 1992, at 1000 in the Tarrytown Hilton Conference Facilities.

During a full-participation exercise, the Federal Emergency Management Agency (FEMA) requires that all key components of the State and local emergency response organizations participate. The following facilities or activities were demonstrated and evaluated during this exercise:

- New York State Warning Point
- Orange County Warning Point
- Putnam County Warning Point
- Rockland County Warning Point
- Westchester County Warning Point
- New York State Emergency Operations Center
- New York State Southern District Emergency Operations Center
- Bergen County Emergency Operations Center
- Dutchess County Emergency Operations Center
- Orange County Emergency Operations Center
- Putnam County Emergency Operations Center
- Rockland County Emergency Operations Center
- Westchester County Emergency Operation Center
- Emergency Operations Facility
- Joint News Center
- Evacuation of the General Population



- Evacuation of Schools
- Notification of the Hearing Impaired
- Traffic Control Points
- Field Monitoring
- Reception Centers
- Congregate Care Centers
- Personnel Monitoring Centers
- WABC Emergency Broadcast Station
- Medical Drills
- School Interviews

Portions of the following events were simulated:

- Siren Activation
- Emergency Broadcast System Activation
- Impediments to Evacuation Routes
- Route Alerting

During the course of this exercise, no Deficiencies were identified. 21 ARCA's, 4 Planning Issues and 16 ARFIs were observed.

## 1. INTRODUCTION

### 1.1 EXERCISE BACKGROUND

On December 7, 1979, the President directed FEMA to assume lead responsibility for all offsite nuclear planning and response. FEMA's responsibilities in radiological planning for fixed nuclear facilities include the following:

- Taking the lead in offsite 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, and
- 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)
  - U.S. Department of the Interior (DOI)

Representatives of these agencies serve as members of the RAC, which is chaired by FEMA RAC Chairperson Stanley McIntosh.

Formal submission of the Indian Point Radiological Emergency Response Plans (RERP) to the RAC by the State and involved local jurisdictions was followed closely by the critique and evaluation of these plans.

The following exercises have been conducted by FEMA Region II to assess the capabilities of State and local emergency preparedness organizations in implementing their RERPs and procedures to protect the public in a radiological emergency involving the IPNPS.

Exercise Number	Exercise Date	Published Date
1	03/03/82	03/27/82 <sup>a</sup>
2	03/09/83	04/18/83
Compensating Exercise <sup>b</sup>	08/14-15/83	09/16/83
3	11/18/84	02/17/85
Remedial	04/10/85	05/10/85
4	06/04/86	09/10/86
Remedial Exercises	11/10-12/03/86	06/23/87
5 and Remedial	03/22/88 (unannounced) 03/29/88	11/21/88
6	11/14/90	08/28/91
7	09/23/92	06/10/94

<sup>a</sup> - Two public meetings were held in June, 1982 to acquaint the public with the plan contents, answer questions, and receive suggestions on the plans.

<sup>b</sup> - This exercise was to test New York State's Interim Plan for Rockland County.

The 30 evaluators assigned to evaluate activities at the State and local jurisdictions had been trained in radiological emergency planning concepts and had been given an evaluator kit specific to their assignment. This evaluator kit contained items pertinent to their assignment, such as exercise objectives, procedures to be evaluated and inject messages.

The evaluators met with the RAC Chairman and the Project Officer before the exercise to discuss the objectives, injects and any questions. Immediately following the exercise, the Federal evaluators met to give their initial reactions on the performance of the response organizations. After this meeting, the evaluators wrote reports for their assignments and then submitted these reports to their Team Leader. The Team Leaders then met with the RAC Chairman and Project Officer to review any issues noted in these reports. These initial reactions were presented to the State, Counties, and utility in a meeting on Friday, September 25, 1992. A Public Meeting, as required by 44 CFR 350, was conducted on September 25, 1992.

The exercise results and findings presented in this report are based on the evaluations of the evaluators, with final determinations by the FEMA Region II RAC Chairperson. The Regional Director of FEMA Region II is responsible for certifying to the FEMA Associate Director of the State and Local Programs and Support Directorate, Washington, D.C., that all exercise inadequacies identified during the exercise will be corrected and that such corrections will be incorporated into the State and local plans, as appropriate. FEMA requests that New York State and the counties submit all plan revisions and updates to correct identified planning inadequacies during the next annual plan revision.

## 1.2 FEDERAL EVALUATORS

30 Federal evaluators evaluated off site emergency response functions. These individuals, their affiliations, and their exercise assignments are given below.

<u>Evaluator</u>	<u>Agency</u>	<u>Exercise Location and Function</u>
R. Acerno	FEMA	Putnam County Emergency Operations Center (EOC), Team Leader
R. Bernacki	FDA	Putnam County Personnel Monitoring Center; Putnam County Field Monitoring
G. Brozowski	FEMA	Orange County EOC Team Leader, School Interviews, MS-1 Drills, and Equipment Inventory
T. Carroll	ANL <sup>1</sup>	New York State Southern District EOC
G. Connolly	FEMA	Westchester County EOC, Team Leader
A. Davis	FEMA	Four-County Communications Analysis
L. Eckert	NRC	Emergency Operations Facility
M. Farrell	FEMA	Rockland County Team Leader, Orange County School Evacuation and Westchester County Special Population Bus Runs
N. Gaeta	ANL	New York State EOC Dose Assessment
A. Hall	ANL	Orange County EOC, Communications
J. Hardin	KLT <sup>2</sup>	Orange County EOC Dose Assessment
T. Holliday	FEMA	Orange County School Evacuation Bus Run
C. Hunckler	ANL	Rockland County MS-1 Drill
G. Jacobson	ANL	Orange County Field Monitoring
S. James	FEMA	Orange County Special Population Bus Run and Westchester County Congregate Care Center
B. Jones	FEMA	Dutchess County Congregate Care Center
J. Keller	INEL <sup>3</sup>	Rockland County EOC Dose Assessment
A. Lookabaugh	ANL	Joint News Center Distribution of Public Information

<u>Evaluator</u>	<u>Agency</u>	<u>Exercise Location and Function</u>
L. Mazzella	FEMA	WABC Emergency Broadcast Station
C. McCoy	ANL	Rockland County Warning Point and EOC Communications and Operations
S. McIntosh	FEMA	RAC Chairperson
J. Megruder	EPA	Westchester County Field Monitoring, Rockland County Reception Center, and Orange County Emergency Worker PMC
S. Nelson	ANL	New York State Warning Point and EOC Communications and Operations
M. Pensak	EPA	Rockland County Field Monitoring, Rockland County PMC, Westchester County PMC, and Dutchess County Reception Center
D. Petta	DOT	Bergen County EOC
B. Salmonson	INEL	Putnam County EOC Dose Assessment
L. Schmidt	ANL	Hotel Based Liaison
N. Smith	ANL	Dutchess County EOC Team Leader
A. Teotia	ANL	Putnam County Warning Point and EOC Communications and Operations
P. Weberg	FEMA	Joint News Center
F. Wilson	ANL	Westchester County EOC Dose Assessment
B. Young	ANL	Joint News Center

<sup>1</sup> - Argonne National Laboratory      <sup>2</sup> - K.L. Travis & Associates

<sup>3</sup> - Idaho National Engineering Laboratory

### 1.3 EVALUATION CRITERIA

The exercise evaluations presented in Section 2 of this report are based on applicable planning standards and evaluation criteria set forth in NUREG-0654-FEMA-REP-1, Rev. 1 "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," November 1980. For the purpose of exercise assessment, FEMA uses an evaluation methodology, found in FEMA-REP-14, "Radiological Emergency Preparedness Exercise Manual," September 1991, and FEMA-REP-15, "Radiological Emergency Preparedness Exercise Evaluation Methodology," September 1991, to apply the criteria of NUREG-0654. FEMA classifies exercise inadequacies as Deficiencies, Areas Requiring Corrective Action (ARCA), and Plan Issues.

Deficiencies are observed or identified inadequacies of organizational performance in an exercise that could cause a finding that offsite emergency preparedness is not adequate to provide reasonable assurance that appropriate protective measures can be taken in the event of a radiological emergency to protect the health and safety of the public living in the vicinity of a nuclear power plant. Because of the potential impact of Deficiencies on emergency preparedness, any Deficiencies must be corrected within 120 days through appropriate remedial actions, including remedial exercises, drills, or other actions.

ARCAs are observed or demonstrated inadequacies of organizational performance in an exercise, that are not considered, by themselves, to adversely impact public health and safety. The correction of an ARCA is required by the next scheduled biennial exercise. An ARCA may be reclassified as a Deficiency under the following conditions: (1) when the collective impact of two or more ARCAs on an organization's emergency response or function precludes adequate protection of public health and safety or (2) for recidivism, when an organization repeatedly demonstrates the inability to correct one or more previously identified ARCAs over a period of two or more biennial exercises.

Plan Issues are observed or identified issues during an exercise which do not involve participant or organizational performance, but rather involve inadequacies in an organizations's existing plan or procedures. Plan Issues are required to be corrected through the revision and update of the appropriate State and local radiological emergency response plans in accordance with the following schedule: (1) within 120 days of the date of the exercise when the Plan Issue is directly related to protection of the public health and safety or (2) during the annual plan review and update and reported in the Annual Letter of Certification when the Plan Issue does not directly impact the public health and safety. Any requirement for additional training of responders to radiological emergencies necessitated by the plan revision and update must be completed within the foregoing timeframes in order for the Plan Issue to be considered to be resolved.

ARFIs are aspects of emergency preparedness that could be improved. While not required, correction of these areas would enhance an organization's level of emergency preparedness.

#### 1.4 EXERCISE OBJECTIVES

The objectives of State and local jurisdictions in this exercise were to demonstrate the adequacy of the radiological emergency response plans, the capability to mobilize needed personnel and equipment, and familiarity with procedures required to cope with an emergency at the New York Power Authority's IPNPS.

The exercise was to involve activation and participation of staff and response facilities of IPNPS as well as emergency organizations and facilities of New York State and the risk counties of Orange, Putnam, Rockland, and Westchester. Also involved in this exercise were the counties which have the supportive responsibilities to the risk counties including Bergen County, New Jersey, and Dutchess County, New York.

The intention of this exercise was to demonstrate, by actual performance, the primary emergency preparedness functions. Several activities (mobility impaired, hearing impaired, response to impediments, etc.) were demonstrated by interviews between Federal evaluators and emergency workers, rather than actual demonstrations which would require the mobilization of additional emergency workers. This method of demonstration was agreed upon in the pre-exercise extent-of-play meetings.

In the pursuit of meeting the agreed-upon objectives, there was to be no interference in the safe operation of IPNPS or in the safety of the public.

The State of New York, Orange County, Putnam County, Rockland County, Westchester County, Bergen County, Dutchess County, the New York Power Authority, and FEMA agreed on the use of certain objectives for the evaluation of each facility to be activated in this exercise. These objectives were taken from FEMA REP-15, "Radiological Emergency Preparedness Exercise Evaluation Methodology," September, 1991.

The following table shows the exercise objectives and the locations where these objectives were demonstrated. A full description, i.e., statement of each objective, is contained in Section 1.5, Objective Descriptions, of this report.



Table 1 - Exercise Objectives

Objective Number	State EOC	Southern District	EOF	JNC <sup>a</sup>	Orange EOC	Orange F.A.	Putnam EOC	Putnam F.A.	Rockland EOC	Rockland F.A.	Westchester EOC	Westchester F.A.	Dutchess EOC/F.A.	Bergen EOC/F.A.
1	X	X	X	X	X	X	X	X	X	X	X	X	X	X
2	X	X	X	X	X	X	X	X	X	X	X	X	X/X	X
3	X	X		X	X		X		X		X		X	X
4	X	X	X	X	X	X	X	X	X	X	X	X	X/X	X/X
5						X		X	X	X			/X	
6						X	X	X		X		X		
7	X				X		X		X	X		X		
8						X				X				
9	X				X		X		X		X			
10	X			X	X		X		X		X			
11	X			X	X		X		X		X			
12				X										
13				X										
14	X				X	X	X	X	X	X	X	X		
15					X	X	X	X	X	X	X	X		
16					X	X	X	X	X	X	X	X		
17						X		X	X	X			/X	
18						X				X		X	/X	/X
19						X		X		X		X		
20						X		X		X		X		
21						X		X		X		X		
22						X		X		X		X	X/X	X
30				X		X	X	X	X	X	X	X	X/X	X

<sup>a</sup> - Joint News Center

<sup>b</sup> - Field Activities



## 1.5 OBJECTIVE DESCRIPTIONS

- Objective 1      Mobilization of Emergency Personnel  
Demonstrate the capability to alert, and fully mobilize personnel for both emergency facilities and field-operations. Demonstrate the capability to activate and staff emergency facilities for emergency operations.
- Objective 2      Facilities - Equipment, Displays and Work Environment  
Demonstrate the adequacy of facilities, equipment, displays, and other materials to support emergency operations.
- Objective 3      Direction and Control  
Demonstrate the capability to direct and control emergency operations.
- Objective 4      Communications  
Demonstrate the capability to communicate with all appropriate emergency personnel at facilities and in the field.
- Objective 5      Emergency Worker Exposure Control  
Demonstrate the capability to continuously monitor and control radiation exposure to emergency workers
- Objective 6      Field Radiological Monitoring - Ambient Radiation Monitoring  
Demonstrate the appropriate use of equipment and procedures for determining field radiation measurements.
- Objective 7      Plume Dose Projection  
Demonstrate the capability to develop dose projections and protective action recommendations regarding evacuation and sheltering.
- Objective 8      Field Radiological Monitoring - Airborne Iodine and Particulate Activity Monitoring  
Demonstrate the appropriate use of equipment and procedures for the measurement of airborne radioiodine concentrations as low as  $10^{-7}$  (.0000001)  $\mu\text{C}/\text{cc}$  (microcuries per cubic centimeter) in the presence of noble gases and obtain samples of particulate activity in the airborne plume.

- Objective 9      Plume Protective Action Decision Making
- Demonstrate the capability to make timely protective action decisions.
- Objective 10      Alert and Notification
- Demonstrate the capability to promptly alert and notify the public within the 10-mile plume pathway emergency planning zone (EPZ) and disseminate instructional messages to the public on the basis of decisions by appropriate State or local officials.
- Objective 11      Public Instructions and Emergency Information
- Demonstrate the capability to coordinate the formulation and dissemination of accurate information and instructions to the public.
- Objective 12      Emergency Information - Media
- Demonstrate the capability to coordinate the development and dissemination of clear, accurate, and timely information to the news media.
- Objective 13      Emergency Information - Rumor Control
- Demonstrate the capability to establish and operate rumor control in a coordinated and timely manner.
- Objective 14      Implementation of Protective Actions - Use of KI for Emergency Workers, Institutionalized Individuals and the General Public
- Demonstrate the capability and resources to implement potassium iodide (KI) protective actions for emergency workers, institutionalized individuals, and, if the State plan specifies, the general public.
- Objective 15      Implementation of Protective Actions - Special Populations
- Demonstrate the capability and resources necessary to implement appropriate protective actions for special populations.
- Objective 16      Implementation of Protective Actions - Schools
- Demonstrate the capability and resources necessary to implement appropriate protective actions for school children within the plume pathway EPZ.

- Objective 17      Traffic and Access Control
- Demonstrate the organizational capability and resources necessary to control evacuation traffic flow and to control access to evacuated and sheltered areas.
- Objective 18      Reception Center - Monitoring, Decontamination, and Registration
- Demonstrate the adequacy of procedures, facilities, equipment and personnel for the radiological monitoring, decontamination, and registration of evacuees.
- Objective 19      Congregate Care
- Demonstrate the adequacy of facilities, equipment, supplies, personnel, and procedures for congregate care of evacuees.
- Objective 20      Medical Services - Transportation
- Demonstrate the adequacy of vehicles, equipment, procedures and personnel for transporting contaminated, injured or exposed individuals.
- Objective 21      Medical Services - Facilities
- Demonstrate the adequacy of the equipment, procedures, supplies, and personnel of medical facilities responsible for treatment of contaminated, injured or exposed individuals.
- Objective 22      Emergency Workers, Equipment, and Vehicles - Monitoring and Decontamination
- Demonstrate the adequacy of procedures for the monitoring and decontamination of emergency workers, equipment and vehicles.
- Objective 30      Continuous, 24-Hour Staffing
- Demonstrate the capability to maintain staffing on a continuous, 24-hour basis through an actual shift change.

## 1.6 EXERCISE SCENARIO

### 1.6.1 Scenario Overview

The scenario, developed specifically for this exercise, is consolidated below. Actual events taking place during the exercise might have differed slightly from this description.

#### Initial Conditions - 0700

The New York Power Authority's Indian Point Unit Number 3 is at End of Core Life and has been operating for the last 85 days at 100% power. Plant operations personnel have just completed shift turnover. No abnormal occurrences have been noted except for the following:

1. The #31 Safety Injection Pump has been declared inoperable after a cooling water line to the pump seal was broken by personnel moving scaffolding into the area in preparation for the upcoming refueling outage. The pump has been inoperable for approximately four hours. A maintenance work request has been initiated and repairs are expected to be complete within 12 hours.
2. Periodic Test 3PT-M16, Surveillance and In-Service Inspection Test, Safety Injection Pumps was performed on #32 Safety Injection Pump when it was run for operability due to a potential vibration problem. The test results satisfied the acceptance criteria for the test verifying the operability of #32 Safety Injection Pump.
3. SOP-RCS-4, Reactor Coolant Leakage Surveillance, was initiated during the midnight shift. Initial data were collected at 0330. The minimum four hour data collection requirement will be satisfied at 0730.
4. A work request was issued at 0600 to maintenance to repack fire protection valve FP-4. The work request required isolation of a small portion of the fire protection water header in the 15' elevation of the Turbine building.
5. Motor operated block valve MOV-536 has been closed, due to suspected leakage and control power removed at 0300.
6. Due to preventive maintenance #31 Containment Recirculation Fan Cooler Unit has been removed from service for approximately 48 hours. All actions required by Technical Specification 3.3.B.2.a have been taken.

### Exercise Commences - 0700

At 0715, a fire alarm is received in the Central Control Room on Zone 32, Turbine Building Lube Oil Storage building. The fire is verified and the fire brigade is mobilized and the fire is extinguished in approximately 15 minutes.

Smokey conditions will continue for some time but will not affect plant operation in any way. At approximately 0730, a Notification of Unusual Event (NUE) should be declared due to a fire within the protected area, not affecting safety systems, that lasts more than 10 minutes.

Plant instrumentation indicates that a leak from the Reactor Coolant System (RCS) has developed inside containment. Charging flow is increased by placing an additional Charging Pump in service. A system leak rate calculation indicates that approximately 60 gallons per minute (GPM) is being lost from the RCS to the containment. At 0830, radiation levels measured by the containment particulate monitor which has been responding to the indicated leak eventually reaches the alarm setpoint. At 0845, an Alert should be declared due to the primary coolant leak rate exceeding 50 GPM.

A controlled plant shutdown is initiated due to RCS leakage in excess of technical specification limits. The exact location of the leak may not be determined due to its location inside the containment building. The leak is an unisolable fault in the coolant charging penetration to the reactor coolant system. At 1015, an automatic safety injection occurs due to Low Pressurizer Pressure. Control room instrumentation indicates that RCS leakage has increased significantly as evidenced by decreasing system pressure and increasing pressure in the containment building. The #32 Safety Injection Pump starts and fails. A Site Area Emergency (SAE) should be declared due to a known Loss of Coolant Accident (LOCA) that exceeds the capacity of two operable charging pumps. At 1115, an electrical fault on 480V AC switch gear 6A causes the normal power supply breaker to trip open. Due to the electrical fault, emergency power from #32 Emergency Diesel Generator cannot be obtained, leaving the bus section de-energized. The reduced electrical power results in the loss of all injection flow to the RCS.

Radiation levels read on the containment building high range radiation monitors begin increasing, indicating that some fuel damage has occurred. At approximately 1145, a General Emergency (GE) should be declared due to a known LOCA with failure of the Emergency Coolant System to perform.

At approximately 1300, an increase in radiation levels measured by the plant vent is received indicating that the containment building is not effectively isolated. Release of radioactive gas from the plant will continue for approximately two hours until containment building pressure is reduced to atmospheric pressure. Investigation into the source of leakage from containment finds that a failed gasket on a blind flange at penetration "XX" (Integrated Leak Rate Test connection) is allowing gas and vapor to escape from containment into the piping penetration area.

At approximately 1445, the pressure in the containment building is essentially zero, removing the driving head for leakage from the building. Residual radioactive gas in the Primary Auxiliary building has evacuated and is verified by radiation readings by the Plant Vent Radiation Monitors. Radiation levels at the plant vent decrease to background; however, radiation levels in the containment building remain very high due to apparent fuel damage.

At approximately 1530, a repair team is successful in effecting temporary repairs which will prevent any recurrence of leakage from the containment building.

A time advance to the recovery phase occurred at 1545.

At 1600, the exercise was terminated

Table 2 - Events and Simulated Offsite Events Matrix <sup>a</sup>  
----- RISK COUNTIES -----

-- HOST COUNTIES --

Event	New York State	Orange	Putnam	Rockland	Westchester	Dutchess	Bergen
Notification of Warning Point	A	A	A	A	A	N/A	N/A
Notification of Personnel	A	A	A	A	A	A	A
Activation of EOC	A	A	A	A	A	A	A
Dispatch Liaison to EOC	A	A	A	A	A	N/A	N/A
Activation of Joint News Center	A	A	A	A	A	N/A	N/A
Activation of Reception Center	N/A	A	N/A <sup>b</sup>	A	A	A <sup>b</sup>	N/A
Activation of Congregate Care Center	N/A	A	N/A <sup>b</sup>	N/A <sup>c</sup>	A	A <sup>b</sup>	A <sup>c</sup>
Activation of Emergency Worker PMC	N/A	A	A	A	A	N/A	N/A
Siren Activation	N/A	S	S	S	S	N/A	N/A
Back-up Route Alerting	N/A	S	S	S	S	N/A	N/A
EBS Message Broadcasting	N/A	S	S	S	S	N/A	N/A
Conduct Dose Assessment	A	A	A	A	A	N/A	N/A
PAD Making	N/A	A	A	A	A	N/A	N/A
Dispatch Field Survey Teams	N/A	A	A	A	A	N/A	N/A
Special Population Evacuation Bus Runs	N/A	A (2)	A (2)	A (2)	A (2)	N/A	N/A
School Evacuation Bus Runs	N/A	A (2)	A (2)	A (2)	A (2)	N/A	N/A
Traffic Control Points	N/A	A (2)	A (2)	A (2)	A (2)	N/A	N/A
Road Impediments	N/A	S	S	S	S	N/A	N/A
KI Administration	S	S	S	S	S	N/A	N/A
Evacuation of Mobility Impaired or Special Facilities	N/A	S	S	S	S	N/A	N/A
Notification of Hearing Impaired	N/A	S	S	S	S	N/A	N/A
Inventory of Field Monitoring Equipment	N/A	A	A	A	A	N/A	N/A
School Interviews	N/A	A	A	A	A	N/A	N/A
Medical Drills	A	A	A	A	A	N/A	N/A

<sup>a</sup> N/A = Not applicable, S = Simulated, A = Actual, and A (2) = two actual demonstrations  
Refer to the List of Acronyms for description of abbreviations

<sup>b</sup> Located in Dutchess County for Putnam County residents

<sup>c</sup> Located in Bergen County for Rockland County residents

Table 3 - Emergency Classification Timeline<sup>a</sup>

Emergency Classification	Utility EOF Declared	State EOC Albany	Southern District EOC	Orange County EOC	Putnam County EOC	Rockland County EOC	Westchester County EOC	Joint News Center	Dutchess County EOC <sup>c</sup>	Bergen County EOC <sup>c</sup>
Notification of Unusual Event	0726	0740 <sup>b</sup>	0740 <sup>b</sup>	0740 <sup>b</sup>	0738 <sup>b</sup>	0740 <sup>b</sup>	0740 <sup>b</sup>	N/A	N/A	N/A
Alert Notification	0840	0844	0844	0844	0844	0840	0844	0840	0922	0856
Facility Declared Operational	0905	0837	0925	0906	0924	0818	0835	0910	0940	0940
Site Area Emergency Notification	1015	1020	1025	1025	1022	1015	1025	1015	1031	1024
General Emergency Notification	1146	1156	1156	1200	1149	1147	1156	1146	1206	1200
Release Started	1300	1300	1300	1300	1310	1310	1310	1315	1345	N/A
Release Terminated	1505	1512	1512	1515	1512	1535	1512	1505	1526	N/R
Exercise Termination	1535	1535	1535	1535	1535	1538	1538	1538	1700	1700

<sup>a</sup> Times that events were observed at each location: N/A = not applicable, and N/R = not reported.

<sup>b</sup> NUE received at respective Warning Point. <sup>c</sup> Host county.



Table 4 - Protective Action Decisions and Public Notification Timeline

EBS Message Number	Decision Making Jurisdiction	Protective Action	Hotline Decision Time	Siren Activation Time <sup>a</sup>	EBS Activation Time <sup>a</sup>	Responsible Jurisdiction
1	Westchester	Shelter ERPAs 1, 2, 3, 4, 7, 8, 9, 47, 48, 49 Evacuate ERPAs 42-46 (Hudson River closed to navigation)	1037	1049	1052	Westchester
2	Orange Rockland Westchester	Evacuate ERPAs 39, 40 Shelter ERPA 29 Evacuate ERPAs 38, 39, 40 Shelter ERPAs 50, 51 <sup>b</sup>	1134	1146	1149	Orange Rockland Westchester
3	Putnam Westchester	Shelter ERPAs 16, 18 <sup>b</sup> Shelter ERPAs 50, 51 <sup>b</sup>	1037	1049	1052	Putnam Westchester
4	Orange	Shelter ERPAs 24, 26	1210	1222	1225	Orange
5	Putnam	Shelter ERPAs 17, 19, 20, 23 Evacuate ERPAs 16, 18	1227	1239	1242	Putnam
6	Orange Rockland Westchester	Evacuate ERPAs 24, 26 Evacuate ERPAs 29, 30, 31, 36 Evacuate ERPAs 1, 3, 4 Shelter ERPAs 5, 6, 22, 50, 51	1250	1300	1305	Orange Rockland Westchester
7	Westchester	Shelter ERPAs 10, 11, 12, 13, 14, 15, 21	1345	1357	1400	Westchester

<sup>a</sup>Simulation

<sup>b</sup>EBS messages 2 and 3 incorrectly listed ERPAs 50 and 51 as sheltered. This was corrected in EBS messages 4 and 5. The decision to shelter ERPAs 50 and 51 was correctly contained in EBS message 6.

Table 5 - Protective Action Decisions (News Releases)

News Release Number	Decision Making Jurisdiction	Protective Action Decision	News Release Time
1	New York State	Activated the State EOC	0940
	Orange	County Executive activates EOC	0944
	Putnam	County Executive activates EOC	0920
	Rockland	Schools "go-home" policy; parks closed	0903
	Westchester	County Executive activates EOC	0858
2	New York State	Farm animals placed on stored feed	1030
	Orange	Closing of Harriman/Bear Mt. parks	1000
	Putnam	Schools and parks closed	0935
	Rockland	Senior citizen's programs suspended	0945
	Westchester	County parks closed	0932
3	New York State	Roadside farm markets cover goods	1130
	Orange	Rumor control information	1020
	Putnam	Rumor control information	0948
	Rockland	Hearing/mobility impaired numbers	0956
	Westchester	Opening of Reception/Congregate Care	1016
4	New York State	Milk, soil and crops being monitored	1220
	Orange	Sheriff's Deputies performing TCPs	1037
	Putnam	All schools and parks are now closed	1045
	Rockland	Meals-On-Wheels programs canceled	1012
	Westchester	Sheltering ERPA's	1116
5	New York State	State activities are underway	1352
	Orange	School students brought into buildings	1109
	Putnam	Sirens sounded at 1049	1105
	Rockland	Special facilities being advised	1039
	Westchester	Metro-North/County buses canceled	1116
6	Orange	Shift change of County Executive	1132
	Putnam	State of Emergency declared	1250
	Rockland	Public transportation suspended	1107
	Westchester	Evacuation of Peekskill schools	1125

Table 5 - Continued

News Release Number	Decision Making Jurisdiction	Protective Action Decision	News Release Time
7	Orange Putnam Rockland Westchester	Evacuation of ERPAs 39, 40 General Population bus runs Shift change of County Executive Shift change of County Executive	1223 1331 1149 1145
8	Orange Putnam Rockland Westchester	State of Emergency declared Shift change of County Executive State of Emergency declared Shift change of EOC	1307 1348 1154 1155
9	Orange Rockland Westchester	Activation of Reception Center Evacuation of ERPAs 38, 39, 40 Activation of Reception Centers	1328 1205 1242
10	Orange Rockland Westchester	Evacuation of ERPAs 24, 26 Refrain from using telephones Evacuate ERPAs 1, 3, 4 Shelter ERPAs 5, 6, 22, 50, 51	1359 1212 1330
11	Orange Rockland Westchester	Free-play message "truck accident" Free-play message "truck accident" General Population bus runs	1415 1313 1335
12	Orange Rockland Westchester	Special Population bus runs Evacuation of ERPAs 29, 30, 31 36 Shift change of lead PIO at JNC	1505 1318 1350
13	Westchester	Shelter ERPAs 10-15, 21	1402
14	Westchester	Closing of parks in sheltered ERPAs	1416
15	Westchester	More County bus routes canceled	1430
16	Westchester	Evacuation of ERPAs 1, 3, 4	1450

## 2. EXERCISE EVALUATION

### 2.1 NEW YORK STATE

#### 2.1.1 New York State Emergency Operations Center (SEOC)

There were nine objectives scheduled to be demonstrated at the New York SEOC during this exercise. Eight objectives were met and one was not met.

**SEOC Objective 1 - MET** - Staff at the SEOC received notification of all emergency classification level (ECL) changes over the Radiological Emergency Communications System (RECS) from the utility. The SEOC mobilizes in a two stage process. At an Alert, key agencies are notified to mobilize, then the support agencies are notified to stand-by. At SAE, these support agencies are notified to mobilize. All key agencies were mobilized by 0934, or about 40 minutes after initial notification, and other support agency representatives arrived by 1130. All notifications were made by telephone using an up-to-date personnel/agency roster. No staff personnel were prepositioned. The activation process for the SEOC went smoothly, and all essential emergency operations were performed at this facility.

**SEOC Objective 2 - MET** - Staff at the SEOC demonstrated the adequacy of facilities, equipment, displays and other materials to support emergency operations. The SEOC had ample space, equipment, ventilation, etc. There are also three emergency generators available to supply back-up power. The following information was available on maps in both the executive and operations room:

- Emergency Response Planning Area (ERPA) Boundaries
- Monitoring Points
- Plume Emergency Planning Zone
- Population by ERPA

In addition, the Operations Room also had a map displaying each county's evacuation routes, reception centers, and congregate care centers. Additional copies of these maps were also available. Status boards were prominently displayed showing weather conditions and the current ECL. The status board was promptly updated as the protective actions changed.

Security at the SEOC, located in the basement of Building 22 on the State Office Campus, was maintained throughout the exercise. Access to the facility was controlled both at the building entrance and at the entrance of the SEOC.

**SEOC Objective 3 - MET** - The Deputy Director of the State Emergency Management Office (SEMO) was clearly in charge. He made frequent contact with the county staff over the executive hotline to recommend and discuss protective actions. Briefings were conducted periodically to update the staff on the developing situation. The tracking of both the evacuation and the direction of the plume, was accurate and was discussed periodically.

**SEOC Objective 4 - MET** - There were numerous communication systems available, including over 100 telephone lines, the dedicated RECs line, four facsimile machines, the executive hotline, a packet radio system, and several police and other radio systems. All systems worked well, and no delays in communication were experienced.

**SEOC Objective 7 - MET** - Plume dose projection functions were performed by the State EOC Accident, Assessment, and Evaluation Group (AA&E Group) under the direction of the Chief of the group. The AA&E Group consisted of the radiological assessment unit, responsible for dose projection and assessment based on radiological and plant conditions, and the nuclear engineering unit, which determined plant status. The two units were in the same room in the SEOC and coordinated the projections of offsite radiological conditions. Approximately 14 individuals (engineers, health physicists, etc.) staffed the AA&E Group. The group referred to the New York State RERP, Procedures G, H, and J. Automated (computer) dose projections (MIDAS and RASCAL) were available and demonstrated, as well as manual projection methods. New dose projections were made as new plant status information, source term, or meteorological information became available. When field monitoring results were received, these were compared with the isopleths (contour lines defining boundaries of radiation dose rates) and projections. The SEOC staff members maintained frequent contact with their counterparts in the counties to discuss methodologies and radiological data. A utility representative in the engineering unit provided invaluable assistance during discussions of plant and radiological conditions. Status boards, displays, and event logs were maintained in an accurate and timely manner. The Chief, AA&E Group, maintained good command and control of the plume dose projection activities and periodically coordinated with and/or briefed the EOC command staff and State agencies on radiological and plant conditions and protective actions.

**SEOC Objective 9 - NOT MET** - Protective Action Decisions (PADs) were made by the SEOC command staff. Protective action recommendations (PARs), originating from the EOF, were communicated to the SEOC via facsimile on the New York State Radiological Emergency Data Form. The SEOC command staff, after reviewing this data form and the utility PARs, coordinated with State agencies and the Counties' EOCs. The command staff also received briefings and advice from the AA&E Group. After this preliminary work, the command staff used a standard form (Subject: Protective Action Measures for Indian Point Emergency) to disseminate the State level decision on what protective actions were to be taken: siren sounding, Emergency Broadcast System (EBS) broadcasts, sheltering, evacuation, etc.

Even though the State's dose assessment personnel were recommending evacuation out to two miles and the Counties were still in command because no State of Emergency was declared, the State's command staff failed to recommend evacuation to Westchester County. The State's plan makes reference to implementing "General Sheltering" in lieu of evacuation due to "time constraints" should be deleted from the plans. This is found in Section 2.5.2, Plume Exposure Protective Action Response Options, page III-41/42, lines 7-10 (See the Plan Issue).

**SEOC Objective 10 - MET** - The SEOC is not directly responsible for public alerting. They do play a role in coordinating the commencement of the alert and notification sequence. This is performed by the person in charge of the SEOC, in concert with four County Executives. It took 15 minutes to complete the initial alert and notification sequence. Simulated broadcast origination was from the Joint News Center.

**SEOC Objective 11 - MET** - SEOC staff does not originate or release messages to the public. The Deputy Director does participate in coordinating the release of EBS messages, and these messages did accurately reflect the protective actions authorized.

The content of the messages was complete in describing PARs, including a description of areas subject to protective action, how to maximize protection when sheltering, what evacuees should take and leave, and providing information to transit-dependent and special populations. They were accurate, clear, consistent with both public information procedures and protective action decisions, up-to-date, and differentiated between prior and current information and instructions. Other information (closure of parkland, school closure, etc.) was transmitted to the public via news releases.

SEOC staff effectively coordinated message content with appropriate staff organizations and jurisdictions. A file was maintained of all messages and copies were retained by the Public Information Officer (PIO).

**SEOC Objective 14 - MET** - The Commissioner of Health for the State Department of Health was present in the Command Operations Center. He periodically reviewed projected offsite child thyroid doses and found them to be below the EPA protective action guidelines (PAGs). Because these projected doses were below PAGs, no recommendation was made to authorize the ingestion of KI.

## **DEFICIENCIES**

There were no Deficiencies observed at the SEOC during this exercise.

## **AREAS REQUIRING CORRECTIVE ACTION**

There were no ARCAs observed at the SEOC during this exercise.



## PLAN ISSUES

1. **Description:** Even though the State's dose assessment personnel were recommending evacuation out to two miles and the Counties were still in command because no State of Emergency was declared, the State's command staff failed to recommend evacuation to Westchester County. The State's plan makes reference to implementing "General Sheltering" in lieu of evacuation due to "time constraints" should be deleted from the plans. This is found in Section 2.5.2, Plume Exposure Protective Action Response Options, page III-41/42, lines 7-10 .

**Recommendations:** The State' plan referring to implementing "General Sheltering" in lieu of evacuation due to "time constraints" should be deleted from the plan.

## AREAS RECOMMENDED FOR IMPROVEMENT

There were no ARFIs observed at the SEOC during this exercise.

### 2.1.2 Southern District Emergency Operations Center (SDEOC)

Four objectives were demonstrated at the New York State SDEOC during this exercise. All four objectives were met.

**SDEOC Objective 1 - MET** - Activation of the facility began after the receipt of the Alert ECL at 0844 and took 41 minutes. The EOC was declared operational at 0925. An up-to-date call-down list was used to notify staff and representatives from State agencies. These notifications were made via telephone and were accomplished in a timely manner.

**SDEOC Objective 2 - MET** - The SDEOC is located in a secure, underground facility with adequate space, lighting, ventilation, back-up power and sleeping facilities and is fully capable of extended operations. Access to the EOC was controlled by a New York State Police officer. A complete set of the required and necessary maps was displayed throughout the EOC and used by various staff members throughout the exercise. Status boards were placed so that the staff could view them and were updated in a timely manner.

**SDEOC Objective 3 - MET** - The Southern District Regional Director, assisted by the Operation Officer, was effectively in charge of the SDEOC operation. Periodic briefings were held to update the staff on the emergency situation. Key staff members were consulted and involved in the decision making process. Copies of plans and procedures were available for reference by the staff. Message logs were maintained of incoming and outgoing messages and were reproduced and distributed to the appropriate staff in a timely manner.

**SDEOC Objective 4 - MET** - The SDEOC has sufficient primary and back-up communications systems to handle the communication flow with all necessary locations without undue delays. These locations are between the utility, SEOC, the EPZ counties and host counties. The telephone communications capability included 15 telephone lines, a RECS line, and the executive hotline. Radio capabilities included high and low band radios, Radio Amateur Civil Emergency Services (RACES), State police, State EOC, local government radio, and State Fire and Department of Transportation frequencies. In addition to the primary systems, the back-up systems were used during the exercise without any breakdowns.

#### **DEFICIENCIES**

There were no Deficiencies observed at the SDEOC during this exercise.

#### **AREAS REQUIRING CORRECTIVE ACTION**

There were no ARCA's observed at the SDEOC during this exercise.

#### **PLAN ISSUES**

There were no plan issues observed at the SDEOC during this exercise.

#### **AREAS RECOMMENDED FOR IMPROVEMENT**

There were no ARFIs observed at the SDEOC during this exercise.

### **2.2 EMERGENCY OPERATIONS FACILITY**

There were four objectives to be demonstrated at the EOF during this exercise. All four objectives were met.

**EOF Objective 1 - MET** - The New York State and Risk County EOCs were notified of the ECLs by the RECS line.



The ability to alert and mobilize County emergency personnel was adequately demonstrated. The county EOF liaisons arrived at the EOF at the following times:

COUNTY	Time Arrived
Westchester	0902
Rockland	0907
Putnam	0926
Orange	0928

Per the extent of play agreement, the New York State liaison officer was prepositioned, and arrived at 0935.

Staff members were knowledgeable of their jobs and responsibilities. The county liaisons communicated in a timely manner important information supplied by the licensee.

**EOF Objective 2 - MET** - The EOF had recently been renovated to provide additional space for the State and county liaisons. The county had access to at least two tables, two chairs, and approximately four telephone lines. State staff was provided with six tables, eight chairs, eight telephone lines and a RECS speakerphone. A separate briefing area was available for meetings of State and county staff, and was located so that they could still obtain data from the utility.

The State and county staff members obtained information through periodic briefings, updated status boards, and the utility representatives. These representatives were responsible for answering technical questions arising from briefings, accident events, etc. Access to and egress from the EOF was controlled by security guards at the EOF entrance.

Three projectors were available to display plant system data. A status board depicting licensee PARs and county protective actions by ERPA was available. ERPA maps and a copy of the county plans were available at the EOF.

**EOF Objective 4 - MET** - Upon arrival at the EOF, the county liaisons established communications with their respective county EOCs, and maintained these communication links throughout the exercise. The primary communications system (telephone) was able to handle the communications flow. Putnam County has a radio in addition to regular telephones, which proved to be an asset. Putnam County was initially unable to establish a link to MIDAS (See PEOC ARFI 1). However, Putnam County compensated for this loss through verbal communication over their radio equipment.

The times printed on the MIDAS output from the utility were off by one hour. While this discrepancy did not cause any significant problems, the use of the correct time would make the response less difficult. The clock setting on the MIDAS system should be changed so that the output would have the correct time printed on each of the 15 minutes updates.

It was noted at the Rockland County EOC that the source term values on one Part II form were reversed between the noble gas and radioiodine. Although this problem was noticed and corrected promptly via the telephone, a corrected hard copy was not transmitted from the EOF to the county for 50 minutes. The utility staff must be trained to be accurate and to correct the hard copy and transmit the corrected copy to the risk counties, if an error is made.

## **DEFICIENCIES**

There were no Deficiencies observed at the EOF during this exercise.

## **AREAS REQUIRING CORRECTIVE ACTION**

There were no ARCAs observed at the EOF during this exercise.

## **PLAN ISSUES**

There were no plan issues observed at the EOF during this exercise.

## **AREAS RECOMMENDED FOR IMPROVEMENT**

1. **Description:** The times printed on the MIDAS output from the utility were off by one hour. While this discrepancy did not cause any significant problems, the use of the correct time would make the response less difficult.

**Recommendation:** Change the clock setting on the MIDAS system so that the output would have the correct time printed on each of the 15 minute updates.

2. **Description:** The source term values on one Part II form were reversed between the noble gas and radioiodine. Although this problem was noticed and corrected promptly via the telephone, a corrected hard copy was not transmitted from the EOF to the county for 50 minutes.

**Recommendation:** Train the utility staff to be accurate and if an error is made, on the need to correct the hard copy and transmit the corrected copy to the risk counties as soon as possible.

## **2.3 JOINT NEWS CENTER**

Nine objectives were demonstrated at the JNC during this exercise. Eight objectives were met and one was partially met.

**JNC Objective 1 - MET** - The JNC was activated in a timely manner, commencing at 0739, the time of the NUE, and becoming fully staffed by 0910. Both county and State staff members were mobilized, either through phone calls or pagers, and arrived within minutes of the time they were contacted. No staff members were prepositioned, so that this facility had to be brought up to operational status.

**JNC Objective 2 - MET** - There were sufficient space, furnishings, supplies, and ventilation at the JNC. The status boards and maps indicating the EPZ, evacuation routes, reception/congregate care centers, field monitoring points, the population by planning areas, ECLs, weather data, special facilities, and traffic control points (TCP) were posted in a variety of places throughout the JNC, and were updated in a timely manner. A map indicating both wind and plume direction was promptly displayed in the media briefing room. Numerous telephones, a typewriter, a computer with word processing capability, copiers and facsimile machines were available to support operations.

A previous ARCA (JNC-1) incurred during the November 14, 1990, exercise was corrected and verified. A map indicating both wind and plume direction was promptly displayed in the media briefing room.

**JNC Objective 3 - MET** - The JNC functions by delegated authority to a number of designees. These designees (State and county PIOs) issued instructions, consulted with other players, and referenced the plan, conducted meetings, resolved conflicts, made decisions, and coordinated with the other jurisdictions.

**JNC Objective 4 - MET** - The JNC adequately demonstrated the ability to communicate with all appropriate locations, organizations, and field personnel. In the EBS room, there were five dedicated telephone lines. One telephone line linked the JNC with WABC, the Emergency Broadcast Station, and was designated for the reading of EBS messages. The other four telephone lines were for use by the four county PIOs to maintain contact with their respective EOCs. Each county also had separate operations rooms in the JNC, which had dedicated telephone lines available for communications with other EOC personnel.

Each county's JNC operations room also contained a television monitor, whereby the media briefings were viewed in order to maintain constant communication with the media room. The same communications capabilities were located in the State, utility, FEMA, and NRC rooms.

Radios, televisions, and VCRs were available in the communications room. The media briefings were recorded on videotape and a log of all media briefings was maintained by the utility. The emergency worker rumor control and media inquiry room had ample telephone lines and staffing to respond to calls from emergency workers and the media. The following radio stations were monitored in the radio room: WABC, WRKL, WINS, WFAS, WOR, WLNA, WHUD, and WCBS.

**JNC Objective 10 - MET** - Information contained in the EBS messages was coordinated with the State and county PIOs at the JNC. A computer in the EBS room contained a prescribed EBS message format, in order to facilitate inclusion of new information. Also, the four county PIOs were present and in contact with their respective EOCs. When a decision was made to sound the sirens and issue an EBS message, the messages were quickly drafted, and information/content was verified by the four county PIOs, approved, and ready to be read. WABC radio was put on standby, and, on cue, the sirens (simulated at 1049) were sounded. Three minutes later, the message was read by the Westchester County PIO. The first EBS message contained information on parks, lakes, and schools and PARs for the general public (sheltering, evacuation, and the closing of the Hudson River). The second EBS message contained PARs for the general public (sheltering and evacuation). The same format was followed for all seven EBS messages, and the 15 minute time requirement was met each time.

A previous ARCA (JNC-2) incurred during the November 14, 1990, exercise was corrected and verified. Seven EBS messages were prepared and disseminated to the public within the 15 minute timeframe.

**JNC Objective 11 - PARTIALLY MET** - The four county PIOs and the State PIO were responsible for formulating the content of the seven EBS messages at the JNC. The information was coordinated with the respective county EOCs and State EOC, the message was drafted, the content was analyzed and verified, and then broadcast (simulated). The EBS messages accurately reflected the decisions in all cases, except EBS messages 2 and 3. EBS message 2 (issued at 1149) and 3 (issued at 1210) incorrectly listed ERPAs 50 and 51 as sheltered. This was corrected in EBS messages 4 (issued at 1225) and 5 (issued at 1242) (See ARCA 1 for the JNC). The decision to shelter ERPAs 50 and 51 was correctly contained in EBS message 6. EBS message 4 was confusing because the message contained a statement (first page of the message, last paragraph) that "The chief executives of Westchester, Rockland, Orange and Putnam counties in consultation with the New York State Disaster Preparedness Commission, advise people in the following Emergency Response Planning Areas to EVACUATE at this time." Subsequent narrative in the EBS message (page 2) indicated that this action was in addition to those areas in Rockland and Orange Counties which had previously been ordered to evacuate. However, the only ERPAs identified were those which had been ordered to evacuate earlier. No new or additional ERPAs are identified for evacuation in the EBS message, which is inconsistent with the statements contained in the EBS message at the end of page 1 and the beginning of page 2. The EBS messages should only contain clear and concise emergency information for the general public (See ARCA 2 for the JNC).

The EBS messages contained information for the public to stay tuned to their EBS station for further information and instructions. Staff at the JNC maintained a file of EBS messages disseminated to the public. These messages were made available to all other organizations at the JNC. Topics addressed in the EBS messages included: description of ERPAs; how to maximize protection when sheltering, what to leave behind and what to take when evacuating, information on transportation-dependent and special populations groups, and the use of the public information brochure and Yellow Pages of the telephone book. The PIO staff at the JNC effectively coordinated the contents of the EBS messages for the public with all appropriate staff members, organizations, and other jurisdictions.



**JNC Objective 12 - MET** - The large room on the second floor of the JNC was the designated media briefing room. Each county, the State, and the New York Power Authority had a designated spokesperson who briefed the media. Eight media briefings were completed during the exercise, and a pre-briefing by the participants was held just before each media briefing. During this pre-briefing, all participants compared notes and clarified questions among themselves.

In the briefing room, the media was provided with copies of all news releases, EBS messages, and media lists. All of the information copies were kept in organized holders and clearly labeled. If a question was asked which could not be immediately answered, the staff would research the answer and provide it at the next briefing.

During media briefings, topics covered would include the plant status and the current ECL. If applicable, instructions on sheltering and evacuating, the location of evacuation routes, location of reception/congregate care centers, school and student protective actions, and information for transportation dependent and special populations was provided. The rumor control telephone number was given out, and, if needed, information addressing false rumors was discussed. Reference was made a number of times to the public information brochures which had been mailed to each resident within the 10 mile EPZ.

Media briefings were current, used clear and understandable language, and always covered all the points required to keep the public informed.

**JNC Objective 13 - MET** - The rumor control function was activated at 0915 in the first floor of the JNC. Twelve phones were staffed with three supervisors, one utility representative, and three media monitors for television and radio. These phones were utilized with one rumor control number, which would rotate from phone to phone. Personnel were from the State, the four counties, and the New York Power Authority. The rumor control number was announced at the first media briefing. All press releases and EBS messages were routed to the rumor control group. The supervisor of rumor control participated in all media pre-briefings to update spokespersons on current rumors. During the activation of the JNC, rumor control handled 404 calls, averaging about 101 calls-per-hour, or 14.42 calls-per-hour-per-operator. Calls were tracked and recorded and rumors were verified by finding the appropriate source of the facts. Media monitors had eight television stations and eight radio stations monitored. This was an exceptional performance of media monitoring. If a radio or television station reported a rumor, once rumor control had the proper facts, it would call and request the media to correct their mistake in reporting.

A previous ARCA (JNC-3) incurred during the November 14, 1990, exercise which was related to the rumor control number was corrected and verified. The rumor control number was announced at the first media briefing. All press releases and EBS messages were routed to the rumor control group. The supervisor of rumor control participated in all media pre-briefings to update spokespersons on current rumors. During the activation of the JNC, rumor control handled 404 calls, averaging about 101 calls-per-hour, or 14.42 calls-per-hour-per-operator.

**JNC Objective 30 - MET** - A roster of key personnel for each shift was provided. As per the extent-of-play agreement, only key personnel demonstrated a shift change. The shift change took place on a staggered basis between 1000 and 1400 hours.

The incoming shift member was thoroughly briefed on the current status of the emergency by the outgoing member. All incoming and outgoing staff members demonstrated knowledge of their emergency response roles and functions. The shift change was accomplished in a manner that facilitated continuous, uninterrupted operations.

## **DEFICIENCIES**

There were no Deficiencies observed at the JNC during this exercise.

## **AREAS REQUIRING CORRECTIVE ACTION**

1. **Description:** EBS messages 2 (issued at 1149) and 3 (issued at 1210) incorrectly listed ERPAs 50 and 51 as sheltered. This was corrected in EBS messages 4 (issued at 1225) and 5 (issued at 1242). The decision to shelter ERPAs 50 and 51 was correctly contained in EBS message 6. (NUREG-0654, G.3.a and G.4.a)

**Recommendation:** Examine the EBS message preparation procedures to determine how ERPAs 50 and 51 were shown to be sheltered when in fact they should not have been shown. Once the cause of the problem is found, take remedial action (plan revisions, training, etc.) to correct the problem.

2. **Description:** EBS message 4 was confusing because the message contained a statement (first page of the message, last paragraph) that "The chief executives of Westchester, Rockland, Orange and Putnam counties in consultation with the New York State Disaster Preparedness Commission, advise people in the following Emergency Response Planning Areas to EVACUATE at this time." Subsequent narrative in the EBS message (page 2) indicated that this action was in addition to those areas in Rockland and Orange Counties which had previously been ordered to evacuate. However, the only ERPAs identified were those which had been ordered to evacuate earlier. No new or additional ERPAs are identified for evacuation in the EBS message, which is inconsistent with the statements contained in the EBS message at the end of page 1 and the beginning of page 2. The

**Recommendation:** EBS messages should only contain clear and concise emergency information for the general public.

#### **PLAN ISSUES**

There were no plan issues observed at the JNC during this exercise.

#### **AREAS RECOMMENDED FOR IMPROVEMENT**

There were no ARFIs observed at the JNC during this exercise.

## **2.4 ORANGE COUNTY, NEW YORK**

### **2.4.1 Orange County Emergency Operations Center (OCEOC)**

Thirteen objectives were demonstrated at the Orange County EOC. All thirteen objectives were met.

**OCEOC Objective 1 - MET** - At 0740, the Warning Point, located at the Sheriff's Dispatch Office, was notified by the utility via the RECS line of an Unusual Event. The Communications Officer correctly recorded the information on Part I of the New York State Radiological Emergency Data Form. At 0844, the Control Room notified the Warning Point of an Alert declaration. Again, the Communications Officer recorded the information on the correct form. The Officer used a facsimile machine to transmit the two forms to the OCEOC. The Communications Officer called the Emergency Management Assistant at her office, since he was informed that she was in transit from her home.

43 staff members were contacted by the automatic dialing system. One staff member did not answer the call-out, and an EOC staff member immediately initiated a telephone call to a back-up number to make contact.

The facility was activated quickly and was declared operational at 0906, taking 26 minutes from the Alert declaration. All staff noted their arrival on the sign in board in the Operations Room.

A previous ARCA (OC-1), incurred during the November 14, 1990, exercise, has been corrected and verified. 43 staff members were contacted by the automatic dialing system, which replaced the Community Alert Network (CAN).

**OCEOC Objective 2 - MET** - The EOC had adequate equipment and displays, and the work environment provided adequate space, furnishings, lighting, restrooms, ventilation, and back-up power. There were new maps and displays depicting plume pathway EPZs, evacuation routes, reception/congregate care centers, field monitoring sampling points, population by evacuation areas, ECLs, meteorological data, special facilities, and TCPs. Status boards were updated within 10 minutes of a change. ECLs were displayed; however, the display did not lend itself to being distinct from other displayed information.

A previous ARCA (OC-2), incurred during the November 14, 1990, exercise, has been corrected and verified. Displays of present plant status and pertinent offsite activities were posted in all locations.

**OCEOC Objective 3 - MET** - The County Executive displayed command and control of the OEOC throughout the exercise. She appropriately discussed with the Emergency Management Assistant and, later on, with the County Assistant Director of Emergency Management (CADEMO) and other key county representatives, actions which the county should take in response to the incident. The executive hotline was effectively used to coordinate decisions with the other counties. At approximately 1045, the County Executive performed a shift change with the County Administrative Officer. She briefed him on the events that had occurred to that time. He then assumed command and performed well throughout the exercise.



Staff briefings were held frequently and informed the other emergency workers of changes in ECLs, plant status, and actions the county had decided to take. The county plan was available in the OEOC if needed for reference.

**OCEOC Objective 4 - MET - Communications** capability at the OEOC was adequate and no delays in the transmission or receipt of information were noted. There are approximately 24 commercial telephone lines in the OEOC. In addition to the telephone lines in the OEOC, there were a RECS line, the Executive Hotline with conferencing capabilities, a computer link, and a facsimile machine. Radio systems consisted of the Civil Defense System, Fire and Sheriff Departments, Department of Public Works, RACES, and the New York State Police Network (NYSPIN). There were no breakdowns or delays in communications. The MIDAS system, located in Dose Assessment, went off-line and couldn't be reconnected; thereafter, necessary information was relayed to the OCEOC by their representative at the EOF over a dedicated telephone line.

**OCEOC Objective 7 - MET - Throughout the morning of the exercise and prior to the release, the dose assessment staff members were continuously making dose projections based on plant conditions using existing meteorological data received through the MIDAS system. There were two computer systems for dose projection available, using a dose projection code supplied by the Nuclear Facility Operator. Manual calculations were demonstrated. Results were compared with dose projections made by other counties and were found to totally agree. The dose projection methodology and equipment performed reliably and there was considerable back-up capability.**

Dose projections were made based on "what if" conditions related to readings on monitors inside the containment at a time when releases had occurred inside the containment but emissions to the outside air had not yet begun. These were conservative calculations but they projected doses greater than 5 R offsite when a default value for duration of emissions of four hours was used.

Once emissions to the outside air began, dose projections were made on the basis of emission data supplied by the NFO. Dose projections were made and the plume location plotted although the plume location was not in Orange County. Areas recommended for evacuation and sheltering on the basis of the dose projections were plotted on a map in the operations room.

Field teams were dispatched to locations as close as possible to the edge of the plume. There were contingency plans and contingency dose projections made in the event that the plume split and a "tail" ventured toward Orange County. The field monitoring teams measured background levels only; air samples were taken for exercise purposes. The plume could not be located on the basis of field monitoring data from the other counties because the plume did not enter Orange County.

**OCEOC Objective 9 - MET** - Although the plume did not enter Orange County, based on plant conditions, the decision was made to evacuate ERPAs 39 and 40 at 0858. These ERPAs are part of Harriman State Parkland and the parks were closed, as per the County procedures. This action was taken in concert with the Rockland County decision-maker because these ERPAs are shared with Rockland County. Based on considerations of plant conditions, staff dose projections, and NFO recommendations the Orange County staff decided to shelter ERPAs 24 and 26 at 1210 and then evacuate them at 1250.

A previous ARCA (OC-3) incurred during the November 14, 1990, exercise has been corrected and verified. A discussion occurred with the Dose Assessment staff that, if the plume entered Orange County, a decision would be made to stop the collection of produce, put cows on stored feed, and recommend that the public collect water in containers. This information would be transmitted to the public.

**OCEOC Objective 10 - MET** - Critical information, important to county residents, was broadcast in EBS messages and news releases. EBS Message 2 recommended the evacuation of ERPAs 39 and 40. These ERPAs are shared with Rockland County because these ERPAs are part of the Harriman State Parklands. EBS Messages 3, 4, and 5 contained no additional protective actions for Orange County. EBS Messages 6 recommended evacuation in ERPAs 24 and 26. EBS Message 7 contained no additional protective actions for Orange County. All EBS messages were preceded by the sounding of the sirens and aired within 15 minutes of the decision time.

A free-play message was inserted after the sounding of sirens that siren 8 had failed. Since this siren is under the control of the Palisades Interstate Park (PIP) Police, a call was placed to the PIP police from the Deputy Sheriff's desk to inform them about the failure of the siren and to conduct route alerting.

**OCEOC Objective 11 - MET** - Information from the OCEOC was communicated from the OCEOC PIO directly to Orange County's PIO at the JNC via a telephone line which was left open for the entire day. A wide variety of information was communicated in this manner, ranging from evacuation decisions to details on a traffic impediment. This information was included in EBS messages, county news releases, and media briefings at the JNC.

**OCEOC Objective 14 - MET** - The Commissioner of Health for the State of New York at the State EOC made the decision that no KI distribution was needed at any location, given the projected thyroid dose due to the radioiodine in the plume. This decision was reviewed by the Commissioner of Health for Orange County who agreed with this decision with respect to the county's emergency workers. The fact that the plume did not enter Orange County was a key factor in this decision.

The field monitoring teams had an ample supply of KI tablets which had an expiration date of December, 1993. The field monitoring teams were instructed not to ingest KI unless directed to do so by staff at the OCEOC.

**OCEOC Objective 15 - MET** - Discussions about appropriate actions that would be taken to protect special populations were handled adequately. Orange County staff has the knowledge, resources, and capability to protect their special needs citizens. The special needs population includes the transportation-dependent and individuals with impaired sight, hearing, or mobility. There are no institutionalized persons within the 10 mile EPZ.

A list of persons requiring special assistance is maintained in the EOC and the list is updated annually or more often as new needs are identified. Emergency information would be provided to the special needs population via EBS, telephones, and/or the outreach network (contacting a neighbor).

**OCEOC Objective 16 - MET** - Orange County staff adequately demonstrated the capability and resources necessary to implement protective actions for school children within the 10 mile EPZ. There are four schools in Orange County within the 10 mile EPZ: Highland Falls Elementary School, Highland Falls Middle School, James O'Neil High School, and Sacred Heart.

At 0920, the affected schools were notified of an Alert. Students residing in the United States Military Academy-West Point that attend the affected schools were returned to their homes by bus. All other students remained at school, and were sheltered. Students and staff were accounted for by the teachers. South Junior High and Middletown High Schools were notified and placed on stand-by, since these schools would serve as the school reception centers.

At 1230, in conference with the Acting County Executive and school officials, it was decided to close schools in ERPAs 24 and 26 and to transport students to the school reception centers. Twenty-seven buses were dispatched to accomplish the movement of 1,043 students to South Junior High School, located in Newburgh. Parents were kept advised of school conditions and student status via news releases.

**OCEOC Objective 17 - MET** - Throughout the exercise, the County Sheriff and staff at the Department of Public Works coordinated traffic throughout the affected areas of the plume EPZ. The traffic impediment (simulated) was handled appropriately. Crews were dispatched to remove debris and the police were directed to reroute traffic around the area.

**OCEOC Objective 30 - MET** - All organizations assigned duties in the EOC performed a shift change between 1000 and 1400. The shift change included a thorough briefing of the incoming shift and a turnover of messages, plans, and other documents. There were no discernible changes in capability or performance from shift-to-shift or any disruptions in operations.

A shift change of the Dose Assessment Team Leader occurred at approximately 1300. The incoming person was thoroughly briefed by the outgoing person on the current status of the emergency and the incoming staff person carried on, and adequately demonstrated his roles and functions. There was no discontinuity in operations.

## **DEFICIENCIES**

There were no Deficiencies observed at the OEOC during this exercise.

## **AREAS REQUIRING CORRECTIVE ACTION**

There were no ARCAs observed at the OEOC during this exercise.

## **PLAN ISSUES**

There were no plan issues observed at the OCEOC during this exercise.

## **AREAS RECOMMENDED FOR IMPROVEMENT**

1. **Description:** ECLs were displayed; however, their display did not lend itself to the ECLs being distinctly visible from other displayed information.

**Recommendation:** The current ECL should be prominently displayed in the top center of the display area in lettering large enough to be read from anywhere in the Operations Room.

### **2.4.2 Orange County Field Activities**

In Orange County, various field activities were demonstrated. Field monitoring was evaluated on the day of the exercise. Traffic control, school evacuation bus runs, general population bus runs, one reception center, one congregate care center, and one personnel monitoring and decontamination center were evaluated out of sequence prior to the full scale exercise. The evaluation of these activities follows.

#### **2.4.2.1 Field Monitoring Team**

Seven objectives were demonstrated by the Orange County Field Monitoring Team during this exercise. All seven objectives were fully met.

**OC FM Objective 1 - MET** - The two man Orange County Field Monitoring Teams and police escort were activated in a timely manner at the Alert ECL. At 0930, the team reported to the OEOC and began to check their equipment. At 1055, 85 minutes later, the team had completed its equipment checks, and received its initial briefing, and was dispatched.

**OC FM Objective 4 - MET** - Both field teams fully demonstrated the capability to communicate, by radio, with the Field Monitoring Team Supervisor. Backup radio communications were provided by a RACES operator. All of the field monitoring team members, including the RACES operators, were volunteers and should be recognized for a job well done.



**OC FM Objective 5 - MET** - Both field teams fully demonstrated the ability to monitor and control their radiation exposure. The teams included two trained monitors and a RACES operator. All personnel wore low range (0-5 R), and high range (0-200 R) direct reading dosimeters (DRDs) and one thermoluminescent dosimeter (TLD). The team had one bottle of KI, which had an expiration date of December, 1993. All dosimeters had been inspected, and a dosimeter charger was included in the field monitoring kit.

All dosimeters were read every 15 minutes and the results recorded. Team members were aware of the 1 R, 3 R, and 5 R reporting requirements to the Field Team Supervisor.

Field team 1 was met by a Highland Falls Police Officer at the Bear Mountain traffic circle. He wore a 0-5 R and a 0-200 R DRDs, along with one TLD and one bottle of KI. He read his dosimeters every 15 minutes and recorded his readings.

Although the plume did not affect Orange County, both field teams demonstrated the proper techniques (collecting the sample and then moving out as quickly as possible) to count the air sample.

Two previous ARCAs (OC-4 and OC-5) incurred during the November 14, 1990, exercise have been corrected and verified. The Highland Falls Police Officer wore a 0-5 R and a 0-200 R DRDs, along with one TLD and one bottle of KI. He read his dosimeters every 15 minutes and recorded his readings. Both field teams demonstrated the proper techniques (collecting the sample and then moving out as quickly as possible) to count the air sample.

**OC FM Objective 6 - MET** - Both field monitoring teams demonstrated appropriate use of equipment and procedures for determining field radiation measurements. Each team had both low and high range instruments, which were operable and within the calibration period. The instruments were also checked for response to a check source. All other equipment was checked off with a plan and procedures checklist prior to deployment. The car radio and RACES radios were checked for operation prior to deployment.

Field team 1, and field team 3 performing the shift change, was briefed prior to departure. The teams had maps of the area to be surveyed with predetermined sampling points. The teams checked all of their equipment and were rapidly deployed to the first monitoring point. The teams followed written procedures. A CDV-700 survey meter was kept on during transit, with a covered probe, outside the window. The PRM-7 micro-R meter was also kept on. Anti-contamination clothing was available but simulated as being worn while samples were taken. Open and closed covered probe measurements were made at three inches and waist height above ground. All information was relayed to the EOC by car radio and/or RACES radio.

**OC FM Objective 8 - MET** - Both field teams met the objective to demonstrate the ability to measure airborne radioiodine and particulate activity in an airborne plume. The instruments used were calibrated, operable, and used via step by step procedures. A check source was available for use.

Both field teams performed ambient measurements of gamma radiation, particulate radioactivity and airborne radioiodine. Because Orange County was not impacted by the plume, all readings were background. Data was transmitted to staff back at the EOC via car radio and/or RACES operator. The transmission of samples to the State Laboratory in Albany was discussed.

OC FM Objective 14 - MET - A bottle of KI (14 tablets with an expiration date of December, 1993) was available to each team member and the Highland Falls Police Officer. During their briefing prior to deployment, the Field Monitoring Supervisor told them not to ingest KI unless specifically told to do so. There were no messages concerning KI while the team was in the field.

OC FM Objective 30 - MET - Field team 3 replaced Team 1 to fully demonstrate a shift change maintaining staffing on a continuous 24-hour basis. Team 1 briefed Team 3 before departing from sampling site 1. The incoming Team 3 demonstrated knowledge of its emergency response functions.

## **DEFICIENCIES**

There were no Deficiencies observed for Orange County field monitoring activities during this exercise.

## **AREAS REQUIRING CORRECTIVE ACTION**

There were no ARCA's observed for Orange County field monitoring activities during this exercise.

## **PLAN ISSUES**

There were no plan issues observed for Orange County field monitoring activities during this exercise.

## **AREAS RECOMMENDED FOR IMPROVEMENT**

There were no ARFIs observed for Orange County field monitoring activities during this exercise.

### **2.4.2.2 Traffic Control Points**

The Orange County TCPs were evaluated out of sequence on September 8, 1992. A free play message was used to initiate the discussion relative to the establishment of the TCPs. Two objectives were demonstrated. Both objectives were met.

**OC TCP Objective 5 - MET** - The Orange County Sheriff's Department demonstrated the ability to continuously monitor and control emergency worker exposure. Each officer received a "Civil Defense" envelope. The envelope contained Appendix H of the Orange County plan, two DRDs (0-5 R and 0-200 R), an ID card, a radiation exposure card with exposure limits listed, a bottle of KI (14 tablets with an expiration date of December, 1993) and an information card. Chargers were available, dosimeters were zeroed, and initial readings recorded. The officers knew when to read and record their dosimeter readings (every 15 minutes), and also knew to call back to the OCEOC, if their DRDs read 1 R. All the dosimeters had calibration stickers and the re-calibration due date had not been exceeded. Information about and knowledge of KI were demonstrated by each officer.

Two previous ARCAs (OC-6 and OC-10) incurred during the November 14, 1990, exercise have been corrected and verified. The officers knew when to read and record their dosimeter readings (every 15 minutes), and also knew to call back to the OCEOC, if their DRDs read 1 R.

**OC TCP Objective 17 - MET** - Two locations within Orange County, as per the free play message, were designated to be used as activated TCPs for this exercise. Both officers interviewed knew the locations very well, and stated that the local village police (Village of Cornwall and the Village of Woodbury) would be utilized to man the TCPs, if available. The County Sheriff's Deputies would man a command vehicle and move within the area. The County Sheriff's Deputies knew the location of the reception centers that would serve Orange County.

A previous ARCA (OC-7) incurred during the November 14, 1990, exercise has been corrected and verified. The County Sheriff's Deputies knew the location of the reception centers that would serve Orange County by the use of clear directions.

## **DEFICIENCIES**

There were no Deficiencies observed for Orange County traffic control activities during this exercise.

## **AREAS REQUIRING CORRECTIVE ACTION**

There were no ARCAs observed for Orange County traffic control activities during this exercise.

## **PLAN ISSUES**

There were no plan issues observed for Orange County traffic control activities during this exercise.

## **AREAS RECOMMENDED FOR IMPROVEMENT**

There were no ARFIs observed for Orange County traffic control activities during this exercise.

### **2.4.2.3 School Evacuation Bus Runs**

The Orange County school evacuation bus runs were evaluated out of sequence on August 27, 1992. A free play message was used to initiate the bus runs. Two objectives were demonstrated. Both objectives were met.

**OC SE Objective 5 - MET** - The bus drivers and RACES personnel were equipped with a TLD and two DRDs (0-5 R and 0-200 R). The drivers were familiar with the use of the instrumentation and the use of KI. They responded properly when elevated dosimeter readings were injected. The reporting requirements of 1 R, 3 R, and 5 R were known by the bus drivers. The bus drivers and base operators demonstrated adequate training as well as the ability to properly document information and report it to the appropriate authority.

**OC SE Objective 16 - MET** - A free play message was directed to the West Point Tours bus garage to evacuate children from the James O'Neil High School and the Highland Falls Elementary School. The first bus driver left the garage at 1004 and arrived at the James O'Neil High School at 1034. The second driver left the garage at 1003 and arrived at the Highland Falls Elementary School at 1034.

The drivers were in contact with the bus garage via bus radio and RACES. No problems occurred during communication. Both drivers and the dispatcher at the garage performed in an excellent manner.

## **DEFICIENCIES**

There were no Deficiencies observed for the two Orange County school evacuation bus runs.

## **AREAS REQUIRING CORRECTIVE ACTION**

There were no ARCAs observed for the two Orange County school evacuation bus runs.



## **PLAN ISSUES**

There were no plan issues observed for the two Orange County school evacuation bus runs.

## **AREAS RECOMMENDED FOR IMPROVEMENT**

There were no ARFIs observed for the two Orange County school evacuation bus runs.

### **2.4.2.4 Special Population Evacuation Bus Runs**

The Orange County general population evacuation bus runs were evaluated out of sequence on August 27, 1992. A free play message was used to initiate the bus runs. Two objectives were demonstrated. Both objectives were met.

**OC SP Objective 5 - MET** - Each special population evacuation bus driver and RACES personnel had a TLD and two DRDs (0-5 R and 0-200 R). Each dosimeter was zeroed for the bus drivers before being issued. Each bus driver had an Individual Radiation Exposure Record and read and recorded dosimeter readings every 15 minutes. Each driver was aware of the reporting requirements of 1 R, 3 R, and 5 R. One driver actually dropped his dosimeter upon entering his bus. He called the dispatcher at the garage for further instructions before going out on his run. The dispatcher informed the driver to return into the building and re-zero his dosimeter. Both the driver and dispatcher must be commended for their knowledge and handling of exposure control.

**OC SP Objective 15 - MET** - The ability and resources necessary to implement appropriate protective actions for the impacted special and transient plume EPZ population was demonstrated during this exercise. Orange County staff demonstrated two special population bus routes. Route 132 was dispatched from West Point Tours at 1005, arriving at the initial pick-up point at 1018. The route was completed at 1040 and the driver knew the appropriate reception center (Newburgh Free Academy).

Route 133 was dispatched from West Point Tours at 1005, arriving at the initial pick-up point at 1031. This route was completed at 1040 and the driver knew the appropriate reception center (Temple Hill School).

Both routes were run according to the procedures, utilizing the designated roadways at a proper speed and completing the routes in an adequate time.

A previous ARCA (OC-8) incurred during the November 14, 1990, exercise has been corrected and verified during a bus driver training session which was held at the West Point Tours bus garage on Thursday, November 21, 1991.

## **DEFICIENCIES**

There were no Deficiencies observed for the Orange County special population evacuation bus driver activities during this exercise.

## **AREAS REQUIRING CORRECTIVE ACTION**

There were no ARCAs observed for the Orange County special population evacuation bus driver activities during this exercise.

## **PLAN ISSUES**

There were no plan issues observed for the two Orange County special population evacuation bus runs during this exercise.

## **AREAS RECOMMENDED FOR IMPROVEMENT**

There were no ARFIs observed during the Orange County special population bus runs during this exercise.

### **2.4.2.5 Reception Center**

The Orange County Reception Center was evaluated out of sequence on Tuesday evening August 25, 1992. Five objectives were demonstrated at the Warwick Valley Middle School. All five objectives were met.

**OC RC Objective 2 - MET** - The facility was well suited for this use as a reception center, and had adequate space, furnishings, lighting, restrooms, shower facilities, and ventilation. Several telephones and a computer were also available to support emergency operations.

A copy of the facility's emergency procedures was available for review. Access to the facility was also well controlled by the use of the Newburgh Auxiliary Police.

**OC RC Objective 4 - MET** - The reception center staff demonstrated the ability to communicate with appropriate locations. Since this objective was being demonstrated out of sequence, no actual communication capabilities were demonstrated. However, several commercial telephone lines were available for organizational representatives within the reception center to communicate with the OEOC and their counterparts at other locations. RACES operators provided a primary means of communication between the center and the OEOC and from the reception center director to the outside vehicle decontamination area.

**OC RC Objective 5 - MET** - Each staff member was issued one O-5 R DRD and one TLD. Procedures on the use of the DRD were available at the facility. All of the DRDs were zeroed with a dosimeter charger at the start of the demonstration, and were read at 15-30 minutes interval, as called for in the plan. All readings were recorded on the Individual Radiation Exposure Record and turned in to the Dosimetry Coordinator at the conclusion of the exercise. Since this facility is beyond the 10 mile EPZ, the need for taking KI did not arise.

**OC RC Objective 18 - MET** - The Orange County Department of Social Services was the lead agency responsible for organizing the reception center at the Warwick Valley Middle School. The Newburgh Auxiliary Police (for monitoring and decontamination) was also involved in the set up.

The Middle School had adequate space for monitoring, decontamination, and registration of evacuees. The facility was set up to separate contaminated persons from clean persons. Procedures were in place to minimize contamination in the facility.

The vehicle monitoring procedure included monitoring of the following areas: windshield edges, wheel housing and wheel wells, front grill, front and rear bumpers, air filter, and the interior of the vehicle. The demonstrated monitoring procedures were sufficient to detect radiological contamination at the level specified in the plan (0.1 mR/hour above background). Contaminated vehicles were separated from clean vehicles and moved to an isolated area.

Uncontaminated individuals were kept away from the contaminated vehicles and equipment. No contaminated vehicles were released. Washing of the contaminated vehicles with soap and water was demonstrated.

This facility utilized the CDV-700 survey instrument for monitoring evacuees and vehicles. At least six instruments were available for use by six monitors. The instrument check sources were used to verify the proper operations of all instruments. The instruments were equipped with earphones which were used by the participants when monitoring individuals and vehicles for contamination. Beta shields were kept open during all monitoring procedures. An action level of 0.1 mR/hour above background was used to determine whether or not evacuees and vehicles required decontamination.

The demonstrated procedures were sufficient to detect radiological contamination. It took six minutes, or an average of two minutes each for three individuals. It should be pointed out, however, that one of the individuals was simulated to be contaminated and therefore required additional monitoring time. Never-the-less, the monitoring techniques were sufficient to met the 20 percent capability.

Several types of contamination control measures were employed at this facility: The monitors wore plastic gloves, the survey instrument probes were covered with thin plastic, and contaminated and clean individuals were separated.

The following decontamination measures were simulated: Removal of contaminated clothing, use of shower and wash basin facilities, provisions of changes of clothing for individuals after decontamination, and a method for separating and containing contaminated clothing and other materials (plastic bags available).

CDV-700 survey instruments were used to re-monitor individuals after they were decontaminated. A separate record was made for each contaminated individual. Individual registration forms were entered into a computer for a permanent record. All pertinent information was recorded.

OC RC Objective 30 - MET - The shift change for the personnel monitor was adequately demonstrated. The incoming worker was briefed and demonstrated an adequate knowledge of this role and function. The change was accomplished in a manner that facilitated continuous, uninterrupted operations. A roster was present showing that a second shift was available.

#### **DEFICIENCIES**

There were no Deficiencies observed at the Orange County Reception Center during this exercise.

#### **AREAS REQUIRING CORRECTIVE ACTION**

There were no ARCA's observed at the Orange County Reception Center during this exercise.

#### **PLAN ISSUES**

There were no plan issues observed at the Orange County Reception Center during this exercise.

#### **AREAS RECOMMENDED FOR IMPROVEMENT**

There were no ARFIs observed at the Orange County Reception Center during this exercise.

#### **2.4.2.6 Congregate Care Center**

The Orange County Congregate Care Center was evaluated out of sequence on August 26, 1992. Two objectives were demonstrated at the Temple Hill Middle School. Both objectives were met.

**OC CCC Objective 4 - MET** - A public telephone is located a few feet from the registration desk. School telephones were available at the nurses' station and at the crisis counseling area. These are the primary means of communication. One cellular telephone and one radio system are used as a backup to the commercial telephone. Since this evaluation was performed out of sequence, no actual communication was performed. Communication would be with the reception center and the OEOC.

**OC CCC Objective 19 - MET** - Orange County demonstrated adequate facilities, equipment and personnel to provide congregate care to evacuees. American Red Cross (ARC) personnel and other response agencies arrived at 0930. Designated areas for food services, a nurses' station, and temporary living accommodations were located in the facility.

The school had adequate facilities and square footage to meet the requirements for the designated shelter capacity of 1,234. The nurses' station used was the school's regular first aid station. This is a large area which included a separate examination room. Signs, used to direct evacuees, were posted and facility kits, containing supplies to open and operate the congregate care center, were opened.

The provision of food services to the Temple Hill School was simulated. The ARC had, as backup, the school's USDA supplies and agreements with various fast food establishments and local grocery stores.

The staff members were questioned about what actions they would take if a person arrived at the facility and had no proof of being processed at a reception center. They responded that if there had been no radioactive release the person would be registered. However, if there had been a radioactive release, the person would be directed to an isolation room where that person would remain until a monitoring team (supplied by the OEOC) could check the individual for contamination.

A previous ARCA (OC-9) incurred during the November 14, 1990, exercise has been corrected and verified by the submittance of a training/attendance roster, which included a discussion of the meaning of ECLs.

## **DEFICIENCIES**

There were no Deficiencies observed at the Orange County Congregate Care Center during this exercise.

## **AREAS REQUIRING CORRECTIVE ACTION**

There were no ARCA's observed at the Orange County Congregate Care Center during this exercise.



## **PLAN ISSUES**

There were no plan issues observed at the Orange County Congregate Care Center during this exercise.

## **AREAS RECOMMENDED FOR IMPROVEMENT**

There were no ARFIs observed at the Orange County Congregate Care Center during this exercise.

### **2.4.2.7 Personnel Monitoring Center**

The Orange County Personnel Monitoring Center (PMC) was evaluated out of sequence on September 17, 1992. Five objectives were demonstrated at the Orange County Board of Cooperative Educational Services. All objectives were met.

**OC PMC Objective 2 - MET** - The facilities, equipment, displays, and other materials to support the emergency operations at this location were more than adequate. Vehicle monitoring and decontamination took place in a parking area which provided ample space for monitoring and decontamination and separate parking for clean and contaminated vehicles.

The inside of the building was spacious and was equipped with all the necessary furniture (tables, chairs, etc) to perform personnel monitoring. Two separate shower facilities were available for the decontamination of men and women.

**OC PMC Objective 4 - MET** - Since this objective was demonstrated out of sequence, no actual communications took place. However, the facility is equipped with several phone lines for communication purposes. It was mentioned that a RACES individual would be present to provide back-up communications services.

**OC PMC Objective 5 - MET** - All workers were equipped with one TLD and two DRDs, 0-5 R and 0-200 R, as required by the plan. All personnel checked their dosimeters and zeroed them prior to the commencement of their duties. Dosimeters were read before work began and then every 15 minutes. All dosimeters were inspected within an acceptable timeframe.

**OC PMC Objective 22 - MET** - Workers were able to demonstrate their proficiency in personnel and vehicle monitoring and decontamination. Monitoring equipment used was a CDV-700, with an open probe capable of detecting beta and gamma radiation. All instruments were checked out prior to use, to assure that batteries were usable and the equipment was operational, through the use of the check source located on the side of the meter. All monitors (vehicle and personnel) were proficient in the use of equipment and followed correct protocols and procedures for monitoring. Every effort was made to prevent cross-contamination.

Decontamination workers also followed protocols and procedures and were successful in avoiding cross contamination. Vehicle decontamination workers used soap and water for decontamination of the vehicle interior, along with vacuums for further decontamination of the vehicle interior. Two parking areas were designated; one for clean vehicles and one for contaminated vehicles.

The personnel decontamination area consisted of two locker rooms for men and women with shower facilities. These workers were proficient in decontamination procedures and were supplied with the necessary soaps, detergents, brushes, etc. to perform their duties. Separate areas were provided for clean and contaminated personnel eliminating any possibility of cross-contamination.

OC PMC Objective 30 - MET - A shift change was observed and adequately met all criteria stated within this objective. The shift manager adequately briefed the incoming shift manager about conditions and progress of the center.

### **DEFICIENCIES**

There were no Deficiencies observed at the Orange County PMC during this exercise.

### **AREAS REQUIRING CORRECTIVE ACTION**

There were no ARCA's observed at the Orange County PMC during this exercise.

### **PLAN ISSUES**

There were no plan issues observed at the Orange County PMC during this exercise.

### **AREAS RECOMMENDED FOR IMPROVEMENT**

There were no ARFIs observed at the Orange County PMC during this exercise.

#### **2.4.2.8 School Interview**

One objective was demonstrated in Orange County. This objective was met.

OC School Objective 16 - MET - The objective to demonstrate the organizational ability and resources necessary to effect an orderly evacuation of schools within the plume EPZ was met. The principal of the Highland Falls Middle School, located in Highland Falls, New York, in the Highland Falls/Fort Montgomery School District, was contacted and interviewed on May 26, 1992. A pre-determined series of questions was asked by the Federal evaluator.

The parents of school children are notified of the county's protective action decisions regarding the closing of schools through the EBS or news releases. The principal interviewed had a good knowledge of the established school emergency procedures.

Early dismissal of the school is implemented upon recommendation from the District Superintendent. A written call-down list would be used to make telephone calls to parents. The notification list is developed and periodically updated, with current home and emergency telephone numbers of parents, by written request of the schools. The school has written procedures and parents are kept informed through school publications which contain the addresses of the designated relocation centers.

The principal interviewed was familiar with the chain of command that would be followed during an evacuation and knew the Evacuation Time Estimates and school evacuation procedures.

### **DEFICIENCIES**

There were no Deficiencies observed during the Orange County school interview.

### **AREAS REQUIRING CORRECTIVE ACTION**

There were no ARCA's observed during the Orange County school interview.

### **PLAN ISSUES**

There were no plan issues observed during the Orange County school interviews.

### **AREAS RECOMMENDED FOR IMPROVEMENT**

There were no ARFIs observed during the Orange County school interview.

#### **2.4.2.9 Medical Drill**

A medical drill for Orange County was conducted on October 25, 1991, during which two objectives were demonstrated. Both objectives were met.

OC Medical Drill Objective 20 - MET - At 1000, an injury (simulated) occurred to a member of the general public arriving at the Temple Hill Reception Center via his automobile. Enroute to the reception center, he drove through the radioactive plume. After arriving at the reception center, he exited the vehicle hastily, struck his head, lost consciousness for a few seconds, and realized that his forehead was bleeding.



A reception center monitor, using a CDV-700 meter (calibrated March, 1991), met the victim at his automobile, and surveyed the auto and victim. The monitor had the correct dosimetry in accordance with the plan (0-5 R and 0-200 R DRDs, and a TLD provided to him from the county). Finding that the victim was injured and contaminated, he had a radio person call the County Warning Point, to inform them of the situation. At 1020, a call was placed over the radio to dispatch the Cornwall Volunteer Ambulance Corporation.

The Cornwall Volunteer Ambulance Corporation arrived at the reception center at 1033. The ambulance crew members approached the victim and monitored him with a CDV-700 meter. Upon discovering that the victim's right hand was contaminated, they immediately placed it into a rubber glove, to prevent the spread of contamination. The ambulance crew removed the victim's clothing to remove any possible contamination.

A second survey discovered that the right hand and wound remained contaminated, while the rest of the body showed only background. At 1047, the ambulance crew had the victim lie down on the ambulance stretcher. The ambulance crew wrapped the victim well to prevent the spread of contamination. At 1050, the ambulance crew placed the victim into the ambulance, which was covered to prevent the ambulance from being contaminated. A call was placed to the Cornwall Hospital advising that the ambulance was enroute with a contaminated/injured victim. At 1054, the ambulance left the reception center.

**OC Medical Drill Objective 21 - MET** - The ambulance left the reception center at 1054 and arrived at the Cornwall Hospital at 1109. The designated Radiological Exposure Area (REA), located in the hospital's Emergency Room, was prepared and ready to accept the patient. The floor leading to the REA was roped off, signs were posted, and the area was manned by the hospital security.

The patient was moved quickly into the REA, and placed onto the decontamination table. The ambulance crew and equipment were radiologically surveyed and returned to service. The areas of contamination were treated and decontaminated properly. The hospital personnel performed excellent radiation decontamination techniques by changing their gloves when needed. When questioned by the Controller as to what to do if the right hand could not be decontaminated, an ER nurse answered that the hand would be wrapped in a glove to isolate it and other medical treatment continued. This is the correct procedure in handling decontamination. After medical treatment, further decontamination of the right hand would be performed.

The staff had correct DRD (0-200 mR), and a Landauer TLD, which is provided and calibrated by the plant, and used a Ludlum Model 117 radiation detector, utilizing a HP-200 pancake probe, which was calibrated by the plant.

The patient left the REA at 1141, and the staff demonstrated proper disrobing, stepping out, and room survey procedures.

This medical drill demonstrated the adequacy of Cornwall Hospital and its personnel to treat and manage a contaminated, injured individual.

#### **DEFICIENCIES**

There were no Deficiencies were observed during the Orange County medical drill.

#### **AREAS REQUIRING CORRECTIVE ACTIONS**

There were no ARCAs were observed during the Orange County medical drill.

#### **PLAN ISSUES**

There were no plan issues observed during the Orange County medical drill.

#### **AREAS RECOMMENDED FOR IMPROVEMENT**

There were no ARFIs observed in the Orange County medical drill.

## **2.5 PUTNAM COUNTY, NEW YORK**

### **2.5.1 Putnam County Emergency Operations Center (PCEOC)**

Thirteen objectives were demonstrated at the PEOC during this exercise. All thirteen objectives were met.

**PCEOC Objective 1 - MET** - The Putnam County Sheriff's Office, designated as the County Warning Point, maintains a 24-hour communications capability. At 0738, the Communications Officer at the County Warning Point received a telephone call from the utility via the RECS line advising that Indian Point Unit 3 had declared an Unusual Event at 0726. After recording the data on the New York State Radiological Emergency Data Form, the officer notified the County Executive and the County Emergency Management Director at 0745. This procedure is in accordance with the Putnam County Plan. Upon receipt of the an Alert at 0844, the County Emergency Management Director, who had reported to work, initiated the call up process to alert and mobilize the EOC staff. An up-to-date list was used for telephone calls to Putnam County staff. Call out was completed by 0915 in a timely manner. Telephone numbers of the second shift staff members were available at the EOC.

The EOC was activated at 0915, was declared operational at 0924, and was fully operational by 0930.

**PCEOC Objective 2 - MET** - The PEOC was adequate to support emergency operations. Lighting, ventilation, and other necessary amenities to support emergency operations were sufficient. A back-up power generator was available. The adequacy of the generator was vividly demonstrated in an unplanned, real-life power outage at 1020. The generator automatically turned on and maintained power to the facility during the outage period, which lasted several minutes.

The facility was well equipped with displays providing information about the 10 mile EPZ, ERPA population, evacuation routes, reception/congregate care facilities, and radiological field monitoring points. A listing of special facilities and traffic control points was also available. Up-to-date status boards provided information on weather data, ECLs, news bulletins, and EBS messages.

All status boards were updated in a timely manner. A copy of the county plan was available. Access to the facility was controlled by the County Deputy Sheriffs.

**PCEOC Objective 3 - MET** - Direction and control was expertly demonstrated by the County Executive and the Director of the PEOC during the course of the exercise. These individuals were effectively in charge of emergency operations as was designated in the plan. Key staff members were provided a copy of the current county plan for reference and use. All staff members were given appropriate instructions by the Operations Officer to adhere to the county plan.

The County Executive held the first briefing at 0940, and thereafter held frequent briefings throughout the exercise. On several occasions, the Radiological Officer briefed the EOC staff as required by the situation. The EOC staff was involved in all decision making activities.

The County Executive, along with the County Executives of each of the other three risk counties and the New York State representative, made appropriate decisions for protective actions to be taken. The Operations Officer effectively directed the implementation of these protective actions, and resolved conflicts effectively and immediately.

**PCEOC Objective 4 - MET** - The County Warning Point at Putnam County is maintained at the Sheriff's office. The communications network is manned 24 hours a day and is serviced by multiple communication capabilities including high and low band radios, telephone lines, and the utility/State RECS line.

At the PCEOC the communications system is comprised of telephone and radio systems. The county's ability to meet all communications needs was demonstrated. The main telephone service is the New York State RECS line, which connects the nuclear plant with each county. RECS lines are available in the Sheriff's Office (Warning Point) and the PEOC. The Executive Hotline provided another vital link by connecting all four counties for decision making and functioned well throughout the exercise. Telephone communication was the primary system employed by the agencies and it worked smoothly. Available radio systems included police, fire and emergency medical services provided additional resources. RACES assisted the radiological staff by maintaining contact with the Field Monitoring Teams and maintaining an events log of communications. Facsimile machines, which were employed between the PEOC and the JNC, worked effectively. No problems or delays were experienced.

The dose assessment area communications included commercial telephones, a dedicated RECS line, Executive Hotline, RACES, one facsimile machine, and a MIDAS computer link to the EOF. All communications systems, except MIDAS, functioned properly during the exercise. Initially, the MIDAS printer was not properly connected to the telephone line and later, after a power failure, the MIDAS system to the County was down for approximately one hour. For unknown reasons, the MIDAS telephone lines to the EOF gave busy signals, even though the lines were not in use. The temporary MIDAS failure did not cause a problem, as the Radiological Officer properly acquired meteorological data from the County liaison in the EOF. Putnam County dose assessment staff demonstrated the ability to communicate with all the other county EOCs, field monitoring teams, the EOF, and the State EOC.

**PCEOC Objective 7 - MET** - The Putnam County Radiological Officer and the dose assessment staff adequately demonstrated their dose assessment procedures and the ability to develop protective action recommendations regarding evacuation and sheltering.

The Radiological Officer used the forecasted meteorological conditions and default value exposure duration (four hours) to back-calculate a source term release rate, which would trigger shelter or evacuation PARS for the county.

The utility plant monitor data were received at 30 minute intervals and the Radiological Officer reviewed the monitor data and compared the measured plant release rates to the calculated PAR trigger levels. Containment monitor data were also used to estimate a potential source term. All PARs were developed based on these projected source terms and protective actions were initiated before a release occurred.

Utility field measurements were promptly conveyed to the PCEOC by the State EOC and the County liaison in the EOF. The Radiological Officer compared the utility site boundary measurements to the MIDAS Reuter-Stokes readings for the same time interval. Consistency was noted in these measurements. The dose assessors then back-calculated a new source term, based on the field measurements and projected new exposure rates for distances of five and ten miles.

The Radiological Officer positioned the field monitoring teams on either side of the projected plume path and both monitoring teams were directed to pre-designated monitoring points, which were near the projected plume centerline, for air sample collection.

A previous ARCA (PC-1) incurred during the November 14, 1990, exercise has been corrected and verified. The Radiological Officer positioned the field monitoring teams on either side of the projected plume path and both monitoring teams were directed to pre-designated monitoring points, which were near the projected plume centerline, for air sample collection.

The Radiological Officer compared the Putnam County field monitoring teams' measurements to the expected exposure rates at similar distances which had been projected from the confirmed site boundary measurements. The field measurement data did not agree with the projected exposure rates. The State observer/controller in the EOC indicated that the reported field data was not in agreement with his scenario data. Even though the Radiological Officer was reluctant to share the field monitoring data with the State EOC or other EOCs, he discussed the inconsistencies with them.

The Radiological Officer had made arrangements with Westchester County to obtain Westchester field data as it becomes available. For reasons unknown, Westchester County did not provide any of their field measurements to Putnam County (See ARCA 2 for the WCEOC).

**PCEOC Objective 9 - MET** - The County Executive and the Director of Emergency Management effectively demonstrated their capability to make timely and appropriate PADs. The Radiological Officer and his dose assessment staff made timely PARs to the County Executive. These PARs were based on assessments of the plant and field data, which indicated that projected doses could exceed the sheltering or evacuation PAGs, if the default duration time (four hours) was used in the dose calculation. Utility PARs were also considered during the protective action decision making process. Following the GE, two PADs were made. The first PAD involved sheltering ERPAs 16 and 18, and the second involved sheltering ERPAs 17, 19, 20 and 23 and evacuating ERPAs 16 and 18. Both PADs were coordinated over the four-county executive hotline. This decision making process was carried out in accordance with the plan.



**PCEOC Objective 10 - MET** - The sounding of the fixed sirens system, the activation of the tone-alert radios, and the broadcast of EBS messages were all simulated. The first EBS message contained sheltering recommendations for ERPAs 16 and 18. The decision time was 1037, and the EBS message was broadcasted at 1052 (simulations only). The time required to complete the initial alert and notification process was 15 minutes.

Back up route alerting was also simulated. A free play message was injected to the Operations Officer at 1056, stating that siren 83 had failed. The Operations Officer handed the message to the County Sheriff who made arrangements for the route alerting by the local police department, whose vehicles are equipped with a public address system. The Sheriff also contacted the Commissioner of the Department of Social Services and inquired about persons living around siren 83 who were hearing impaired. The Commissioner responded that there were no hearing impaired individuals living in the vicinity of siren 83.

**PCEOC Objective 11 - MET** - According to the plan, the lead PIO at the JNC is responsible for development and release of emergency information and instructions to the public, with the approval of the County Executive. Prescribed messages were contained in the JNC procedures. The EBS messages contained accurate information regarding the protective actions recommended by the County Executive. A separate file was maintained at the EOC to provide easy access to released EBS messages and news releases. The EBS messages provided descriptions of ERPAs, how to maximize protection when sheltering, what to leave behind and what to take when evacuating, information on transportation-dependent and special populations groups, and the use of the public information brochure and Yellow Pages of the telephone book. The EBS messages were accurate, clear, and had up-to-date information.

**PCEOC Objective 14 - MET** - The Radiological Officer and the dose assessment staff assessed the need for issuing KI to emergency workers. All thyroid dose projections were well below the action level for authorizing KI and a decision was made not to request permission to issue KI.

The field team kits contained a bottle of KI tablets for each team member. These KI supplies were within their expiration date. Written instructions for the use of KI were provided to each emergency worker on the field teams. All KI decision making activities were carried out in accordance with the plan.

**PCEOC Objective 15 - MET** - The County maintains an up to date call list for each of the categories of hearing impaired, mobility impaired, and transportation dependent. The EOC staff took appropriate measures concerning the protective actions for several special facilities.

A free play message was injected at 0910 involving notification of the hearing impaired. The EOC staff identified six persons with this impairment. The County Office for Aging representative explained that the "contact" person on the list would be called. If any contact person was not reached, then a Sheriff's Deputy would respond to that individual's home.

A second free play message was injected at 0942 involving the evacuation of mobility impaired individuals. The County Office for Aging representative identified 12 individuals. Arrangements were made to have two buses provide evacuation assistance for these 12 individuals. Both free play messages were answered without any delay.

**PCEOC Objective 16 - MET** - Putnam County authorized the early dismissal of school children at 0916. All of the responsible school officials were notified of this decision by telephone by the School Coordinator at the EOC between 0922 and 0950. Parents were notified by school authorities, in accordance with each school's policy. Per the discussion with the School Coordinator, sufficient buses were available to ensure the prompt evacuation of all students requiring transportation from the schools. Evacuation of all schools was completed successfully by 1025, in a timely manner.

**PCEOC Objective 17 - MET** - TCPs were established in a timely manner in the towns of Philipstown, Putnam Valley, and Carmel by 0935. Additionally, a free play message was injected at 1255, requesting that a TCP be established at Routes 9D and 403. The Operations Officer requested the County Sheriff to proceed with this activation. At 1300, the County Sheriff called the County Communications staff to dispatch a patrol car to this TCP.

A second free play message was injected at 1320 involving the blocking of Routes 9D and 301. The County Sheriff called the Communications staff to dispatch a patrol car to evaluate the situation. The County Sheriff then transmitted a message to the County Highway Department representative requesting heavy equipment to clear the road. At 1325, the County Highway representative requested the Highway garage to dispatch the necessary equipment to clear the road. Additionally, by 1329, the County Sheriff developed an alternative route until the intersection was cleared of the impediments. All actions were completed in a timely manner.

**PEOC Objective 30 - MET** - In keeping with the extent of play agreement, a shift change was observed for all key positions between the hours of 1135 and 1358. Each incoming staff member was briefed by the outgoing staff member on the current status of the emergency. During their briefings, the outgoing staff members referred to the following: their notes, logs and messages, and the information on the maps and status boards. The incoming staff were knowledgeable of their emergency roles and functions. Additionally, the shift change was accomplished without causing any disruptions in the emergency operations at the EOC.

The Radiological Officer demonstrated a shift change at 1332. The shift change was smooth and effectively carried out. The second shift Radiological Officer was fully briefed by the first shift Radiological Officer prior to his departure.

## **DEFICIENCIES**

There were no Deficiencies observed at the PCEOC during this exercise.

## **AREAS REQUIRING CORRECTIVE ACTION**

There were no ARCAs observed at the PCEOC during this exercise.

## **PLAN ISSUES**

There were no plan issues observed at the PCEOC during this exercise.

## **AREAS RECOMMENDED FOR IMPROVEMENT**

1. **Description:** The MIDAS system went down for about one hour following a power outage. When the dose assessment staff members dialed any of the MIDAS telephone numbers to the EOF, they would get a busy signal, even though the EOF personnel indicated that the MIDAS telephone lines were currently not in use. Also, MIDAS could not be used initially because the telephone line was disconnected from the printer. It took 40 minutes before a utility observer/controller detected and fixed the problem.

**Recommendation:** Work with the utility to determine the root cause of the problem (power outage, etc.). Establish a protocol to immediately re-access MIDAS when this type of problem occurs rather than waiting for an hour to call the utility for help in solving the problem. Also, train the dose assessment staff on routine operability checks, for example, is the printer connected to the telephone line.

### **2.5.2 Putnam County Field Activities**

In Putnam County, various field activities were demonstrated. Field monitoring was evaluated on the day of the exercise. Traffic control, school evacuation bus runs, and one personnel monitoring center were evaluated out-of-sequence prior to the full scale exercise. The evaluation of these activities follows. The reception center and congregate care center used by Putnam County are located in Dutchess County. The evaluation of these two facilities can be found in Section 2.8.

#### **2.5.2.1 Field Monitoring Team**

Seven objectives were demonstrated by the Putnam County Field Monitoring Team during this exercise. All objectives were met.

**PC FM Objective 1 - MET** - At 0921, the Deputy County Director notified the field monitoring team to report to the PEOC, via telephone, and the four members of the team arrived at 0955. At 1025, the Radiological Officer briefed the team on plant status and current ECL. At 1044, team A was dispatched to Monitoring Site 8.



**PC FM Objective 4 - MET** - All members of the volunteer field monitoring team were RACES personnel, and were equipped with multi-channel radios (both fixed and hand-held), for communication with the EOC and other field teams. One channel served as the primary channel and one channel served as the backup channel. There were no delays caused by malfunctions or breakdowns. The hand-held units were used when team members were outside the vehicle.

**PC FM Objective 5 - MET** - Each member of teams A and C (second shift) was equipped with a TLD and two DRDs (0-5 R and 0-200 R). Records were made of all dosimeter numbers assigned to each team member. All dosimeters, including the TLD, were turned into the EOC at the conclusion of the exercise. Both teams were provided with instructions on how to use the dosimeters and perform periodic readings. Dosimeters were zeroed with a charger prior to deployment to the first sampling site.

All team members were well aware that they had to report dosimeter readings of 1 R, 3 R, and 5 R to the Radiological Officer at the EOC. Dosimeters were read at 20 minute intervals and recorded on the Individual Radiation Exposure Cards. These cards would be turned into the Radiological Officer at the end of the exercise. Each team member was also provided with one bottle of KI (expiration date: December, 1993).

**PC FM Objective 6 - MET** - The field teams were equipped with three low range survey instruments (Eberline RO-2A, CDV-700, and an Eberline E-520), and one high range survey instrument (CDV-715). All instruments were calibrated within one year of the exercise date, and all instrument detectors were placed in thin plastic. Team A had an equipment inventory list and checked all its equipment, which included battery checks, radio communication checks, and instrument operational response checks, prior to deployment.

Each team had maps of the area to be surveyed which identified monitoring locations. Prior to deployment, Team A was given a thorough briefing on plant status, current ECL, meteorological conditions, etc., and was told to report to Monitoring Site 8. Other sampling sites were assigned by radio. Each team had a vehicle that was appropriate for the local terrain and weather conditions. There were three members on a team.

At each sampling point, the teams took open and closed window readings at three inches and three feet. The open window was pointed down for the three inch reading. All readings were logged on the Putnam County Offsite Survey Team Data form. All readings were reported in proper units to the EOC via radio.

A previous ARCA (PC-2) incurred during the November 14, 1990, exercise has been corrected and verified. All readings were transmitted in the proper units.

**PC FM Objective 8 - MET** - Each team was provided with the necessary equipment, as specified in the plan, to monitor airborne radioiodine and particulate activity. Prior to deployment, Team A checked the air sampler and power supply (the vehicle battery) for operability. The radiation monitor (RM-14) was checked for proper operation, including radiation response from a check source. All instruments were labeled with the most recent calibration date and calibration due date. All dates were within one year of the exercise date.

Team A was requested to take an air sample at sampling site 1. Open and closed readings were taken prior to air sampling. The air sample took 12.5 minutes to collect, while a gamma exposure rate was being acquired, to make sure that the team was in the plume. Although the exercise was terminated before any air sampling results were reported to the EOC, the FEMA evaluator had both teams demonstrate the entire procedure, including field measurements. Team C had to use Team A's RM-14 because Team C's instrument was inoperable once they appeared in the field. This did not affect the team's performance.

Both teams performed very well and followed their written procedures exactly. The air sample media was taken to a low background area, purged, and measurements were made of the gross beta-gamma activity on the particulate filter and radioactivity on the adsorbent filter cartridge. The particulate filter was placed in a paper envelope and was labeled "PARTICULATE". The iodine cartridge was placed in a plastic bag and was labeled "CHARCOAL". Both were labeled with the date, time, location, sample volume, and gross counts. All readings were reported in the correct units, filter paper was placed in cartridges correctly, and equipment was handled properly, minimizing the spread of contamination. Although the samples were not actually transported, Team A was told that a Sheriff's patrol car would simulate picking up the sample and transporting it to the State Laboratory in Albany.

A previous ARCA (PC-2) incurred during the November 14, 1990, exercise has been corrected and verified. The filter papers were placed in the air sampler cartridge correctly and good equipment handling techniques were demonstrated.

**PC FM Objective 14 - MET** - Each team member was provided with a bottle of KI (expiration date: December, 1993) prior to deployment. They were aware that they would only ingest KI when they were told to do so by the EOC. There was no need to simulate the taking of KI during this exercise.

**PC FM Objective 30 - MET** - Team C replaced Team A at 1440 at Monitoring Site 1. Team C was briefed at the PCEOC on current plant status and ECLs. All key functions were staffed and Team C was briefed on the current status and measurements that had already been made. Team C demonstrated a good knowledge of field monitoring procedures in the brief period of time they had before the exercise was terminated at 1538.

They were only able to make measurements at one sampling point before the exercise terminated. The shift change, however, was accomplished in a timely manner that facilitated continuous, uninterrupted operations. Schedule shift changes earlier in the exercise, so that the second shift team can more fully demonstrate its capabilities.

## **DEFICIENCIES**

There were no Deficiencies observed involving the Putnam County Field Monitoring Team during this exercise.

## **AREAS REQUIRING CORRECTIVE ACTION**

There were no ARCAs observed involving the Putnam County Field Monitoring Team during this exercise.

## **PLAN ISSUES**

There were no plan issues observed involving the Putnam County Field Monitoring Team during this exercise.

## **AREAS RECOMMENDED FOR IMPROVEMENT**

1. **Description:** Team C replaced Team A at 1440 at Monitoring Site 1. They were only able to make measurements at one sampling point before the exercise terminated. The shift change, however, was accomplished in a timely manner that facilitated continuous, uninterrupted operations.

**Recommendation:** Schedule shift changes earlier in the exercise, so that the second shift team can more fully demonstrate its capabilities.

### **2.5.2.2 Traffic Control Points**

The Putnam County TCPs were evaluated out of sequence on June 17, 1992. A free play message was used to initiate the discussions relative to the establishment of the TCPs. Two objectives were demonstrated. Both objectives were met.

**PC TCP Objective 5 - MET** - Two Putnam County Deputy Sheriffs interviewed received one 0-5 R and one 0-200 R DRD and one TLD, as per their procedures. A dosimeter charger was available for them to zero their dosimeters. The Deputy Sheriffs knew to call in their dosimeter readings into the PEOC at 15-30 minute intervals. These readings were also recorded on their Individual Radiation Exposure Record. The Deputy Sheriffs were knowledgeable about the use of their equipment and exposure limits of 1 R, 3 R and 5 R.

**PC TCP Objective 17 - MET** - The two Deputy Sheriffs interviewed had knowledge of the appropriate evacuation routes and the location of the reception centers. They also knew how to set up a TCP even if equipment was not available, by using the vehicles to establish a barrier.

Both Deputy Sheriffs knew to call their supervisor at the EOC if a question arose.

## **DEFICIENCIES**

There were no Deficiencies observed at the Putnam County TCPs during this exercise.

## **AREAS REQUIRING CORRECTIVE ACTION**

There were no ARCAs observed at the Putnam County TCPs during this exercise.

## **PLAN ISSUES**

There were no plan issues observed at the Putnam County TCPs during this exercise.

## **AREAS RECOMMENDED FOR IMPROVEMENT**

There were no ARFIs observed at the Putnam County TCPs during this exercise.

### **2.5.2.3 School Evacuation Bus Runs**

The school evacuation bus runs were evaluated out of sequence on May 27 and June 10, 1992. A free play message was used in the EOC to initiate the bus runs. Two objectives were demonstrated during the two Putnam County school evacuation bus runs. Both objectives were met.

**PC SE Objective 5 - MET** - Each bus driver and the RACES person had one 0-5 R and one 0-200 R DRD and one TLD, as required by procedures. The dosimeters were zeroed before the buses were dispatched on their routes. A dosimeter charger was brought along on each route. Each emergency worker knew when to take dosimeter readings (every 15-30 minutes), and record the readings on their Individual Radiation Exposure Records. The bus driver from the Putnam Valley School District said that he would return his dosimeters and TLD to the Reception Center upon completion of his bus run. The dosimeters and TLD, in accordance with the procedures, should be returned to either the bus dispatcher or the Emergency Worker PMC.

Two previous ARCAs (PC-3 and PC-4) incurred during the November 14, 1990, exercise have been corrected and verified through the attendance of the FEMA evaluator at a training session held on Tuesday, October 29, 1991, and by demonstration during the evaluation.

**PC SE Objective 16 - MET** - The bus driver from the Haldane Central School District knew the route to the school reception center (Rombout School in Beacon, New York) and had the directions to the reception center available with her at all times. The RACES person had the appropriate equipment to stay in contact with the PCEOC, and the bus driver was able to communicate with his dispatcher, via a bus radio.

The bus driver from the Putnam Valley School District knew the route to the school reception center (Sargent School in Fishkill, New York) and had the directions to the reception center available with him at all times. The RACES person had the appropriate equipment to stay in contact with the PEOC, and the bus driver was able to communicate with his dispatcher, via a bus radio.

Two previous ARCAs (PC-5 and PC-6) incurred during the November 14, 1990, exercise have been corrected and verified through the attendance of the FEMA evaluator at a training session held on Tuesday, October 29, 1991, and by demonstration during the evaluation.

## **DEFICIENCIES**

There were no Deficiencies observed during the school evacuation bus runs for Putnam County during this exercise.

## **AREAS REQUIRING CORRECTIVE ACTION**

There were no ARCAs observed during the school evacuation bus runs for Putnam County during this exercise.

## **PLAN ISSUES**

There were no plan issues observed during the school evacuation bus runs for Putnam County during this exercise.

## **AREAS RECOMMENDED FOR IMPROVEMENT**

1. **Description:** The bus driver from the Putnam Valley School District said that he would return his dosimeters and TLD to the Reception Center upon completion of his bus run. The dosimeters and TLD, in accordance with the procedures, would be returned to either the bus dispatcher or the Emergency Worker PMC.

**Recommendation:** Further training of the bus drivers in the proper handling of the return of dosimeters and TLDs.



#### 2.5.2.4 Special Population Evacuation Bus Runs

The special population evacuation bus runs were evaluated out of sequence on July 6 and July 21, 1992. A free play message was used in the EOC to initiate the bus runs. Two objectives were demonstrated during the two Putnam County general population evacuation bus runs. One objective was met and one was partially met.

**PC SP Objective 5 - PARTIALLY MET** - The bus drivers and the RACES operators were issued a dosimetry package consisting of a TLD, one 0-5 R and one 0-200 R DRD, one bottle of KI, a dosimeter charger, and an Individual Radiation Exposure Record. Written instructions included in this package stated that the dosimeter was to be zeroed at the start of activities and read and recorded every 15 minutes thereafter.

Both bus drivers knew that if 1 R was read on their dosimeters, they would have the RACES operator call the PEOC for further instructions. When questioned on the use of KI, the bus driver from the Mahopac Bus Garage stated that she would take KI when she needed it. (See ARCA 1 for the PC SP)

**PC SP Objective 15 - MET** - A message inject was given to the driver from the Mahopac Bus Garage to run route 16. The first general population evacuation bus run was initiated from the Mahopac School District Bus Garage at 1030 and the first pick-up point was passed at 1047. This route consisted of 11 pick-up points which intersected several roads. The route was properly marked with clear road signs, and the bus driver had complete instructions on how to perform the run. The RACES operator assisted her in completing her run.

The last pick-up point was missed, due to a discussion between the driver and RACES operator on dosimeter readings. Both the driver and the RACES operator knew that they missed the last pick-up point but stated that if this had been an actual run, they would see residents waiting at the pick-up point. The bus driver performed her duties satisfactorily in spite of missing the last pick-up point.

The second general population evacuation bus run was initiated from the Garrison School at 1025. This route was basically along Route 9D and consisted of six pick-up points. A trip to the John Jay High School Reception Center was not made, as provided for in the extent-of-play agreement. Street and road markings along this route were prominently displayed, and no problems in following this route were encountered. The bus driver was knowledgeable about the route and had written instructions describing the route.

Communications between the bus drivers and the dispatcher were maintained using a permanently mounted radio in the bus. A RACES operator accompanied the bus driver and used his portable radio (back-up communication) with an outside antenna to maintain excellent communications with the PEOC.

A previous ARCA (PC-6), incurred in the November 14, 1990, exercise, has been corrected and verified. Street and road markings along this route were prominently displayed, and no problems in following this route were encountered.



## DEFICIENCIES

There were no Deficiencies observed for the Putnam County special population evacuation bus runs during this exercise.

## AREAS REQUIRING CORRECTIVE ACTION

1. **Description:** The bus driver from the Mahopac School District stated that she would take KI when she needed it. (NUREG-0654, G.9, and J.10.e.f.)

**Recommendation:** Further training is needed regarding when to take KI and who can authorize its ingestion.

## PLAN ISSUES

There were no plan issues observed for the Putnam County special population evacuation bus runs during this exercise.

## AREAS RECOMMENDED FOR IMPROVEMENT

1. **Description:** The bus driver from the Mahopac School District missed the last pick-up point of her assignment.

**Recommendation:** Additional training in the completion of the assigned bus run.

### 2.5.2.5 Personnel Monitoring Center

The Putnam County Personnel Monitoring Center (PMC), located at the North Highlands Volunteer Fire Department, was demonstrated out of sequence on July 21, 1992. Five objectives were demonstrated. All five objectives were met.

**PC PMC Objective 2 - MET** - The facility was well suited for use as a PMC, and had adequate space, furnishings, lighting, restrooms, and ventilation. A copy of the facility's emergency procedures was available for review. Access to the facility was also well controlled at the entrance.

**PC PMC Objective 4 - MET** - The PMC was located at the North Highlands Volunteer Fire Department. Primary means of communication were two commercial telephone lines. Backup communications consisted of either the Fire Radio (direct contact to the Fire Coordinator at the EOC) or RACES.

PC PMC Objective 5 - MET - Dosimeter kits were issued to each member of the staff at the PMC. Included in each kit were one 0-5 R and one 0-200 R DRD, one TLD, one vial of KI, instructions for the use of dosimetry, and an Individual Radiation Exposure Record. All the dosimeters were zeroed with a dosimeter charger at the start of the demonstration, and read at 15 minute intervals. All readings were recorded on the staff member's exposure record cards, and submitted to the shift supervisor at the conclusion. Staff members were aware of their exposure limitations, the exposure authorized for the mission, and the necessary action to communicate to their immediate supervisor if their exposure exceeded the authorized limitations. Since this facility is located outside of the 10 mile EPZ (15 miles from the plant), the need for KI did not arise.

PC PMC Objective 22 - MET - The North Highlands Volunteer Fire Department had adequate space for monitoring and decontamination of emergency workers, vehicles, and equipment. The PMC was set up to separate contaminated and non-contaminated emergency workers. Procedures were in place to minimize contamination of the facility. For example, floors were covered with paper to prevent the spread of contamination. Separate labeled containers were used for contaminated clothing, equipment, and waste.

Staff at this facility utilized the CDV-700 survey instruments (calibrated April, 1992) for monitoring emergency workers, vehicles, and equipment. Approximately six instruments were available for use. The instrument check sources were used to verify the proper operation of all instruments.

All of the instruments were equipped with earphones, which were used by the participants, when monitoring individuals for contamination. An action level of 0.1 mR/hr above background was used to determine whether or not decontamination was needed.

Regarding contamination control, all monitors wore plastic gloves and covered the probes of the CDV-700 with thin plastic. Also, plastic covers were placed on extremities that were found contaminated. The removal of contaminated clothing, use of separate shower facilities for both men and women, and provision of change of clothing for individuals after decontamination were simulated as the methods of decontamination.

Following decontamination, emergency workers re-monitored the individual and demonstrated the proper methods for containing contaminated clothing and other materials (labeled containers with plastic bags). A separate record was made for each contaminated individual.

The vehicle monitoring procedures were sufficient to detect radiological contamination at the level specified in the plan (0.1 mR above background). Vehicle monitoring procedures included monitoring the grills, wheel areas, bumper, and interior of the vehicle. Contaminated vehicles were separated from clean vehicles and moved to an isolated area.

Uncontaminated individuals were kept away from contaminated vehicles and equipment. Water hoses and soap were used to decontaminate the vehicles. When the Federal evaluator mentioned that a driver of a vehicle had contamination on his hands (simulated), the monitor immediately placed a plastic glove to keep the contamination from spreading.

**PC PMC Objective 30 - MET** - Per the extent of play agreement, a shift change occurred during the demonstration. The incoming supervisor was briefed by the outgoing supervisor on the current status of the facility. The new supervisor demonstrated an adequate knowledge of his emergency response role and function. The change was accomplished in a manner that facilitated continuous, uninterrupted operations.

### **DEFICIENCIES**

There were no Deficiencies observed at the Putnam County PMC during this exercise.

### **AREAS REQUIRING CORRECTIVE ACTION**

There were no ARCA's observed at the Putnam County PMC during this exercise.

### **PLAN ISSUES**

There were no plan issues observed at the Putnam County PMC during this exercise.

### **AREAS RECOMMENDED FOR IMPROVEMENT**

There were no ARFIs observed at the Putnam County PMC during this exercise.

#### **2.5.2.6 School Interviews**

One objective was demonstrated during the school interview portion of the exercise. That objective was met.

**PC School Objective 16 - MET** - The objective to demonstrate the organizational ability and resources necessary to effect an orderly evacuation of school children within the plume EPZ was met.

Three schools in Putnam County were visited and interviews conducted on May 27, 1992, to evaluate the degree of preparedness for each school.

Listed below are the names of the schools, school districts, and towns.

1. Country Cousins Nursery School  
Putnam Valley Central School District  
Putnam Valley, New York
2. Community Nursery School  
Haldane Central School District  
Cold Springs, New York
3. St. Basil's Academy  
Garrison Union Free School District  
Garrison, New York

At each school, the school principal was interviewed. Each person interviewed was asked a preselected series of questions by the Federal evaluator.

The parents of school children are notified of the County's protective action decisions regarding the closing of schools through a news release. The authorities interviewed at each of the schools in Putnam County had a good knowledge of the established school emergency procedures. Early dismissal of each of the schools is implemented upon recommendation from the District Superintendent. A written call-down list is used to make telephone calls to parents. The notification list is developed and periodically updated, with current home and emergency telephone numbers of parents, by written request of the schools.

All schools have written procedures and parents are kept informed through school publications which contain the addresses of the designated relocation centers.

Officials at all of the schools were familiar with the chain of command that would be followed during an evacuation. Estimates of evacuation times and school evacuation procedures were known.

#### **DEFICIENCIES**

There were no Deficiencies observed during the Putnam County school interviews.

#### **AREAS REQUIRING CORRECTIVE ACTION**

There were no ARCAs observed during the Putnam County school interviews.

#### **PLAN ISSUES**

There were no plan issues observed during the Putnam County school interviews.

## AREAS RECOMMENDED FOR IMPROVEMENT

There were no ARFIs observed during the Putnam County school interviews.

### 2.5.2.7 Medical Drill

A medical drill for Putnam County was conducted on May 13, 1992. Two objectives were demonstrated. Both objectives were met.

**PC Medical Objective 20 - MET** - An excellent demonstration of the adequacy of vehicle equipment, procedures, and personnel for transporting the contaminated injured individual was conducted by the Carmel Volunteer Ambulance Service.

The ambulance crew, consisting of three Emergency Medical Technicians (EMTs), responded to the call from the Emergency Worker PMC to transport an emergency worker with a fracture to the right lower leg and possible radiological contamination to the hospital. The ambulance crew removed the injured individual from his vehicle, and began treatment.

The monitoring personnel at the PMC monitored the injured individual as the ambulance crew cut away his clothing. The ambulance crew and the PMC monitors were provided with a TLD, and 0-5 R and 0-200 R DRDs.

The PMC personnel were dressed in protective clothing and the ambulance crew changed their gloves to prevent contamination. The ambulance was equipped with protective clothing, which was shown to the evaluator. The ambulance crew wrapped the injured individual very well and then placed him in the ambulance, which was also draped, to prevent the spread of contamination. The ambulance crew knew that the injured individual would be transported to Putnam Community Hospital, which was contacted by the County EOC at 0852. The injured individual was placed into the ambulance and left the PMC at 0920. The estimated time of arrival at the hospital would be about 10 minutes.

Upon arrival at the hospital, the ambulance was met by the medical team. An orderly transfer was accomplished. The ambulance and crew were detained in the secured radiological reception area until the crew members, equipment, and vehicle were monitored by a radiological technologist from the hospital. Overall, the ambulance crew did an excellent job.

Two previous ARCAs (PCMD-1 and PCMD-2) incurred in the September 27, 1990 medical drill, have been corrected and verified.

**PC Medical Objective 21 - MET** - The adequacy of the medical facility's equipment, procedures, and personnel for handling of contaminated injured or exposed individuals was demonstrated by the knowledgeable, well-trained staff of the Putnam Community Hospital. The mobilization of the staff and preparation of the Radiation Emergency Area (REA) was performed in a timely manner. The REA was made ready, and the medical reception team members donned protective clothing and were provided with the necessary dosimetry (one 0-200 mR DRD, and one TLD). A recently calibrated (January, 1992) survey meter was used for monitoring. The medical team present in the treatment room consisted of one doctor, two nurses, and a radiological technologist. In the buffer room, outside of the treatment room, there were one nurse, and one radiological technologist.

Excellent interface was demonstrated between the medical team and the monitor. Handling and decontamination of the patient were conducted in an effective and professional manner. All activity in the buffer zone was efficiently controlled by the buffer zone nurse and the radiological technician. This included the step-off procedure from the treatment room to the buffer zone. Functions as demonstrated were consistent with the emergency plan and procedures.

#### **DEFICIENCIES**

There were no Deficiencies observed during the Putnam County medical drill.

#### **AREAS REQUIRING CORRECTIVE ACTION**

There were no ARCA's observed during the Putnam County medical drill.

#### **PLAN ISSUES**

There were no plan issues observed during the Putnam County medical drill.

#### **AREAS RECOMMENDED FOR IMPROVEMENT**

There were no ARFIs observed at the Putnam County medical drill.



## **2.6 ROCKLAND COUNTY, NEW YORK**

### **2.6.1 Rockland County Emergency Operations Center (RCEOC)**

The RCEOC demonstrated fourteen objectives for this exercise. Thirteen objectives were met and one was partially met.

**RCEOC Objective 1 - MET** - The ability to fully alert, mobilize, and activate personnel for both facility and field-based emergency functions, was adequately demonstrated. Alert and mobilization of the EOC staff was accomplished in an efficient and timely manner.

Upon notification of the Unusual Event ECL, eight select members of the response organization were notified via the pager system by the 24-hour warning point operators of the Rockland County Sheriff's Department. At 0850, during the Alert ECL, the members alerted and mobilized personnel by telephone and pager.

Current, accurate personnel telephone rosters were used in making the alert and mobilization calls. Rosters were available for each shift.

**RCEOC Objective 2 - MET** - The RCEOC is collocated with the Rockland County Sheriff's Communications Center and Early Warning Point at the Fire Training Center on Firemen's Memorial Drive in Pomona, New York. It is more than adequate to support all anticipated emergency operations, with separate rooms for the Executive Group, the public information activity, and the accident assessment activity. Appropriate space, furnishings, lighting, restrooms, ventilation and back-up power (for the EOC only) were available. Other equipment included telephones, typewriters, computers, word processors, copiers, and facsimile machines.

Maps and displays in the EOC and in the separate functional areas, including the Executive Group, were excellent, providing summary and tracking information necessary for management decision-making.

Maps and displays (or listings) available included the following: plume pathway EPZ with sectors and/or emergency radiological planning areas labeled, evacuation routes, reception/congregate care centers, radiological monitoring points, population by evacuation areas, ECLs, weather information and data, special facilities (i.e. schools, nursing homes, and hospitals), and TCP/ACPs.

Rockland County EOC/TCP maps were reviewed to confirm that TCP 48 was included at the intersection of Strawtown Road and Demarest Avenue on the revised county map.

Status boards were available, prominently displayed, and promptly posted with current accurate information, reflecting significant changes in event information. Posting was within 10-minutes of the receipt and verification of significant changes in event information at the nuclear power plant.

A copy of the organization's emergency plan was available at the facility for review and was frequently referenced by exercise participants.

A previous ARCA (RC-2) incurred during the November 14, 1990, exercise has been corrected and verified. Rockland County EOC/TCP maps were reviewed to confirm that TCP 48 was included at the intersection of Strawtown Road and Demarest Avenue on the revised county map.

**RCEOC Objective 3 - PARTIALLY MET** - The EOC Operations Manager, under the direction of the Rockland County Executive and the Emergency Management Director, demonstrated the capability to direct and control emergency operations at the Rockland County EOC.

The EOC staff, led by the Operations Manager, demonstrated a thorough grasp of emergency operations, requirements, and procedures, enabling the organization to carry out its essential functions and activities in accordance with its plans and procedures. The Emergency Management Director ensured the establishment of procedures for the retention of message logs for incoming and outgoing messages and transmissions.

The Operations Manager held frequent briefings to ensure that all present were knowledgeable regarding the status of events; issued instructions to the staff on adherence to the plan, a copy of which was available for reference; provided leadership in decision-making and clarification of authorities while involving the staff and other agency representatives in discussions prior to making decisions, and authorized implementation of PARs. The Emergency Management Director resolved conflicts and directed coordination with other jurisdictions, including the other three risk counties and New York State which were primarily coordinated through the Command and Control room.

At the request of the Director of the Bergen County Office of Emergency Management, Bergen County received faxed copies of EBS messages 1 and 2 from Rockland County. Messages 3 through 5 were not received. Bergen County staff were not aware of EBS messages 6 and 7 (See ARCA 1 for the RCEOC).

**RCEOC Objective 4 - MET** - Communications equipment, systems, and procedures at the Rockland County Warning Point and EOC were excellent. Communication systems were available and operated properly, and communication links were established with all appropriate locations. The RECS line, 47 telephone lines, a facsimile machine, and radio systems provide the facility with multiple redundancies and back-ups in case of failure of one or more systems. There were no delays caused by malfunctions or breakdowns in equipment.

All incoming and outgoing communications were appropriately logged, duplicated, and passed to the EOC staff for action or information. Frequent reviews of action status were held to ensure that no required actions or responses were overlooked.

During this exercise, staff communicated with the utility, the New York State EOC, and five county EOCs, and each agency representative communicated with his/her counterpart.

All activities described in the demonstration criteria for this objective were carried out in accordance with the plan, unless deviations were provided for in the extent-of-play agreement.

**RCEOC Objective 5 - MET** - The RCEOC staff members and the Exposure Control Coordinator demonstrated the ability to continuously monitor and control emergency worker exposure. Each RCEOC staff member was assigned a TLD when he/she signed in at the RCEOC. Two ranges of DRDs (0-200 R and 0-5 R) were placed on outside walls at various locations within the RCEOC as area monitors. These direct reading dosimeters were read every 15-minutes. The Exposure Control Coordinator and Field Team Coordinator demonstrated excellent knowledge of the emergency worker exposure reporting requirements.

**RCEOC Objective 7 - MET** - The accident assessment group received meteorological data and forecast information from the utility via the MIDAS system and the RECS messages. Prior to any release of radioactivity, several dose projections were made using implant instrument readings, current meteorological data and an assumed source term. Both manual calculations and a computer-based system were used for all dose projections and the results of both types of calculations were compared. Calculations were made for both whole body and child thyroid doses and dose rates. There were no significant differences between the two types of calculational methods. The Dose Assessment Team Leader and the lead dose assessor contacted other counties and the technical group in the New York State EOC to compare the Rockland dose projections with those made by other agencies. In all cases, there was good agreement among the various agencies.

The times printed on the MIDAS output were in Eastern Standard Time which was one-hour different from the times used in all the exercise data. This one-hour offset was handled without major problems; however, the use of the actual time would have made the response less difficult. (See EOF ARFI 1)

The dose assessors made calculations which determined the source terms which would be necessary to exceed PAGs and, therefore, warrant taking protective actions prior to any release of radioactivity. Once the release of radioactivity started, the utility transmitted the assumed source term via Part II of the New York State Radiological Emergency Data Form. New dose projections were made using these source terms and the current meteorological data. One of these data forms, 12B, received in the dose assessment area at 1337, had been filled out incorrectly. Specifically, the source term for the noble gases was shown as 0.07 Ci/second, and for radioiodines as 673 Ci/second. Based on telephone conversations with the County liaison in the EOF, it was recognized that these values had been reversed. A corrected copy of the form was transmitted to the county 50 minutes later. (See EOF ARFI 2)

The county decision-makers had made initial and subsequent PADs based on plant status. As a result of these decisions, when the release of radioactivity started, even though the plume trajectory carried the plume into areas outside the county, there was no need to revise the PADs based on the dose projection data.

The Field Monitoring Team Coordinator was extremely conscientious in keeping the field teams informed of the status of the accident and on the status of PADs. The two field teams were positioned in locations where they would be able to detect the impact of the plume upon any portion of the county, should there be a wind shift or a spread of the plume not projected by calculational methods. Since the plume did not impact the county, there were no field data available to compare with the dose projections. A total of two field measurements were transmitted to the county accident assessment group from the utility and the Westchester County field teams near the conclusion of the exercise.

Two previous ARCAs (RC-1 and RC-7), incurred during the November 14, 1990, exercise, have been corrected and verified. The Dose Assessment staff in the EOC used their DOH procedures properly. The Field Monitoring Team Coordinator was extremely conscientious in keeping the field teams informed of the status of the accident and on the status of PADs.

**RCEOC Objective 9 - MET** - The decision-makers in Rockland County were the County Executive on the first shift and the Chairman of the Legislature on the second shift. All decisions were made in consultation with other appropriate staff members and were coordinated over the Executive Hotline with the decision-makers from the other three risk counties and the SEMO representative.

Three decisions on protective actions were made. During the Alert ECL, the decision was made at to close schools and the park areas within the county. These actions were preplanned precautionary actions triggered by the Alert ECL. During the SAE ECL, the decision was made to evacuate ERPAs 38, 39, and 40 and to shelter ERPA 29. This decision was made at 1134 and was a precautionary action based on the status of the plant. The last decision made in Rockland County was during the General Emergency ECL at 1250. The decision was to evacuate ERPAs 29, 30, 31, and 36. This decision was again based on plant status. The utility had made a recommendation to evacuate additional ERPAs in the county at 1217. The county reviewed the utility's recommendation before deciding not to evacuate all of the ERPAs recommended by the utility. The decision was based on the fact that current meteorological conditions indicated that the plume would not impact any areas within the county until after a shift in the wind direction, projected for 1700, and that by only evacuating the northern areas within the county, there would be less crowding on the road network and the population at greater risk could evacuate quicker. Also, there were several hours available in which to add the remaining ERPAs after the high risk population had started its evacuation.

**RCEOC Objective 10 - MET** - The capability to promptly alert and notify the public within the 10-mile EPZ and disseminate instructional messages to the public was successfully demonstrated at the county EOC.

The sounding of the fixed siren system, the activation of the tone-alert radios, and the broadcast of the EBS messages were all simulated. The first EBS message contained a PAR for Westchester County only. Backup route alerting was also simulated.



Telephone calls to eight institutions were actually made. The Telecommunication Device for the Deaf (TDD) was established and calls using the device were simulated at Rockland County.

The time required to complete the initial alert and notification sequence was 15 minutes. The County Executive, in coordination with the State of New York, authorized the alert and notification sequences. The EBS messages were broadcast from the JNC.

Primary route alerting was not required. Back-up route alerting and notification were discussed by the EOC staff. Per a discussion with the EOC staff, back-up route alerting for the designated routes (i.e., failed-siren areas 14 and 287) would require 15 minutes from dispatch and would be performed by Sheriff's Department representatives in cars equipped with a computer terminal and a public address system. Current route maps, surveyed in August, 1992, and found to be accurate, were available.

**RCEOC Objective 11 - MET** - The capability to coordinate the formulation and dissemination of accurate information and instructions to the public was successfully demonstrated at Rockland County.

According to the Rockland County RERP, the New York State PIOs at the JNC have the responsibility for the development and release of emergency information and instructions to the public. The County Executive has the authority to authorize the release of EBS messages for Rockland County.

Three (volunteer) PIOs staffed the public information room at the EOC. All three volunteers were extremely knowledgeable regarding the county requirements for public information activities and the functions of the office.

Prescribed EBS messages were contained in the JNC procedures and were utilized during this exercise. The EOC maintained a file of informational and instructional messages disseminated to the public. The EBS message contained clear, current information written in understandable language. Information was accurate and consistent with public information brochures and with information and instructions contained in the PADs. The EBS message simulated to the public contained: (1) A description of ERPAs subject to protective actions; (2) information on how to maximize protection when sheltering, and what to leave behind when evacuating; (3) information for transportation dependent individuals when evacuating special populations; and (5) the use of public information brochures. Information regarding the location of the reception/congregate care centers are listed in news releases.

Protective action areas were described in the EBS message and in news releases using familiar geographic landmarks and boundaries for the affected areas. Copies of informational messages were made available to the rumor control staff at the JNC. The messages accurately reflected the decisions made by responsible authorities. The messages contained information and instructions understandable to the public and facilitated initiation of recommended protective actions. The content of the messages was coordinated with all appropriate staff, organizations, and other jurisdictions.

**RCEOC Objective 14 - MET** - The ingestion of KI was not recommended for Rockland County emergency workers and institutionalized individuals since the plume did not impact any county areas. Emergency workers (field monitoring teams) were issued KI prior to being dispatched to the field. They were instructed on the proper use of KI and the need for authorization from the Commissioner of Health before ingesting KI. There was an adequate supply of unexpired KI available for the emergency workers.

**RCEOC Objective 15 - MET** - The ability and resources necessary to implement appropriate protective actions for the impacted permanent and transient plume EPZ population (including transit dependent persons, special needs populations, handicapped persons and institutionalized persons) was adequately demonstrated.

The Transportation Coordinator, early in the exercise, identified and verified the availability of transportation assets to support the needs of Rockland County's transit-dependent special population. At 0933, the Office for the Physically Handicapped established a telephone number for transportation assistance for disabled residents only. News release 3 at 0956 provided this telephone number for the mobility-impaired and a telephone number was also provided for the hearing-impaired. The required transportation was secured in a timely manner so it would be available when an evacuation was ordered by the County Executive or the Emergency Coordinator.

The EOC was responsible for notifying the special population groups, i.e., transportation dependent and sight, hearing, and/or mobility-impaired, through EBS/news releases. Eight institutions were actually called.

The following methods were used to provide emergency information and instructions to these populations: EBS, telephone, tone-alert radio, and the TDD. Using an up-to-date call list, telephone calls were simulated to individuals with special needs, and calls were actually made to institutions with special populations to demonstrate this capability.

Protective actions taken for special populations during the exercise included only sheltering. A discussion held at the EOC centered around the ability of the transportation providers to provide adequate transportation for special needs populations. It was determined that adequate resources were available by including Emergency Medical Services and Department of Public Transportation resources in the inventory.

As specified in the extent-of-play agreement, inquiries were not made of these providers regarding the availability of needed resources, other than to query the providers' representatives in the EOC.

**RCEOC Objective 16 - MET** - The capability and resources necessary to implement protective actions for school children within the plume pathway EPZ was adequately demonstrated.

At the Alert ECL, the responsible school officials were notified by the Schools' Representative in the EOC by telephone, of emergency conditions at the nuclear power plant that might require protective actions for students.



The school officials were told that all schools in the county were potentially affected by PARs. The County Executive decided that school children should be dismissed early. Since the decision was to dismiss school early, parents were notified by news releases and by school authorities, using a cascading-telephone system in accordance with each school's policy.

It was determined by discussions with the Transportation Coordinator and the schools' representative that sufficient buses were available to ensure the prompt early dismissal of all students requiring transportation from the schools. Buses simulated transporting all children to their homes.

**RCEOC Objective 17 - MET** - TCPs were activated in accordance with the plan and the extent-of-play agreement. Personnel were simulated being dispatched at 1024 hours to cover all TCP assignments. At 1155 it was reported to the Emergency Coordinator that all TCPs were fully staffed.

Personnel actually deployed to TCP/ACPs remained in radio contact with the Rockland County EOC, and could also communicate with the County Communications Center. Personnel were knowledgeable about procedures and followed them properly. Changes in protective actions were communicated to the traffic and access control staff members after their deployment.

Traffic and access control staff members displayed an accurate knowledge of the following: the location of TCP/ACPs, the need for and placement of traffic barriers, protective actions (i.e., evacuation and sheltering), the evacuation of special facilities and institutions, the early evacuation of special populations, and the location of reception and relocation centers.

Two Rockland County Sheriff's Deputies were interviewed on July 29, 1992, as part of the out-of-sequence evaluation.

Adequate equipment, including barricades and signs, was available for the establishment of TCP/ACPs. TCP/ACP personnel simulated responding to one traffic impediment. The necessary resources were available for dealing with impediments and the impediment was removed (simulated) in a timely manner.

**RCEOC Objective 30 - MET** - A roster was provided, according to the extent-of-play agreement, listing key positions which were subject to a shift change. Evaluators observed the actual shift change for each of these positions, the briefing of and the demonstration of adequate knowledge by the second shift personnel.

The transition from the outgoing to incoming shift was accomplished without any discontinuity in operations. The incoming shift members were knowledgeable and capable of demonstrating their emergency response functions.

## **DEFICIENCIES**

No Deficiencies were observed at the RCEOC during this exercise.

## AREAS REQUIRING CORRECTIVE ACTION

1. **Description:** At the request of the Director of the Bergen County Office of Emergency Management, Bergen County received faxed copies of EBS messages 1 and 2 from Rockland County. Messages 3 through 5 were not received. Bergen County staff were not aware of EBS messages 6 and 7 (NUREG-0654, F.1.b).

**Recommendation:** Rockland County should make sure that all fax information be sent to Bergen County.

## PLAN ISSUES

No plan issues were observed at the RCEOC during this exercise.

## AREAS RECOMMENDED FOR IMPROVEMENT

No ARFIs were observed at the REOC during this exercise.

### 2.6.2 Rockland County Field Activities

In Rockland County, various field activities were demonstrated. Field monitoring was evaluated on the day of the exercise. Traffic control, school evacuation bus runs, and one personnel monitoring center were evaluated out-of-sequence prior to the full-scale exercise. The evaluation of these activities follows. Since the congregate care center for Rockland County is located in Bergen County, New Jersey, the evaluation of this facility appears in Section 2.9.

#### 2.6.2.1 Field Monitoring Team

Seven objectives were to be demonstrated by the Rockland County field monitoring team during this exercise. All seven objectives were met.

**RC FM Objective 1 - MET** - The Field Monitoring Team Coordinator arrived at the EOC at 0906, and was briefed by the Dose Assessment Team Leader. The Coordinator then notified the field monitoring team at 0915, placing them on standby.

The team members remained on standby at the Health Department until they were requested to report to the REOC after the Alert ECL. The team members arrived at 0950, performed their equipment checks, received a briefing at 1035, and were dispatched to sampling point 1 at 1050.

**RC FM Objective 4 - MET** - The field team was in constant contact with the Field Monitoring Team Coordinator at the EOC either through radio communications or via a cellular telephone.

The Field Monitoring Team Coordinator, at approximately 15-minute intervals, provided updates on plant and meteorological condition, PARs, and items such as whether or not residents were being advised to shelter or evacuate. The Field Monitoring Team Coordinator instructed the field teams on when and where to take field samples, and reminded the members to check their dosimeters.

**RC FM Objective 5 - MET** - The team members each wore a TLD and two DRDs (0-5 R and 0-200 R) as directed by the plan procedures. All dosimeters were within the proper calibration dates. All but one of the team members properly zeroed their dosimeters and read them every 15 minutes. One field team member could not properly zero his 0-5 R DRD. It is acceptable to use an unzeroed dosimeter as long as the initial reading (in this case, 0.8 R) is recorded on the Individual Radiation Exposure Card. In this instance, it was not.

As per the county plan, all monitoring team members were well aware of the 1 R, 3 R, and 5 R notification levels. Any readings would be reported to the Field Monitoring Team Coordinator, who in turn would notify the Exposure Control Coordinator. At the end of the team's assignment, all dosimetry and Individual Radiation Exposure Cards would be handed in at the Emergency Worker PMC. KI was available in sufficient quantities for the field monitoring team.

A previous ARCA (RC-6) incurred during the November 14, 1990, exercise has been corrected and verified. As per the county plan, all monitoring team members were well aware of the 1 R, 3 R, and 5 R notification levels. Any readings would be reported to the Field Monitoring Team Coordinator, who in turn would notify the Exposure Control Coordinator.

**RC FM Objective 6 - MET** - Each field team member was given one field monitoring kit, containing both low range (CDV-700 0-50 mR/hour) and high range (CDV-715 0-500 R/hour) beta/gamma meters, to successfully measure the ambient environment. Prior to being deployed, each team member read the standard checklist, which is listed under DOH-11 of the county plan, to confirm that all necessary materials were present. All equipment was checked for calibration dates (all were within the proper dates), and battery and source checks were conducted. Spare batteries were available.

All field team members were well trained in the correct field monitoring procedures - open and closed window readings at three-inches and three-foot heights, and knew the reason why measurements are conducted in this manner (to differentiate between actual plume measurements and ground deposition readings). A CDV-700, with its probe attached to the passenger side view mirror, provided instant ambient readings. All survey measurements were recorded and promptly communicated via radio to the Field Team Coordinator at the EOC. Due to the exercise scenario, both shifts of the field teams were dispatched to two locations each. No plume was defined, as none was present. All probes were enclosed in plastic bags to prevent them from becoming contaminated.

Two previous ARCAs (RC-3 and RC-4) incurred during the November 14, 1990, exercise have been corrected and verified. All field team members were well trained in the correct field monitoring procedures - open and closed window readings at three-inches and three-foot heights, and knew the reason why measurements are conducted in this manner (to differentiate between actual plume measurements and ground deposition readings). Also, all probes were enclosed in plastic bags to prevent them from becoming contaminated.

**RC FM Objective 8 - MET** - Each field team shift obtained an air sample, demonstrating their knowledge of setting up the sampler, obtaining the proper sample volume (10 cubic feet), and measuring the particulate filter and the substitute silver zeolite filter (charcoal). Ordinarily, the field teams would traverse the plume and take an air sample in the center of the plume. Since the plume did not enter Rockland County, all samples were obtained at the request of the Federal Evaluator. All field team members knew that ordinarily once the air sample was obtained, they would move to a low-background area to conduct the filter measurements and purge the sample for 30-seconds. Samples were placed in the appropriate sample envelope/sample bag and properly labeled. To transport samples to the New York State Department of Health laboratory for analysis, the Sheriff's Office would be contacted and arrangements made to transport the samples to the laboratory.

A previous ARCA (RC-5) incurred during the November 14, 1990, exercise has been corrected and verified. Each field team shift obtained an air sample, demonstrating their knowledge of setting up the sampler, obtaining the proper sample volume (10 cubic feet), and measuring the particulate filter and the substitute silver zeolite filter (charcoal).

**RC FM Objective 30 - MET** - A shift change was conducted at 1220 per the extent of play agreement. The replacement field monitoring team drove to the sampling location and replaced Team 1. The incoming shift was adequately trained and was aware of the plant and meteorological conditions, as well as PARs.

## **DEFICIENCIES**

No Deficiencies were observed for the Rockland County Field Monitoring Team.

## **AREAS REQUIRING CORRECTIVE ACTIONS**

No ARCAs were observed for the Rockland County Field Monitoring Team.

## **PLAN ISSUES**

No plan issues were observed for the Rockland County Field Monitoring Team.

## **AREAS RECOMMENDED FOR IMPROVEMENT**

1. **Description:** One field team member could not properly zero his 0-5 R DRD. It is acceptable to use an unzeroed dosimeter as long as the initial reading (in this case, 0.8 R) is recorded on the Individual Radiation Exposure Card. In this instance, it was not.

**Recommendation:** Field team members should be reminded to record the initial dosimeter reading, if zeroing the dosimeter is not possible.

### **2.6.2.2 Traffic Control Points**

The Rockland County TCPs were evaluated out-of-sequence on July 29, 1992. A free-play message was used in the EOC to establish the coordination of the activation of the TCPs. Two objectives were demonstrated and both objectives were met.

**RC TCP Objective 5 - MET** - The two Traffic Control Officers (Sheriff's Deputies) were equipped with a TLD and two DRDs (0-5 R and 0-200 R). They also had a dosimeter charger, Individual Radiation Exposure Record, and instructions regarding the use of the dosimeters. The officers knew when to read their dosimeters and were aware of the reporting levels and exposure authorized for the mission.

A previous ARCA (RC-8), incurred in the November 14, 1990, exercise, has been corrected and verified. The two Traffic Control Officers (Sheriff's Deputies) were equipped with a TLD and two DRDs (0-5 R and 0-200 R). They also had a dosimeter charger, Individual Radiation Exposure Record, and instructions regarding the use of the dosimeters. The officers knew when to read their dosimeters and were aware of the reporting levels and exposure authorized for the mission.

**RC TCP Objective 17 - MET** - The two Deputy Sheriffs interviewed were knowledgeable of the appropriate evacuation routes and the location of the reception centers. They also knew to call their supervisor at the EOC if a question or concern arose at the TCP.

## **DEFICIENCIES**

No Deficiencies were observed for the Rockland County TCP activities.

## **AREAS REQUIRING CORRECTIVE ACTIONS**

No ARCA's were observed for the Rockland County TCP activities.

## **PLAN ISSUES**

No plan issues were observed for the Rockland County TCP activities.



## **AREAS RECOMMENDED FOR IMPROVEMENT**

No ARFIs were observed for the Rockland County TCP activities.

### **2.6.2.3 School Evacuation Bus Runs**

The Rockland County school evacuation bus runs were evaluated out-of-sequence on July 15 and July 22, 1992. A free-play message was injected to initiate the bus runs. Two objectives were demonstrated during the Rockland County school evacuation bus runs. Both objectives were met.

**RC SE Objective 5 - MET** - The Rockland County Transportation liaison arrived at the Haverstraw and the Laidlaw bus garages and issued the bus drivers appropriate dosimetry (0-5 R and 0-200 R DRDs, one TLD, and one bottle of KI) and instructions.

The drivers were familiar with the instruments and knew that if their dosimeters exceeded 1 R, they were to report the reading to the dispatcher and, if readings exceeded 3 R, they were to leave the area. The dosimeters were zeroed prior to the driver's deployment and the serial numbers were recorded. The drivers knew how to record the initial and subsequent readings and the appropriate time intervals for the readings (every 15-30 minutes).

**RC SE Objective 16 - MET** - A free-play message was injected at the Laidlaw bus garage to evacuate the students at the Hillcrest Elementary School. The Rockland County Transportation liaison provided the necessary information to the driver. The driver knew the prescribed route very well and stated that he knew a quicker way to the school that would shorten the drive time by five minutes. The driver also stated that if an impediment occurred, he would know what alternate route to use. Although the driver knew the route to the elementary school, the directions listed in the bus package were incorrect. The directions stated that you travel north on Route 45 and made a left turn onto New Hempstead Road. If these directions were followed, one would get lost. Then you travel on New Hempstead Road and make a left turn onto West Clarkstown Road. If these directions were followed, one would drive into a homeowner's house. The driver from the Laidlaw bus garage must be commended for his knowledge of the area.

The driver from the Haverstraw Transit bus garage received a free-play message to evacuate the students from the Learn and Playgarten Nursery School. The bus driver left the garage at 0955, and arrived at the school at 1015.

While in route, the driver realized that he made a wrong turn onto Route 304, instead of Route 303 (the correct route). The driver corrected himself and returned to Route 303 without difficulty. The driver stated that the directions to the nursery school could be confusing, because the directions read to make a left onto Lake Road from Route 303. While travelling south on Route 303, there are two Lake Roads. Although the mileage on the directions listed the furthest Lake Road, the directions should differentiate between the two Lake Roads.



The drivers communicated with the dispatcher at the bus garage via a two-way radio. If the radio failed, he would drive to a pay telephone or use a telephone in the school.

## **DEFICIENCIES**

No Deficiencies were observed for the Rockland County school evacuation bus runs.

## **AREAS REQUIRING CORRECTIVE ACTION**

No ARCA's were observed for the Rockland County school evacuation bus runs.

## **PLAN ISSUES**

1. **Description:** The directions listed in the bus package for the Hillcrest Elementary School were incorrect. Also, the directions to the Learn and Playgarten Nursery School are confusing because the directions do not clearly distinguish between the two "Lake Roads" in the area.

**Recommendation:** Correct the bus directions and review them with input from the various bus companies.

## **AREAS RECOMMENDED FOR IMPROVEMENT**

No ARFIs were observed for the Rockland County school evacuation bus runs.

### **2.6.2.4 Special Population Evacuation Bus Runs**

The Rockland County special population evacuation bus runs were demonstrated out-of-sequence on July 15 and July 22, 1992. A free-play message was used to initiate the bus runs. Two objectives were demonstrated during the Rockland County special population bus runs. Both objectives were met.

**RC SP Objective 5 - MET -** At the Laidlaw and Haverstraw bus garage, the Transportation liaison from the RCEOC issued appropriate dosimetry and route packets for each evacuation route with maps and instructions for the drivers.

Two drivers were both issued two DRDs (0-5 R and 0-200 R), TLDs, one bottle of KI, instructions, and Individual Radiation Exposure Records. The instruments were charged and the initial readings recorded. The drivers both knew they should radio the dispatcher if 1 R was exceeded, and to leave the area if 3 R was exceeded. The drivers also knew they should close the windows of the bus, read their dosimeters every 15-30 minutes, maintain contact with the dispatcher, and not ingest KI unless instructed by the bus dispatcher.

**RC SP Objective 15 - MET** - The driver from the Laidlaw bus garage received instructions to run evacuation route 28. This route involved seven pick-up points. The driver left the bus garage at 0945 and arrived at the first pick-up point at 0957, the second pick-up point at 1001, and the third pick-up point at 1003. The driver missed the fourth pick-up point, due to the poor directions listed in his bus package. The directions state "Culver Drive to Ardsley Drive, Ardsley Drive to Woodglen Drive, Woodglen Drive to Moreland Drive, Moreland Drive to Filmont Drive, Filmont Drive to New Hempstead Road." These directions are different from the Indian Point Public Information brochure, where route 28 is listed as "Little Tor Road at Culver Drive, Ardsley Drive, Woodglen Drive, Moreland Drive, and Filmont Drive."

The driver contacted the bus garage, via two-way radio, for instruction and assistance. He corrected the directions and proceeded on the route, completing the route in 14 minutes. The driver stated that he knew an alternate route to the reception center, which would have been helpful had there been an actual impediment.

The driver from the Haverstraw Transit bus garage received instructions to run evacuation route 16. This route involved three pick-up points. After reviewing the directions and checking a county road map, the driver left the bus garage at 1045 and arrived at the first pick-up point at 1102. The bus-run took 5 minutes to complete, and the driver knew the proper directions to the Reception Center (Spring Valley Senior High School) which was not driven to, per the extent-of-play agreement.

## **DEFICIENCIES**

No Deficiencies were observed for the Rockland County special population evacuation bus runs.

## **AREAS REQUIRING CORRECTIVE ACTION**

No ARFIs were observed for the Rockland County special population evacuation bus runs.

## **PLAN ISSUES**

1. **Description:** The directions listed in the bus package for evacuation route 28 are incorrect.

**Recommendation:** Correct all bus directions, and review them with input from the various bus companies.

## **AREAS RECOMMENDED FOR IMPROVEMENT**

No ARFIs were observed for the Rockland County general population evacuation bus runs.

#### 2.6.2.5 Reception Center

The Rockland County Reception Center, located at Nanuet High School, was evaluated out-of-sequence on July 16 and July 27, 1992. Five objectives were to be demonstrated. Three objectives were met, and two objectives were partially met.

**RC RC Objective 2 - MET** - The adequacy of facilities, equipment, and other materials to support emergency operations was adequately demonstrated during the exercise. Because of construction and painting activities being conducted at the time of the exercise, personnel monitoring and decontamination was performed outside, with the use of the county's emergency response trailer (which was equipped with separate showers). Under normal circumstances, the Nanuet High School facilities and showers would be used. A Fire/Police officer provided security, and directed traffic to the proper locations.

**RC RC Objective 4 - MET** - The ability to communicate with all appropriate locations and organizations was successfully demonstrated. Since the evaluation was conducted out-of-sequence from the actual drill, communications between the reception center and the EOC were not actually demonstrated. It was confirmed during the evaluation that sufficient modes of communication were available. The primary mode of communication would be a cellular telephone. Backup systems would be radio systems, RACES, and a commercial telephone (located in the principal's office).

**RC RC Objective 5 - PARTIALLY MET** - Those staff evaluated under this objective included emergency workers performing traffic control, vehicle monitoring, vehicle decontamination, evacuee monitors, and evacuee decontamination workers. All workers were supplied with a TLD and two DRDs (0-5 R and 0-200 R). The DRDs were read every 15-minutes, and the readings were recorded on the Individual Radiation Exposure Card.

All workers were questioned as to their reporting requirements, and all were aware of the 1 R, 3 R, and 5 R values, with the exception of one individual. He was aware of the 1, 3, and 5 values, but stated "mR" instead of "R" (See ARCA 1 for the RC RC). All workers were aware to contact the shift supervisor immediately if any of these readings were obtained.

**RC RC Objective 18 - PARTIALLY MET** - Control of the monitoring was performed by the Nanuet Volunteer Fire Department, while the registration of the evacuees was performed by the County Department of Social Services.

Vehicles were admitted to the site at a TCP, which was staffed by a Fire/Police Officer. Each vehicle was then driven to an area where the occupants were questioned and the vehicle was monitored. There were two monitors at this point who efficiently monitored the vehicles to determine the extent of contamination. If a vehicle was found to be clean, it was parked in a designated "clean" area, at which point the occupants would exit the vehicle and proceed to the monitoring area.

If a vehicle was contaminated, it, along with the paper work, would be driven to the designated decontamination area where the vehicle would be decontaminated. At this point, decontamination workers would wash (with soap and water) the areas which were found to be contaminated, and a monitor would re-evaluate the areas to determine if further washing was required. The vehicle monitor touched the contaminated car with his hand while monitoring. This resulted in the potential for cross-contamination (See ARCA 2 for the RC RC). Once the car was decontaminated, it would be driven to the "clean" parking area. If the vehicle was unable to be decontaminated, it would be stored in an area designated for "unclean" or contaminated vehicles until more time could be spent to decontaminate it.

The reception center was staffed so that three monitors were doing personnel monitoring at the same time with three recorders, as per the extent-of-play agreement. Each monitor was timed on how long it took him/her to monitor one person (each monitor handled two people).

Most monitoring times exceeded the 90-second guideline; however, based on the number of monitors available at this location (10), the monitors would be able to handle 20-percent of the population within 12 hours. All monitors demonstrated proper monitoring techniques and handling of the equipment. All equipment (CDV-700) was calibrated, and had stickers stating the calibration date, calibration source, and the initials of the calibrator.

After being monitored, evacuees were sent to the clean area, where members of the County Department of Social Services were ready to assist in registration and direct them to the appropriate congregate care facility. If the evacuees were considered contaminated, they were told to go to the county emergency response trailer, where two showers were available. Evacuees were asked to remove clothing, shower, and pay particular attention in washing areas designated as contaminated. When finished, evacuees would be remonitored to assure that contamination was removed.

If contamination was still found, evacuees would be instructed to shower again. When found to be decontaminated, evacuees would be issued clothing and sent to the reception area for registration.

All monitors used CDV-700 survey meters with the beta shield removed, and the probe covered. One person was observed "suiing-up" in personal protective clothing, as well as removing the clothing to assure that proper procedures were demonstrated.

**RC RC Objective 30 - MET** - As per the extent-of-play agreement, a shift change was demonstrated with three monitors to replace the existing monitors. There were sufficient personnel, who were proficient in carrying out their monitoring responsibilities, and efficiently demonstrate this objective.

## **DEFICIENCIES**

No Deficiencies were observed for the Rockland County Reception Center.

## **AREAS REQUIRING CORRECTIVE ACTION**

1. **Description:** One individual was aware of the 1 R, 3 R, and 5 R reporting requirements, but was uncertain as to the proper units of measurement. He stated "mR", instead of "R" (NUREG 0654-K.3.b.,4.).

**Recommendation:** Emergency workers should be trained to understand proper units of radiation measurements.

2. **Description:** A vehicle monitor at the reception center touched a contaminated car with his hand while monitoring. This resulted in the potential for cross contamination (NUREG 0654-J.10.h).

**Recommendation:** Emergency workers should be further trained in proper remonitoring procedures.

## **PLAN ISSUES**

No plan issues were observed for the Rockland County Reception Center.

## **AREAS RECOMMENDED FOR IMPROVEMENT**

No ARFIs were observed for the Rockland County Reception Center.

### **2.6.2.6 Personnel Monitoring Center**

The Rockland County PMC was evaluated out-of-sequence on June 18, 1992. Five objectives were to be demonstrated. Four objectives were met, and one was partially met.

**RC PMC Objective 2 - MET** - The Rockland County Sewer District facility was adequately suited to handle the set-up and operation of an emergency worker PMC. Access to the facility was properly controlled by the use of signs and yellow "radioactive" labels. Additional signs were used to direct vehicle and pedestrian traffic and identify "clean," "contaminated," and "decontaminated" areas. A copy of the emergency response plan was available for convenient reference.

Although not included in the county plan, a status board would have been useful for updating staff and new shifts as they reported to the facility. Facts such as how many emergency workers are out there, what areas are known to be contaminated, plant conditions, etc., would then be readily available. Relevant information would ordinarily be communicated between Team Leaders as a shift change occurred.



**RC PMC Objective 4 - MET** - Due to the fact that the PMC was demonstrated out-of-sequence, no actual communication were demonstrated. However, adequate communication systems were available, including commercial and cellular telephone (primary methods of communications), and RACES (not present, but would be available for an emergency). Staff at the PMC would communicate with the Exposure Control Coordinator at the EOC.

**RC PMC Objective 5 - MET** - All emergency workers were extremely knowledgeable about their dosimetry. All workers had low range (0-5 R) and high range (0-200 R) DRDs, along with a TLD. All dosimeters were zeroed with properly functioning dosimeter chargers.

The 0-5 R dosimeters were new (a copy of the purchase order was provided to the evaluators), and the 0-200 R dosimeters were calibrated January, 1992. Dosimeter serial numbers and initial readings were noted on the emergency worker exposure card, which each emergency worker carried. All workers knew to read their dosimeters every 15-30 minutes, and to report their readings of 1 R, 3 R, and 5 R to their immediate supervisor/Team Leader.

**RC PMC Objective 22 - PARTIALLY MET** - All emergency workers at the PMC were knowledgeable and well-trained in their respective positions. This is the first time the county used this facility as a PMC, and everyone involved should be commended for an exceptional job. All workers used CDV-700 survey meters (calibrated in January, 1992 by SEMO). Background checks were conducted routinely in vehicle and personnel monitoring and decontamination areas. Monitoring and decontamination of vehicles and emergency workers were conducted per the plan.

The facility was appropriately set up with clean, contaminated, and decontaminated (vehicle decontaminated) areas marked with signs, cordoned off with ropes or yellow "RADIOACTIVE" labels, to direct pedestrian and vehicle traffic. Individuals were knowledgeable on the use of the CDV-700, ensuring that the probe was covered with plastic and the probe window was in the "open" position, and an action level of 0.1 mR/hour above background was utilized.

The workers in the men's shower area were unaware of the mission dose levels (confusing "R" with "mR"), and did not have the probe of the CDV-700 in the "open" position (See ARCA 1 for the RC PMC).

Tyvek suits and booties were available for decontaminating emergency workers, as well as for personnel monitoring personnel. One individual "suited-up" with a Tyvek outfit, booties, and gloves (per agreement on extent-of-play), while all other players wore gloves.

Appropriate cleaners were available in the vehicle decontamination area, as well as the male and female shower areas. The workers in the men's shower area were not aware of the proper procedure to follow in the event an individual could not be decontaminated after four attempts; nor were they aware of the correct order in which to use the variety of cleaners present in the men's shower area or the proper use of cloth towels (as in the women's shower area. (See ARCA 1 for the RC PMC).



Paperwork was filled out correctly for vehicles and emergency workers. "Clean" or "Decontaminated" emergency workers were given a green "CLEAN" card and directed to the registration area. If an individual could not be decontaminated after four attempts, a supervisor/Team Leader would be notified. If a vehicle could not be decontaminated, it would be parked in the "dirty" lot and worked on at a later time. "RADIOACTIVE" labelled bags were available for garbage disposal in all areas.

RC PMC Objective 30.- MET - As per the extent-of-play agreement, a shift change was observed at 1145. This shift change involved only the Team Leader. The Team Leader was briefed by the outgoing Team Leader on issues such as plant conditions, the number of contaminated individuals, etc. No problems or difficulties were encountered during the shift change.

## **DEFICIENCIES**

No Deficiencies were observed for the Rockland County PMC.

## **AREAS REQUIRING CORRECTIVE ACTIONS**

1. **Description:** The two monitors in the men's shower area were uncertain about the following areas: (1) mission dose levels and units (Roentgens instead of milli-Roentgens), (2) the proper order for the use of cleaners (start with mild soap and then move on to the fourth attempt with Lava soap), (3) the correct position of the probe window on the CDV-700. The probe window was in the "closed" position instead of the "open" position, (4) the proper procedure to employ if an individual could not be decontaminated after four attempts, and (5) the proper use of cloth towels (as in the women's shower area), instead of paper towels for drying the hands and arms (NUREG-0654 K.5.a.,b.H.10).

**Recommendation:** Monitors should be provided with additional training on procedures and set-up of the PMC.

## **PLAN ISSUES**

No plan issues were observed for the Rockland County PMC.

## **AREAS RECOMMENDED FOR IMPROVEMENT**

1. **Description:** A status board was not used at the PMC.

**Recommendation:** Although not included in the county plan, a status board would be useful for updating staff and new shifts as they reported to the facility.

### 2.6.2.7 School Interviews

One objective was demonstrated during the school interview portion of the exercise. That objective was met.

**RC School Objective 16 - MET** - Interviews were conducted at five schools in Rockland County on September 14, 1992, to evaluate the degree of preparedness for each school. Listed below are the names of the schools, school districts, and towns where officials were interviewed:

1. Beechwood Preschool  
Nyack School District  
Valley Cottage, New York
2. Rockland County Day School  
Clarkstown Central School District  
Congers, New York
3. Children of Mary School  
North Rockland Central School District  
Stony Point, New York
4. Cornerstone Christian Community School  
East Ramapo School District  
New Hempstead, New York
5. Sunny Day Nursery  
Ramapo School District  
Suffern, New York

At each school, either the Principal or School Director was interviewed. A preselected series of questions was asked at each school by the Federal Evaluator.

The parents of school children would be notified of the county's PADs regarding the closing of schools through the use of a news releases. The authorities interviewed at each of the schools in Rockland County were knowledgeable about the established school emergency procedures.

Early dismissal of each of the schools is implemented upon a recommendation from the District Superintendent. A written call-down list would be used to make telephone calls to parents. The notification list has been developed and is periodically updated, with current home and emergency telephone numbers of parents by written request of the schools.

All schools had written procedures, and the parents are kept informed through school publications which contain the addresses of the designated relocation centers.

Officials at all of the schools were familiar with the chain of command that would be followed during an evacuation. Estimates of evacuation times and school evacuation procedures were known.

## **DEFICIENCIES**

There were no Deficiencies observed during the Rockland County school interviews.

## **AREAS REQUIRING CORRECTIVE ACTION**

There were no ARCA's observed during the Rockland County school interviews.

## **PLAN ISSUES**

There were no plan issues observed during the Rockland County school interviews.

## **AREAS RECOMMENDED FOR IMPROVEMENT**

There were no ARFIs observed during the Rockland County school interviews.

### **2.6.2.8 Medical Drill**

A medical drill for Rockland County was conducted on May 9, 1991, during which two objectives were demonstrated. Both objectives were met.

**RC Medical Drill Objective 20 - MET** - A simulated radiation medical emergency was set up at the Rockland County EOC. The simulated radiation accident began at 0900 when an emergency worker, enroute to the EOC, drove through the radioactive plume. He arrived at the EOC, slipped and injured his right-leg, and was found by other emergency workers who initiated actions to medically and radiologically evaluate him.

The Stony Point Volunteer Ambulance Corps was called at 0910 and arrived at the scene at 0917. Staff at the Good Samaritan Hospital, located in Suffern, New York, were alerted at 0917. The ambulance personnel were given both injury and contamination information upon arrival at the scene from the monitoring personnel at the EOC. The ambulance personnel donned protective clothing and prepared the patient for transfer to the Hospital. The ambulance driver taped Herculite coverings inside the ambulance to protect the interior from radioactive contamination.

The ambulance personnel wore two DRDs (0-5 R and 0-200 R), and recorded their information on a radiation record form. They also wore a Panasonic TLD under their protective clothing. The ambulance personnel were aware of the potential for cross-contamination, and responded accordingly by performing frequent surveys, glove changes, and control of waste. They communicated the necessary information to the hospital in a timely manner. The ambulance left the EOC at 0945 and arrived at the hospital at 1005. A clean transfer of the patient from the ambulance to the hospital was demonstrated. The hospital monitors surveyed the ambulance personnel, the vehicle, and the ambulance personnel's equipment prior to them leaving the hospital.

This drill demonstrated that members of the Stony Point Volunteer Ambulance Corps were well trained personnel, and possessed the necessary knowledge, equipment, and vehicles to effectively transport and manage a contaminated, injured individual.

**RC Medical Drill Objective 21 - MET** - Staff at the Good Samaritan Hospital successfully demonstrated the adequacy of the medical facility's equipment, procedures, and personnel for handling contaminated, injured, or exposed individuals. The hospital was alerted that the Stony Point Volunteer Ambulance Corps was responding to a call from the Rockland County EOC involving an injured/radiologically contaminated individual with a possible leg-fracture. The hospital began preparing its Radiation Emergency Area (REA), and also notified the appropriate staff.

Pre-cut Herculite sheets were taped to the floor areas in the REA and the ambulance loading-dock area. Posts, guide ropes, and signs were set up to restrict entrance to the treatment area. A decontamination tray was placed on the treatment table and connected to a liquid waste container.

The physician, Emergency Room nurses, and the hospital's Health Physicist suited up in protective clothing, which included scrubs, double gowns, aprons, gloves, booties taped to the scrubs, caps, and masks.

Each member was issued a 0-200 mR DRD along with a TLD. The dosimeters were zeroed and then logged on a Radiation Exposure form, with the serial number of the DRD and the wearer's Social Security number. The radiation survey instrument used by the hospital staff was the Eberline E-530, which was recently calibrated in January, 1991, and the pancake detector probe was covered with a rubber glove to protect it from contamination. The ambulance arrived at the hospital at 1005 and priority was first given to stabilizing the patient's condition, and then to the decontamination problem. A clean transfer was demonstrated from the ambulance to the hospital REA.

The nurses and doctor irrigated and scrubbed the contaminated areas repeatedly. Numerous glove changes and personnel and area surveys were made between each decontamination attempt. Contaminated wastes were properly handled and swabs of the nose, throat, and ears were obtained and labeled for future information. A simulated portable X-ray demonstration was successfully demonstrated, and a clean transfer of the patient from the REA was made.

The hospital staff members were then assisted in the removal of their protective clothing and they then exited from the REA. The room was sealed for future clean-up and the dosimeters were collected for final recording.

This medical drill demonstrated the adequacy of Good Samaritan Hospital and its personnel to treat and manage a contaminated, injured individual.

#### **DEFICIENCIES**

There were no Deficiencies observed during the Rockland County medical drill.

#### **AREAS REQUIRING CORRECTIVE ACTION**

There were no ARCAs observed during the Rockland County medical drill.

#### **PLAN ISSUES**

There were no plan issues observed during the Rockland County medical drill.

#### **AREAS RECOMMENDED FOR IMPROVEMENT**

There were no ARFIs observed during the Rockland County medical drill.

## 2.7 WESTCHESTER COUNTY, NEW YORK

### 2.7.1 Westchester County Emergency Operations Center (WCEOC)

Thirteen objectives were demonstrated by the WCEOC during this exercise. Nine objectives were met, three objectives were partially met, and one was not met.

**WCEOC Objective 1 - MET** - The County Warning Point received notification of the Unusual Event ECL from the Indian Point Offsite Communications operator at 0740 via the RECS line. The Desk Sergeant correctly used the NYS Radiological Emergency Data Forms to document the messages. The Desk Sergeant used his copy of the RERP for Unusual Event and notified the Westchester County Executive at 0748. At the direction of the County Executive, the Desk Sergeant began full notification of all EOC personnel in accordance with the RERP, including instruction to report to the EOC. A Desk Officer at the County Warning Point did not consistently specify, "This Is A Drill/Exercise," in calls to mobilize staff for the Unusual Event. Also, two minor errors in recording the times of notification in the log book were noted. Full notification was completed at 0816, and the EOC was declared operational at 0835.

**WCEOC Objective 2 - PARTIALLY MET** - Access to the WCEOC was controlled by a security guard, and each person entering or leaving was required to sign in and out. There was adequate room for Command and Control, Operations, Communications and Dose Assessment. Kitchen facilities, as well as restrooms, were available within the facility. Backup power was available, if necessary, from an automatic diesel generator. The necessary equipment, displays, and other materials required to support emergency operations were available.

All status boards were displayed, and most were maintained in the appropriate locations, with the exception of the "ECL" status board in the Command Room, the "Projected Radiation Exposure Data", and the "ERPA" status board located in the Command Room. The "ECL" status board had a minor error in reference to the time of various ECLs. The NUE was incorrectly posted as 0740 (the notification time) instead of 0726 (the declaration time). This was corrected later. The board also indicated that the WCEOC mixed the notification time of 1025 and the declaration time of 1015 for the SAE ECL (See ARCA 1 for the WCEOC).

Status boards were up-dated, with the exception of the "Projected Radiation Exposure Data" status board, located in the Operations Room. The first update of this board did not occur until 1428, almost 90 minutes after the time of the release at 1310. As late as 1515, the "ERPA" status board in the Command Room was incomplete regarding the protective action decision made at 1345 to shelter remaining ERPAs 10, 11, 12, 13, 14, 15 and 16 (See ARCA 1 for the WCEOC).

The appropriate maps, charts and display boards were present including those indicating plume EPZ, evacuation routes, ERPA population, reception and congregate care centers location, and field monitoring points. The status briefings were timely and informative. However, the public address system overpowered discussions in other rooms. Adjustments should be made to allow for volume control in these rooms.



**WCEOC Objective 3 - MET** - The Westchester County Executive was in command of the overall emergency response operation at the WCEOC. He frequently reminded staff of the importance of the exercise and led by example. The Deputy County Executive replaced the County Executive at 1148, prior to the GE ECL which was received in the EOC at 1156. Copies of the plan were made available, and staff briefings were conducted. Logs of incoming and out-going messages were maintained. The County Executive as well as the Deputy County Executive coordinated with the other counties via the executive hotline.

**WCEOC Objective 4 - MET** - There were two RECs terminals available, as well as an executive hotline with conferencing capability. There were 60 commercial telephones equipped with "Busy Circular Hunt Single Lines" which forwards calls to the next available telephone.

Numerous radio systems were available to communicate with county agencies and other county facilities. All systems had adequate backups, which were demonstrated, in accordance with the extent-of-play agreement. Field monitoring teams utilized RACES as the primary means of communication with the EOC. Their backup systems were both a DPW radio and a roll of quarters to use at a pay telephone. There were no delays caused by malfunctions or breakdowns.

Three facsimile machines were available and used to transmit documents to the EOF, JNC, other counties, NYSEMO, and the NYSEMO Southern District EOC. The person responsible for communications was conscientious, knowledgeable and maintained the equipment so that it remained operational. The primary communication systems were able to handle the flow of communications without any undue delays.

**WCEOC Objective 7 - PARTIALLY MET** - Plume dose projections and protective action recommendations were initiated by the county dose assessment staff. Prior to any release of radioactivity, several dose projections were made using implant instrument readings, current meteorological data and an assumed source term. Both manual calculations and a computer-based system were used for all dose projections and the results of both types of calculations were compared. Calculations were made for both whole body and child thyroid doses and dose rates. There were no significant differences between the two types of calculational methods.

Per their procedures, the Radiological Officer from Putnam County made arrangements with Westchester County to obtain Westchester's field data as it became available. For reasons unknown, Westchester County's dose assessment staff did not provide any of their field data to their counter-parts in Putnam County (See ARCA 2 for the WCEOC).

WCEOC Objective 9 - NOT MET - At 0920, the County Executive called for a voluntary evacuation of the village of Verplank. Notification of this evacuation was performed by the local Fire Department. At 1037, the County Executive decided to shelter ERPAs 1, 2, 3, 4, 7, 8, 9, 47, 48 and 49 and to evacuate the Hudson River ERPAs 42-46. At 1145, the County LNO at the EOF projected a dose of 35 R/hr, based on R-25/26 contaminant vent monitors. Following the receipt of the GE notification at 1156, there were discussions about the seriousness of the radiological release in the area of ERPA 2 and of the various options to evacuate ERPA 2 and surrounding ERPAs.

The utility representative, located at the EOC, indicated that the deterioration of plant conditions would likely go on for days rather than hours. The County Dose Assessment staff received a recommendation from the New York State Department of Health's representative located in the SEOC at 1140 to evacuate in all directions to 2 miles because of the possibility that two barriers were lost. At 1146, the utility recommended a precautionary evacuation of 2 mile radius and 5 miles in the down-wind sectors. Sheltering was recommended for the remainder of the 5 mile radius ERPAs that were not in the down-wind direction. At 1200, the County Dose Assessment personnel projected 23 R/hour, base on R-25/26 readings of 8,000 Ci/second. At 1210 and 1230, the utility made recommendations to evacuate 5 miles in all direction. These recommendations would also include the City of Peekskill. At 1230, the County Dose Assessment Team Leader recommended to the Acting County Executive to perform an evacuation to 5 miles in all directions and to shelter additional ERPAs 5, 6, 22, 50, and 51. At 1238, the utility provided a dose projection to the County of 12 R at 2 miles and 3 R at 5 miles. Despite all of this information, the Acting County Executive failed to order the evacuation of ERPAs 2, 7 and 8. These readings exceeded EPA's PAGs as indicated in the County plan. (See the Plan Issue for the WCEOC).

The Acting County Executive exhibited indecision regarding evacuation of ERPAs 2, 7 and 8. Since the county plan does not specifically require evacuation during the GE ECL, the decision-maker considered data from the technical staff that recommended an evacuation, but made the decision to shelter. The sheltering decision by the County was based on existing wind conditions and demographics. The decision to continue to shelter ERPA 2 was determined to be preferable by the county rather than having people waiting at bus stops or in traffic during a possible wind shift which would have caused people to be unnecessarily exposed. The County Commissioner of Health discussed that sheltering would further reduce the potential for exposure to radiation. It is important to note that the generally accepted potential error in predicting precisely the affected ERPA solely on the basis of wind direction suggests that a very conservative approach should be considered prior to sheltering.

The Acting County Executive was aware from discussions with the City of Peekskill officials at 1255 that they were "standing by" in the event an evacuation was ordered. At 1330, the Command Room staff (Acting County Executive, Commissioner of Health, and Dose Assessment Supervisor) discussed the release and impending plume. Although the plume centerline was reading 1,300 mR/hour at 2-miles, the populated areas were not impacted at this point in time.

The county was also concerned about the logistics and time required to evacuate ERPA 2, as well as potential exposure during the evacuation process. Therefore, the decision was made to continue sheltering ERPA 2, and not to evacuate. It would appear that given the seriousness of early scenario events and radiological data provided to the Acting County Executive by the Dose Assessment staff, as well as consideration of the utility's recommendations, evacuation of ERPAs 2, 7, and 8 should have been ordered. The county's decision was driven by a planning protective action that, although cognizant of the fact that projected doses exceeded EPAs PAGs and accompanying evacuation requirements, did not give enough consideration to plant status.

Westchester County did not effectively utilize their EOF liaison. The Westchester EOF liaison was aware of the discrepancies between the utility PAR and the protective action implemented by the County. On two occasions, the EOF liaison attempted to ascertain the basis for Westchester County's protective actions, but was unable to do so because he was unable to speak to an individual who was fully cognizant of the decisions made and actions implemented. Knowledgeable personnel were too busy to speak with him. (See ARCA 3 for the WCEOC).

**WCEOC Objective 10 - MET** - EBS messages were issued within the 15-minute time limit, as stated in the plan. The County Executive and/or his designee were responsible in coordinating the initial sequence to disseminate an alert and notification message over the EBS. Sirens were sounded (simulated) within the 15-minute time limit. A free-play message regarding a simulated siren failure was correctly dealt with in a timely fashion by the Westchester County Police and the Croton Police Department. The County Police contacted the Croton Police Department to dispatch a vehicle that would have conducted route alerting in the vicinity of the failed siren. Arrangements were made to have a New York State Police Trooper from the Peekskill station assist Croton Police, if necessary.

**WCEOC Objective 11 - PARTIALLY MET** - Topics addressed in the EBS messages included: description of ERPAs; how to maximize protection when sheltering, what to leave behind and what to take when evacuating, information on transportation-dependent and special populations groups, and the use of the public information brochure and Yellow Pages of the telephone book.

EBS messages were issued within the 15-minute time limit, however, EBS messages 2 (issued at 1149) and 3 (issued at 1210) incorrectly listed ERPAs 50 and 51 as sheltered. The decision to shelter ERPAs 50 and 51 was correctly contained in EBS message 6. This was corrected in EBS messages 4 (issued at 1225) and 5 (issued at 1242). (See ARCA 4 for the WCEOC).

**WCEOC Objective 14 - MET** - The Westchester County Commissioner of Health's decision not to administer KI to emergency workers was based on the Dose Assessment Team Leader's assessment of an insufficient level of iodine in the release. The projections indicated a thyroid dose of less than 5 Rem, well below the 25 Rem trigger level stated in the plan.

**WCEOC Objective 15 - MET** - Several county agencies worked together to ensure that all special populations were able to be sheltered or evacuated, if necessary.

The WCEOC is responsible for overseeing the management and direction of the evacuation of the Westchester County portion of the 10-mile EPZ population. The Westchester County DOT is responsible for the transportation of the transit-dependent general public and ambulatory, institutionalized persons along with the evacuation of the general population. The county maintains and updates the list of individuals requiring transportation through the return receipt of a post card from the Public Information brochure.

A call (simulated) was made from the DOT desk to stage buses, in preparation for evacuation. At 1230, buses were in a "stand-by" mode at the Westchester County Medical Center, Yorktown Heights, and in Bedford to evacuate ERPAs close to the plant.

The Westchester County General Population Evacuation bus runs were evaluated out of sequence on September 18, 1992. A free-play message was used to initiate two bus runs. The free-play messages were handed to the driver/dispatcher of the Liberty Lines Bus Company to run GP 001 and GP 003.

The Department of Emergency Medical Services is responsible for individuals with special needs and non-ambulatory handicapped individuals. A computer system provides for a comprehensive listing of these individuals by ERPA. This allows for efficient handling of the individuals requiring assistance. Two free-play messages regarding the evacuation of the mobility-impaired and hearing-impaired, were handled in a timely manner. A telephone call was made from the EOC to the County Fire Control Center to dispatch an ambulette to the home of the mobility-impaired individual. For the hearing-impaired individual, a telephone call was made from the EOC to the Buchanan Police Department requesting assistance to the hearing-impaired individual's home.

**WCEOC Objective 16 - PARTIALLY MET** - The WCEOC adequately demonstrated the capability to implement protective actions for schools. The Westchester County School Evacuation bus runs were evaluated out of sequence on September 17, 1992. A free-play message was used to initiate two bus runs. Following instructions from the WCEOC, a bus was dispatched to evacuate the Buchanan-Verplanck Elementary School students to the White Plains Intermediate School.

At 0910, a decision was made to shelter the schools in the City of Peekskill, and to relocate the students attending schools in the Hendrick Hudson Central (located in ERPAs 1 and 4) and Lakeland Central School Districts (located in ERPAs 8 and 9) out to schools located in ERPAs 10, 11, and 49. As per the School Coordinator's message log, St Patrick's Pre-K school, located in Verplank (ERPA 3), was ordered to close for the day. This information did not appear in a news release until 1125. (See ARCA 5 for the WCEOC).

At 1037, the Westchester County Executive ordered, as a precautionary measure, evacuating the schools within the City of Peekskill. The Schools Coordinator contacted all schools (both public and private) in the Peekskill Central School District to inform them of this decision. She also contacted Dutchess County to open a Reception Center for the students.



**WCEOC Objective 17 - MET** - The WCEOC staff properly responded to exercise injects which required the establishment of TCPs and the demonstration of field responses. Westchester County Police established a TCP at the corner of Furnace Dock Road and Maple Avenue, which controlled traffic flow from ERPAs 2 and 4. The County Department of Public Works provided barricades for these TCPs. Water traffic on the Hudson River was cleared by the Coast Guard at 1037 and broadcast (simulated) to the public at 1052 in EBS Message 1.

**WCEOC Objective 30 - MET** - A shift change was adequately demonstrated for all agencies responsible for providing continuous, 24-hour staffing. Incoming staff were briefed on the situation, and no interruption of operations occurred.

At 1315, a shift change was demonstrated by the first and second shift Dose Assessment Emergency Directors. The incoming director was thoroughly briefed on the current emergency situation.

## **DEFICIENCIES**

There were no Deficiencies observed at the WCEOC.

## **AREAS REQUIRING CORRECTIVE ACTIONS**

1. **Description:** The first update of the "Projected Radiation Exposure Data" status board did not occur until 1428, almost 90 minutes after the time of the release at 1310. As late as 1515, the "ERPA" status board in the Command Room was incomplete regarding the protective action decision at 1345 to shelter remaining ERPAs (NUREG-0654 H-3).

**Recommendation:** Train Emergency Management personnel to emphasize the need for timely updating and accurately recording data on status boards.

2. **Description:** The Radiological Officer from Putnam County made arrangements with Westchester County to obtain Westchester's field data as it became available. For reasons unknown, Westchester County's dose assessment staff did not provide any of their field measurements to their counterparts (NUREG-0654 H.1).

**Recommendation:** Training should be provided to the dose assessment staff for the need to provide data to other risk counties, as per the procedures in the plan.

3. **Description:** EBS messages 2 (issued at 1149) and 3 (issued at 1210) incorrectly listed ERPAs 50 and 51 as sheltered. The decision to shelter ERPAs 50 and 51 was correctly contained in EBS message 6. This was corrected in EBS messages 4 (issued at 1225) and 5 (issued at 1242). (NUREG-0654, G.3.a and G.4.a).

**Recommendation:** Shelter and Evacuation decisions must be reviewed carefully in the EOC in order to avoid preparation of incorrect information for EBS messages.

4. **Description:** At 0910, a decision was made to shelter the schools in the City of Peekskill, and to relocate the students attending schools in the Hendrick Hudson Central (located in ERPAs 1 and 4) and Lakeland Central School Districts (located in ERPAs 8 and 9) to schools located in ERPAs 10, 11, and 49. St Patrick's Pre-K school, located in Verplank (ERPA 3), was ordered to close for the day. This information did not appear in a news release until 1125. (NUREG-0654, G.3.a and G.4.a)

**Recommendation:** School sheltering and relocations should be announced in news releases in a timely manner.

## **PLAN ISSUES**

1. **Description:** The Acting County Executive failed to order the evacuation of ERPAs 2, 7 and in spite of the fact that a GE had been declared at 1146, county dose assessment personnel were projecting a dose of 23 R/hour, and utility, State, and county were all recommending evacuation out to two miles (State) and five miles (county and utility). Key factors in the Acting County Executive's decision not to evacuate were (1) the failure of the county plan to specifically require evacuation at the time of the GE, (2) concerns about the logistics and time required to evacuate ERPA 2, (3) the demographics of ERPA 2, and (4) concern that the wind direction might change resulting in the possible exposure to radiation of people who were being evacuated.

**Recommendations:** Sections of the County plan dealing with protective actions, sheltering and evacuation, should be revised and corrected to resolve existing plan inadequacies and ambiguities. Specifically, the following revisions and corrections should be made in the plan and procedures.



- The general evacuation section(s) should be amended to state that, based either upon plant conditions or projected doses in excess of 1 R whole body or 25 R thyroid, an evacuation of the general population must immediately be ordered, unless adverse weather conditions prohibit evacuation. This is in accordance with Table 2-1 of EPA-400, dated October 1, 1991. The general sheltering section(s) should be amended to state that general sheltering must be recommended whenever adverse weather conditions prevent the implementation of an order to evacuate.
- The section(s) discussing procedures to be followed in the event of a GE declaration should require, and contain procedures for, a mandatory evacuation of the general population within a two-mile radius and five miles downwind from the plant immediately upon the declaration of a GE, unless adverse weather conditions prohibit evacuation.
- The plan's response action level guidelines for a GE ECL should be amended to include the language, contained in the NRC working paper entitled "Revised Protective Action Recommendations for Severe Accidents," dated August 20, 1993. Specifically, this language states: "For severe core damage accidents, recommend evacuation for two-mile radius and 5 miles downwind (unless conditions make evacuation hazardous) and assess need to extend distances. Shelter reminder of plume EPZ."
- Any other plan sections which discuss sheltering or evacuation and/or procedures to be followed under a GE declaration should contain language consistent with the points above.
- "Time constraints" are not a valid justification for making a decision to shelter, rather than evacuate. Any plan (State or county) references to implementing "General Sheltering" in lieu of evacuation due to "time constraints" should be deleted for the plans. An example of this is found in the New York State Plan, Section 2.5.2, Plume Exposure Protective Action Response Options, page III-42, lines 7-10.
- It is deemed necessary to revise and update the Evacuation Time Estimates (ETEs). The State should provide a time schedule and plan of action for accomplishing this revision and update of the ETEs within a reasonable period of time.
- The revised and corrected plans should (1) emphasize the importance of thorough communication and coordination, as appropriate, among all State, county, and utility emergency response personnel at all levels of a radiological emergency and (2) develop and establish a mechanism in the plan and/or procedures to foster and facilitate that kind of communication and coordination.

Once the plans have been appropriately revised and corrected, training should be provided, as appropriate, to all radiological emergency response personnel involved in the protective action decision making process and implementing of these protective actions.

#### **AREAS RECOMMENDED FOR IMPROVEMENT**

1. **Description:** A Desk Officer at the County Warning Point did not consistently specify "This Is A Drill/Exercise" in calls to mobilize staff for the Unusual Event ECL. Also, two minor errors in recording the times of notification in the log book were noted.

**Recommendation:** Provide instructions to all personnel at the County Warning Point on the need to state, "This is a drill/exercise," before and after all staff mobilization contacts and public information messages, not to actual events, and emphasize accuracy in recording log entries.

2. **Description:** The public address system in the EOC overpowered discussions in other rooms.

**Recommendation:** Adjustments should be made to allow for volume control in these rooms.

3. **Description:** The Westchester County EOF liaison attempted to ascertain the basis for Westchester County protective actions on two occasions, but was unable to do so, as he was unable to speak to an individual at the WCEOC who was fully cognizant of decisions made and actions implemented (NUREG-0654 H.1).

**Recommendation:** Westchester County should communicate with its liaisons and apprise them of reasons for concurrence or non-concurrence of PARs.

#### **2.7.2 Westchester County Field Activities**

In Westchester County various field activities were demonstrated. Field monitoring was evaluated on the day of the exercise. Traffic control, school evacuation bus runs, and one personnel monitoring center were evaluated out-of-sequence prior to the full-scale exercise. The evaluation of these activities follows.

##### **2.7.2.1 Field Monitoring Team**

Seven objectives were to be demonstrated by the Westchester County field monitoring team during this exercise. All seven objectives were met.

**WC FM Objective 1 - MET** - Upon notification of the Alert ECL at 0840, the teams reported to their dispatch area, performed battery and calibration checks on all instruments, and zeroed dosimeters. The teams then proceeded to their emergency vehicle (a van), performed radio checks with the WEOC, and deployed from the Health Department at 0952.

**WC FM Objective 4 - MET** - Field monitoring teams utilized RACES as their primary means of communication with the WEOC. The Department of Public Works radio system was used as backup. Also, both field teams were provided with a roll of quarters for use at pay telephones. No communication problems occurred.

**WC FM Objective 5 - MET** - Field Monitoring Team members were supplied with a TLD and two DRDs (0-5 R and 0-200 R). Prior to deployment, dosimeters were zeroed and checked to assure they were working properly.

All dosimeters were calibrated as designated in the plan. All field team members read their dosimeters prior to their deployment, and then every 15 minutes at their field locations. All readings were recorded on their Individual Radiation Exposure Record Cards. All field monitoring team members were aware of their reporting requirements and that the Field Monitoring Team Coordinator should be notified at readings of 1 R, 3 R, and 5 R.

**WC FM Objective 6 - MET** - The instruments used by the Field Monitoring teams included the CDV-700 for beta-gamma and the CDV-715 for high range gamma. All equipment checks, including battery and source checks, were performed prior to deployment. Back-up equipment was available in the event of equipment failure. All instruments were calibrated within the time-frame designated in the plan. All field monitoring team members were briefed about conditions prior to deployment.

While in the field, four surveys were conducted. The triangulation method (three sampling points to form a triangle) was used. Four readings were taken at each point: three-inches (ground) and three-feet (waist height), with the probe of the CDV-700 in the open and closed position. The probe was wrapped in plastic, to prevent contamination. It was observed that the waist-height readings had the probe window facing up and the near-ground level readings had the probe window facing down. All readings were logged and immediately relayed to the EOC via radio.

**WC FM Objective 8 - MET** - Both field teams were supplied with a RADECO Model H-809C air sampler with a flow rate indicator, one Eberline RM-14 with a pancake detector for a count rate instrument, silver zeolite cartridges (simulated for charcoal filters), particulate filters, and a power supply (the battery in the vehicle).

The air sampler and power supply were all checked prior to deployment, and the Eberline was checked by using a Cs-137 (5 $\mu$ R/hour) "button" source. All instruments had calibration information available.

Two air samples were taken: Health Department team 1 took their sample in the plume, and Health Department team 2 took their sample as a "historical" record. Both teams were extremely proficient in the use of air sampling equipment, and aware of the flow rate and sample times, the volume of air sample taken, and the proper placement of filters (silver zeolite in direction of arrow and particulate with rough side of paper facing out). Both teams knew that they should proceed to a low background area to count the air sample. After the sample was counted, it was placed in an envelope, labeled, and the results were called into the EOC. Both teams knew that County Police would pick-up their samples, to transport them to the State Laboratory in Albany.

**WC FM Objective 14 - MET -** Field Monitoring Team members were aware of the potential need to take KI. They knew this order would come from the Westchester County Commissioner of Health through the Field Monitoring Team Coordinator.

**WC FM Objective 30 - MET -** A shift changed was observed at 1215 between Health Department team 3 and Health Department team 1. Team 1 briefed Team 3 about conditions and the status of field monitoring. Team 3 reported fully prepared to continue the duties of Team 1.

## **DEFICIENCIES**

No Deficiencies were observed for the Westchester County Field Monitoring Team.

## **AREAS REQUIRING CORRECTIVE ACTION**

No ARCA's were observed for the Westchester County Field Monitoring Team.

## **PLAN ISSUES**

No plan issues were observed for the Westchester County Field Monitoring Team.

## **AREAS RECOMMENDED FOR IMPROVEMENT**

No ARFIs were observed for the Westchester County Field Monitoring Team.

### **2.7.2.2 Traffic Control Points**

The Westchester County TCPs were evaluated out-of-sequence on August 25, 1992. A free-play message was used to establish the coordination for initiating the activation of the TCPs. Two objectives were demonstrated. Both objectives were met.

**WC TCP Objective 5 - MET** - The officers were issued one 0-5 R and one 0-200 R DRD. Both officers had TLD badges and a supply of KI. The officers knew the procedure for the ingestion of KI if instructed to do so by their supervisors. Both officers were very knowledgeable concerning the procedures related to their assignment. The police officers knew they should report to their immediate supervisor if their dosimeter read 1 R. They also knew their total allowable dose was 3 R, unless otherwise authorized.

**WC TCP Objective 17 - MET** - The TCP officers demonstrated the ability to establish TCPs and control access to the areas. The officers were knowledgeable of the procedures applicable to their assignment, and were familiar with the location of reception centers and the PMC.

## **DEFICIENCIES**

No Deficiencies were observed for the Westchester County TCPs.

## **AREAS REQUIRING CORRECTIVE ACTION**

No ARCA's were observed for the Westchester County TCPs.

## **PLAN ISSUES**

No plan issues were observed for the Westchester County TCPs.

## **AREAS RECOMMENDED FOR IMPROVEMENT**

No ARFIs were observed for the Westchester County TCPs.

### **2.7.2.3 School Evacuation Bus Runs**

The Westchester County School Evacuation bus runs were evaluated out-of-sequence on September 17, 1992. A free-play message was used to initiate the bus runs. Two objectives were demonstrated. Both objectives were met.

**WC SE Objective 5 - MET** - The drivers were issued a TLD and 0-5 R and 0-200 R DRDs. They also had the appropriate record forms and the necessary instructions for their use. The drivers read their dosimeters every 15 minutes and recorded the readings on the Individual Radiation Exposure Records.

The drivers and the dispatcher at the bus garage were aware of proper procedures and the allowable dose limit for the assignment. Although there was no order to ingest KI in this exercise, the KI was available with instructions. The drivers knew the reason KI was available and whose authorization was required for its use. Both drivers had radios in their buses, to keep in contact with their dispatchers at the bus garage.

Two previous ARCAs (WC-1 and WC-4) incurred during the November 14, 1990, exercise, have been corrected and verified, by the attendance of the Federal Evaluator at a training session.

**WC SE Objective 16 - MET** - The evacuation of school children from the 10-mile EPZ to school reception centers outside the EPZ was successfully demonstrated by the Hendrick Hudson School District.

Following instructions from the WCEOC, a bus was dispatched to evacuate the Buchanan-Verplanck Elementary School students to the White Plains Intermediate School. The driver was knowledgeable about the area and knew the route well. The maps provided were accurate and complete.

For the second evaluated run, the Hendrick Hudson School District provided a bus and driver to evacuate students from the Furnace Woods Elementary School in the 10-mile EPZ to the Mamaroneck Avenue School outside of the EPZ. The bus was dispatched at 1240 and arrived at the Elementary School at 1331. Maps provided were accurate and easy to read. In addition, the driver knew the area and local conditions very well, making the run much easier. Students were boarded (simulated) and driven to the school reception center.

#### **DEFICIENCIES**

No Deficiencies were observed for the Westchester County school evacuation bus runs.

#### **AREAS REQUIRING CORRECTIVE ACTIONS**

No ARCAs were observed for the Westchester County school evacuation bus runs.

#### **PLAN ISSUES**

No plan issues were observed for the Westchester County school evacuation bus runs.

#### **AREAS RECOMMENDED FOR IMPROVEMENT**

No ARCAs were observed for the Westchester County school evacuation bus runs.

#### **2.7.2.4 Special Population Evacuation Bus Runs**

The Westchester County Special Population Evacuation bus runs were evaluated out-of-sequence on September 18, 1992. A free-play message was used to initiate the bus runs. Two objectives were demonstrated. Both were met.



**WC SP Objective 5 - MET** - Each of the two drivers was provided a kit which contained one TLD, two DRDs (0-5 R and 0-200 R), KI tablets with an instruction sheet, an exposure record card, and an instruction sheet on the use of dosimeters. The dosimeters were read by the drivers every 15 minutes, and the drivers knew that they should report to their immediate supervisor if their dosimeter read 1 R.

Two previous ARCAs (WC-2 and WC-3) incurred during the November 14, 1990, exercise, have been corrected and verified, by the attendance of the Federal Evaluator at a training session.

**WC SP Objective 15 - MET** - The free-play messages were handed to the bus drivers/dispatcher of the Liberty Lines Bus Company to run GP 001 and GP 003. Both drivers had directions to their respective routes, conducted their runs in five minutes, and knew the proper reception centers for the evacuees. The drivers should be commended on their performance and knowledge of the area.

## **DEFICIENCIES**

No Deficiencies were observed for the Westchester County special population evacuation bus runs.

## **AREAS REQUIRING CORRECTIVE ACTION**

No ARCAs were observed for the Westchester County special population evacuation bus runs.

## **PLAN ISSUES**

No plan issues were observed for the Westchester County special population evacuation bus runs.

## **AREAS RECOMMENDED FOR IMPROVEMENT**

No AFRIs were observed for the Westchester County special population evacuation bus runs.

### **2.7.2.5 Reception Center**

The Westchester County Reception Center was evaluated out-of-sequence on August 25, 1992. Five objectives were demonstrated at the Westchester County Reception Center located at the Portchester Middle School. All five objectives were met.

**WC RC Objective 2 - MET** - The facility was sufficient to support the reception center operation. The gymnasium and locker rooms were set up to handle the necessary registration, monitoring and decontamination activities. A status board displaying a map of the nuclear facility and ERPAs in Westchester County was posted. In an actual emergency, this area would not be set up until a General Emergency was declared.

**WC RC Objective 4 - MET** - The reception center had ample communication capabilities available. RACES operators were available from the Office of Disaster Emergency Services and were in contact with the WCEOC.

Hand-held radios were used by RACES individuals "shadowing" the Congregate Care Center Coordinator, Reception Center Leader, and by individuals (RACES operators) at the front entrance door and the decontamination area. Regular and cellular telephones were available throughout the reception center, and a computer was available for registering evacuees. The Reception Center Coordinator and Decontamination Coordinator were informed when various ERPAs were evacuated and as to the expected arrival time of evacuees at the reception center. Excellent communication capability was demonstrated.

**WC RC Objective 5 - MET** - All emergency workers were well trained on dosimetry. All workers had a TLD and two DRDs with ranges of 0-5 R and 0-200 R. All dosimeters were charged and zeroed. Workers read and recorded their dosimeter readings every 15-minutes as required by procedures. Workers were aware of the 1 R and 3 R reporting requirements.

**WC RC Objective 18 - MET** - The reception center was well run and adequately set up. Signs were placed at the entrance to the Middle School to direct traffic. Vehicles were monitored and decontaminated, if necessary, by members of the Portchester Fire Department. All monitoring equipment (CDV-700s) had been calibrated within the last year, and all probes were covered in protective plastic bags. All individuals knew at what levels the vehicles would require decontamination (greater than 0.1 mR/hour). Ample space was available to park clean and contaminated cars. Cars were monitored after decontamination. If a car could not be cleaned after three attempts, it was parked in an area for contaminated cars.

An area in the Reception Center was set aside to keep people advised of what was happening. All evacuees had to be registered before they could enter the Center, and people requiring shelter had to fill out a Red Cross Disaster Shelter Registration form which contains pertinent family information, shelter location, dates of arrival and departure, address, and telephone number.

Once inside the Middle School, brown paper paths, along the floor area, as well as numerous instructional signs and cordoned off areas, directed the flow of evacuees and protected other areas from becoming contaminated. All evacuees were appropriately monitored.

Recorders were available to record the evacuees' names and any areas of contamination found on the individual. Contaminated individuals were sent to the shower area for decontamination. Temporary clothing and booties were available for evacuees after going through decontamination. Individuals were appropriately registered. Transportation to a separate congregate care facility would be available, if needed. All individuals staffing the reception center did a thorough job and were well trained.

**WC RC Objective 30 - MET** - Per-the-extent of play agreement, a shift change was demonstrated with three monitors to replace the existing monitors. There were sufficient personnel, who were proficient in carrying out their monitoring responsibilities, and efficiently demonstrate this objective.

## **DEFICIENCIES**

No Deficiencies were observed for the Westchester County Reception Center.

## **AREAS REQUIRING CORRECTIVE ACTION**

No ARCA's were observed for the Westchester County Reception Center.

## **PLAN ISSUES**

No plan issues were observed for the Westchester County Reception Center.

## **AREAS RECOMMENDED FOR IMPROVEMENT**

No ARFIs were observed for the Westchester County Reception Center.

### **2.7.2.6 Congregate Care Center**

The Westchester County Congregate Care Center was evaluated out-of-sequence on August 25, 1992. Two objectives were demonstrated at the Westchester County Congregate Care Center, located at Portchester Middle School. Both objectives were met.

**WC CCC Objective 4 - MET** - The American Red Cross, which has responsibility for the center, brought their mobile communication center to the facility. This vehicle is equipped with a radio, CB radio, a cellular telephone, hand-held radios, and commercial telephones which can be hooked up if necessary. There is also a generator for charging the instruments. Since this demonstration was conducted out-of-sequence, no actual communication was demonstrated. The Federal Evaluator was informed that the Red Cross would be able to communicate with the WEOC, Red Cross Chapter Headquarters in White Plains, and local Fire Departments (for ambulances, etc).

**WC CCC Objective 19 - MET** - The Congregate Care Center's capacity is 775. At 1030, the facility was fully staffed with 15 American Red Cross volunteers. If the shelter capacity was exceeded, the Manager would call the WCEOC to request the Red Cross to open additional shelters. The Red Cross staff at this location was responsible for overall management, shelter registration, nursing, assistance in obtaining food and clothing, and communications. Two physicians were on call through the Health Department, and ambulances would be available through the local Fire Departments.

The shelter had adequate restroom facilities, water, and space for parking. Cots and blankets would be brought from the Red Cross Chapter, as well as from other sources. Food was readily available through the school's cafeteria. Crisis Counseling was available through the Department of Social Services. An emergency response desk was also set up to handle any special needs. Also, the school's library would be available for the evacuees to use.

Adequate security was provided for the Congregate Care Center by the Portchester Auxiliary Police. Overall, this facility was well managed and all functions were performed promptly and efficiently.

#### **DEFICIENCIES**

No Deficiencies were observed for the Westchester County Congregate Care Center.

#### **AREAS REQUIRING CORRECTIVE ACTION**

No ARCA's were observed for the Westchester County Congregate Care Center.

#### **PLAN ISSUES**

No plan issues were observed for the Westchester County Congregate Care Center.

#### **AREAS RECOMMENDED FOR IMPROVEMENT**

No ARFIs were observed for the Westchester County Congregate Care Center.

#### **2.7.2.7 Personnel Monitoring Center**

The Westchester County Personnel Monitoring Center (PMC) was evaluated out-of-sequence on June 30, 1992 at the County Fire Training Center in Valhalla, New York. Five objectives were demonstrated. All five objectives were met.

**WC PMC Objective 2 - MET** - Adequate facilities, equipment, displays, and other material to support emergency operations were adequately demonstrated. This facility had all the items, space, and back-up power needed to support 24-hour emergency operations. Per the extent-of-play agreement, access to the facility was controlled by a police officer. A copy of their emergency response plan, along with the "Emergency Worker Reference Manual: Vehicle Decontamination" and descriptive flow charts was available for reference.

**WC PMC Objective 4 - MET** - Adequate communication systems were available for primary and back-up support. In the initial stages of an emergency, commercial lines would be available, and during the emergency, radio systems would be the primary support. Hand-held radios would be used for communication within the facility, while the Fire Control Communications Center would serve as a link to the WCEOC. The emergency worker PMC Supervisor would be in contact with the Westchester County Commissioner of Health at the WCEOC as necessary.

**WC PMC Objective 5 - MET** - The PMC demonstrated the ability to continuously monitor and control emergency worker exposure.

A knowledgeable individual from the County Department of Health was assigned the responsibility of distributing DRDs and collecting the TLD and emergency worker exposure cards at the end of the mission. All individuals had two DRDs (0-5 R and 0-200 R), and knew how often to read them (every 15 minutes). All DRDs were within their proper calibration dates. It was observed by the Federal evaluator that it is often difficult to properly zero the DRDs. therefore, the initial reading of the DRD should adequately represent what the DRD states, not necessarily zero. Thus, if the 0-5 R DRD read 0.2 R, then the initial reading on the emergency worker exposure card should be entered as 0.2 R, not 0. Emergency workers should be encouraged to correctly report their readings.

**WC PMC Objective 22 - MET** - The adequacy of facilities, equipment, supplies, procedures and personnel for decontamination activities was demonstrated. A flow chart was available to illustrate how vehicles and individuals were monitored, decontaminated, and registered as appropriate.

A Westchester County Police Officer was available at the entrance to the PMC to ensure that only emergency workers had access to the facility. Vehicles were directed to the monitoring station where two individuals from the Westchester County Department of Public Works Fire Brigade were equipped with CDV-700 survey meters to thoroughly monitor the vehicle, while another individual used a vehicle monitoring form to indicate where observed areas of contamination were located, and what the readings in these areas were.

A "clean" vehicle would be directed to the clean parking area, while a "contaminated" vehicle would be directed to the decontamination area, and dealt with at a later time. At this area, fire hoses, soap, and brushes were available for decontamination. The emergency workers reviewed the monitoring form to identify the areas which required decontamination. Water used for decontamination was directed towards a drainage pipe, then towards a retention pond. Following decontamination, vehicles were remonitored.



All emergency workers were directed into the Fire Training Center to be monitored. Monitors working in the Fire Training Center were from the County Department of Health. Individuals were thoroughly monitored by one monitor, while another monitor recorded all readings on an appropriate form. Clean individuals were directed towards the registration desk where their TLD and emergency worker cards were turned in, and new emergency worker cards were issued. Contaminated individuals were escorted by a "runner" to either the mens or womens' shower area. The "runner" hand-carried the paper-work to the shower areas. Appropriate cleaners, towels, and tyveks were available for decontamination of individuals. If, after decontamination, remaining contamination was less than 0.1 mR/hour above background, it was considered "fixed," and individuals were released. Contamination over 0.1 mR/hour above background would result in the individual being transferred to the Westchester County Medical Center, which is five minutes away. Overall, the emergency workers responsible for the PMC demonstrated ample knowledge, enthusiasm, and resourcefulness in conducting their work and responding to a variety of changing scenarios requested by the Federal Evaluator. All workers were very well trained and should be commended for an excellent demonstration of their responsibilities and functions at the PMC.

**WC PMC Objective 30 - MET** - Per the extent-of-play agreement, the overall supervisor, as well as the supervisor of vehicle monitoring and decontamination, demonstrated a shift change at 1130. Incoming key personnel were briefed on a variety of conditions by their counterparts. Information exchanged included the number of emergency workers or vehicles that were contaminated, locations of individuals or vehicles who were contaminated, any significant occurrences, and any information received from the WCEOC.

## **DEFICIENCIES**

No Deficiencies were observed for the Westchester County PMC.

## **AREAS REQUIRING CORRECTIVE ACTION**

No ARCAs were observed for the Westchester County PMC.

## **PLAN ISSUES**

No plan issues were observed for the Westchester County PMC.

## **AREAS RECOMMENDED FOR IMPROVEMENT**

1. **Description:** It was observed by the Federal evaluator that it is often difficult to properly zero the DRDs. therefore, the initial reading of the DRD should adequately represent what the DRD states, not necessarily zero. Thus, if the 0-5 R DRD read 0.2 R, then the initial reading on the emergency worker exposure card should be entered as 0.2 R, not 0.



**Recommendation:** Emergency workers should be encouraged to correctly report their readings.

#### **2.7.2.8 School Interviews**

One objective was demonstrated during the school interview portion of the exercise. This objective was met.

**WC School Objective 16 - MET** - The organizational ability and resources necessary to effect an orderly evacuation of schools within the plume EPZ was met. Nine schools in Westchester County were visited and interviewed on May 29 and June 3, 1992.

Listed below are the names of the schools, the school districts, and towns where officials were interviewed:

1. Brookside Elementary School  
Yorktown Heights School District  
Yorktown Heights, New York
2. Croton Harmon High School  
Croton Harmon School District  
Croton on Hudson, New York
3. Frank G. Lindsey Elementary School  
Hendrick Hudson Central School district  
Montrose, New York
4. Fox Meadows/BOCES  
Board of Cooperative Educational Services  
Shrub Oak, New York
5. Oakside Elementary School  
Peekskill City School District  
Peekskill, New York
6. Roosevelt Education Center  
Ossining Union Free School District  
Ossining, New York
7. St. Theresa's  
Briarcliff Manor Union Free School District  
Briarcliff Manor, New York
8. Thomas Jefferson Elementary School  
Lakeland Central School District  
Shrub Oak, New York
9. Westorcharde Elementary School  
Chappaqua Central School District  
Chappaqua, New York

At each school, either the Principal or the Superintendent was interviewed. A preselected series of questions was asked at each school by the Federal Evaluator.

The parents of school children would be notified of the county's protective action decisions regarding the closing of schools via a news releases. The authorities interviewed at each of the schools were knowledgeable of the established school emergency procedures.

Early dismissal of each of the schools is implemented upon recommendation from the District Superintendent. A written call-down list would be used to make telephone calls to parents. The notification list has been developed and periodically updated, with current home and emergency telephone numbers of parents, by written request of the schools.

All schools have written procedures, and parents are kept informed through school publications which contain the addresses of the designated relocation centers.

Officials at all the schools were familiar with the chain-of-command that would be involved during an evacuation. Estimates of evacuation times and procedures were known.

#### **DEFICIENCIES**

There were no Deficiencies observed during the Westchester County school interviews.

#### **AREAS REQUIRING CORRECTIVE ACTION**

There were no ARCAs observed during the Westchester County school interviews.

#### **PLAN ISSUES**

There were no plan issues observed during the Westchester County school interviews.

#### **AREAS RECOMMENDED FOR IMPROVEMENT**

There were no ARFIs observed during the Westchester County school interviews.

#### **2.7.2.9 Medical Drill**

A medical drill for Westchester County was conducted on April 22, 1992. Two objectives were demonstrated. Both were met.

**WC Medical Drill Objective 20 - MET** - The adequacy of the vehicle, equipment, procedures and personnel for the transportation of contaminated injured or exposed individuals was satisfactorily demonstrated by a knowledgeable, well-trained, well-equipped crew of the Empress Ambulance Service. The crew, one Paramedic and one Emergency Medical Technician, responded to a telephone call from the Westchester County Reception Center to transport to the hospital an individual with a head wound, right-arm fracture, and possible radiological contamination.

The individual was satisfactorily surveyed for radiological contamination by the reception center monitor using the proper technique and survey instruments (CDV-700, calibrated February 1992). The reception center personnel and the ambulance crew were provided one TLD, one 0-5 R, and one 0-200 R DRD each.

The crew continued the patient care initiated by the reception center staff, and carefully wrapped the patient to prevent the spread of contamination (including extremities) and placed him in the ambulance.

The ambulance left the reception center at 0847, and arrived at the hospital at 0855. While the ambulance was enroute, hospital staff were notified by radio of the patient's medical status and contamination. This information was relayed in an accurate and concise manner.

After transferring the patient to the hospital receiving team, the ambulance and the crew were surveyed for possible contamination by a hospital monitor and released. The reception center personnel and the ambulance crew were enthusiastic and exhibited excellent skills during the drill.

**WC Medical Drill Objective 21 - MET** - The adequacy of the medical facility's equipment, procedures and personnel for handling injured, contaminated individuals was demonstrated by the well-trained, knowledgeable staff of the Westchester County Medical Center.

When the ambulance arrived at the Radiological Emergency Area (REA) prepared at the medical center, medical needs were assessed and initial monitoring performed. Patient needs and decontamination procedures were initiated. Proper smears and swabs were taken and labeled for later analysis. Contamination levels and vital signs were recorded by the buffer zone nurse.

Handling and decontamination of the patient was conducted in an effective and professional manner, which included the proper demonstration of a portable X-ray unit being brought into and out of the REA. A decision was made by the physician to discontinue decontamination of the patient, and move him to Special Procedures (Radiology - Computerized Tomography) for follow-up diagnostic procedures on the abnormal skull X-ray. Sheetting beneath the patient was removed and the patient's back and back-board were cleaned and re-monitored to assure the patient was clean before the patient was transferred to a clean stretcher and taken out of the treatment area. Step-off procedures from the treatment area were effectively directed by the medical center's Radiological Officer in the buffer zone. The medical staff was provided protective clothing, one TLD, and one 0-200 mR DRD (calibrated January 1992). The staff of the Westchester Medical Center performed all functions enthusiastically and professionally.

**DEFICIENCIES**

No Deficiencies were observed for the Westchester County medical drill.

**AREAS REQUIRING CORRECTIVE ACTIONS**

No ARCAs were observed for the Westchester County medical drill.

**PLAN ISSUES**

No plan issues were observed for the Westchester County medical drill.

**AREAS RECOMMENDED FOR IMPROVEMENT**

No ARFIs were observed for the Westchester County medical drill.

## **2.8 DUTCHESS COUNTY, NEW YORK**

### **2.8.1 Dutchess County Emergency Operations Center (DCEOC)**

Five objectives were demonstrated by the DCEOC located at 22 Market Street, Poughkeepsie, New York. Four objectives were met, and one was partially met.

**DCEOC Objective 1 - MET** - While the Emergency Management Director and three- to-four administrative staff members were on regularly scheduled duty prior to the Alert declaration, all other EOC staff members were notified and instructed to report immediately after receipt of the Alert notification. The call-up roster was current, and staff members who were contacted reported promptly to their designated positions. The DCEOC was declared operational by 0940. All functions relevant to the county emergency plan were implemented properly.

**DCEOC Objective 2 - PARTIALLY MET** - The Dutchess County EOC is well set up and equipped to coordinate emergency operations, including providing facilities for evacuees from Putnam and Westchester Counties.

An existing issue relates to the quality of facsimile machine copies received at the EOC from the Southern District SEMO Office. This issue remains unresolved from the November 14, 1990 exercise, as the quality of copies received was similarly unsatisfactory (See ARCA 1 for the DCEOC). All other equipment performed well.

A previous ARCA (DC-1) incurred during the November 14, 1990 exercise, remains unchanged.

Maps and status boards were prominently displayed and information was posted promptly. Copies of the Dutchess County Radiological Emergency Response Plans were available for reference. A Sheriff's Deputy controlled access to the EOC, and prevented anyone without proper authorization from entering the facility.

**DCEOC Objective 3 - MET** - During the course of the exercise, strong leadership in preparing Dutchess County to fulfill its role as a host County was demonstrated by the Director of Emergency Management. This capability was reinforced by the presence, at all times, of the County Executive or his Deputy. Each agency established and maintained contact with its counterparts in Putnam and Westchester Counties.

Putnam County kept the DCEOC staff apprised of the overall situation primarily through the use of facsimile machine copies of the RECs messages. They also provided the EOC with ongoing status reports. Seventeen of these reports were received during the exercise. Westchester County staff informed the EOC staff to prepare to receive school children from the City of Peekskill at approximately 1130.

**DCEOC Objective 4 - MET** - Twenty-four telephone lines were available at the DCEOC, and were more than sufficient for the staff present. An IBM AT personal computer was also available. Facsimile machine transmissions were used extensively for communications with Putnam and Westchester Counties. Back-up communications were available on radio frequencies and RACES. No breakdowns were noted during the exercise.

**DCEOC Objective 30 - MET** - The eleven EOC staff members designated in the extent-of-play agreements satisfactorily demonstrated the ability to maintain 24-hour coverage of their respective assignments.

Replacement personnel reported in during the hours of 1000 and 1400. The second shift personnel were fully briefed on the current emergency situation. The briefing included status reports, actions taken, and the current ECL. Replacement personnel were knowledgeable, and exhibited the capability to carry out their respective emergency response roles.

## **DEFICIENCIES**

No Deficiencies were observed for the DCEOC.

## **AREAS REQUIRING CORRECTIVE ACTION**

1. **Description:** The quality of facsimile machine copies received at the EOC from the Southern District SEMO Office was unsatisfactory (NUREG-0654, G.3.a and H.3).

**Recommendation:** Determine if repair or replacement is required of the facsimile machines in the Communications Room and at the Southern District SEMO Office and then correct the problem.

## **PLAN ISSUES**

No plan issues were observed for the DCEOC.

## **AREAS RECOMMENDED FOR IMPROVEMENT**

No ARFIs were observed for the DCEOC.

### **2.8.2 Reception Center**

The Dutchess County Reception Center was evaluated out-of-sequence on August 5, 1992. Five objectives were demonstrated. Four objectives were met, and one was partially met.



**DC RC Objective 2 - MET** - The Arlington High School (North Campus) was adequately suited to handle and set-up a Reception Center. Access to the facility was properly controlled by a Police Officer from the town of Hyde Park. He directed traffic to the vehicle monitoring area.

No status board was available as per the organization's emergency response plan. However, it is recommended that the Reception Center have these types of displays to illustrate areas affected by the plume, areas being evacuated, and other reception and congregate care centers which are open.

**DC RC Objective 4 - MET** - There were four commercial telephone lines installed in the area of the school designated for Reception Center activities. In addition to these commercial telephone lines, back-up systems included hand-held radios for communicating between the vehicle monitoring area, shower facilities, the registration area, and the Reception Center Supervisor. Individuals knew when they would be expected to contact the EOC (i.e., when they are ready to operate, when the first contaminated evacuee comes to the Reception Center, etc.); whom to speak with at the EOC (the Radiological Officer or Operations staff); and when EOC staff would contact them with information about the plume, expected arrival time of evacuees, etc.

**DC RC Objective 5 - MET** - Prior to the set-up and activation of the reception center, all individuals involved in radiological monitoring (vehicle and personnel monitoring and decontamination) and traffic control received a TLD (dated March 1, 1992) and a 0-5 R DRD, calibrated June 11, 1992, in accordance with the organization's emergency response plans. All badge and dosimeter numbers were recorded, and all DRDs were appropriately zeroed. Two operational dosimeter chargers were available for individuals to zero their dosimeters. All individuals were knowledgeable about the appropriate frequency to read their DRDs (every 15 minutes), when to report their DRD reading (1 R), and the mission dose limit (5 R). Badges and DRDs would be turned in at the end of the mission to the Reception Center supervisor.

**DC RC Objective 18 - PARTIALLY MET** - All monitoring at the Reception Center was conducted by members of the Dutchess County Department of Health, while registration services were handled by the Dutchess County Department of Social Services. An appropriate number of calibrated, operational survey instruments were available for monitoring personnel and vehicles. It should be noted that Ludlum Model 3 survey instruments were used with a beta-gamma probe. These instruments were equipped with a speaker instead of earphones. CDV-700s with beta probes and earphones were utilized only in the decontamination areas (men's and women's locker rooms). The vehicle monitoring was conducted very thoroughly, although having one individual monitor and record the results at the same time was awkward. A contaminated vehicle would be directed towards the vehicle decontamination area, where it would be hosed down and soaped and then remonitored. After three washings, a vehicle would be directed to a "dirty" parking area if it remained contaminated, or to the "clean" parking area by the monitors. It was unclear where clean cars would be parked, as no signs were available to direct the cars (See ARCA 3 for the DC RC).

Inside the reception center, a SAIC portal monitor was correctly set up and demonstrated for this exercise. Two additional individuals with Ludlum Model 3 survey instruments (with beta-gamma probes attached) were also available for personnel monitoring. Two recorders were present to complete the evacuees' monitoring forms and issue "clean" tags if the evacuees were found uncontaminated. Both monitors were aware of the level at which an evacuee would be considered contaminated ( $> 0.1$  mR/hour).

These workers successfully monitored all evacuees within the required time-frame of 90 seconds each. Due to the speed and efficiency of these monitors, and the potential number of trained monitors available, this reception center would have no difficulty monitoring 20 percent of the 10-mile EPZ within the required 12 hours.

Contaminated individuals were directed to either the men's or women's shower area; clean individuals were directed to the registration desk. The women's shower areas were staffed with highly competent workers. Individuals effectively monitored the contaminated evacuees; bagged and tagged clothing or other personal articles as required; instructed the individual to wash with the correct sequence of cleansers (1) soap and water, (2) waterless hand cleaner, and (3) detergent and soft brush; and remonitored the individuals following each cleaning. The monitors were also aware of the correct method of handling radiological waste, how to tag and monitor the waste area, and at what radiation level a supervisor should be contacted ( $>5$  mR/hour). Individuals who could not be decontaminated after three-attempts would be sent to a cordoned off area. These individuals would later be sent to a local hospital for decontamination.

The monitors in the men's shower area were also aware of the appropriate methods of decontamination and the correct manner in which to complete the paperwork. However, these individuals were unaware of the correct method in which to handle the radioactive waste. It should be noted that the three types of cleansers, as indicated in the county plan, necessary for decontamination were not available for observation (See ARCA 1 for the DC RC).

Once clean, all individuals were directed to the Registration Desk. Here, individuals were asked to complete paperwork which required their name, address, family members, and shelter location. Evacuees were asked if they had a place to go, and if not, were directed to the congregate care center. Buses would be available to transport people to the congregate care center. However, maps indicating the location of the congregate care center were not available for dissemination. This would be a problem for individuals who may want to drive in their own vehicles to the center, but are not familiar with the area (See ARCA 2 for the DC RC).

**DC RC Objective 30 - MET** - Per the extent-of-play agreement, a shift change of radiological monitors was performed. Three individuals relieved those individuals handling the portal monitor and the hand-held monitors. No problems occurred during this shift change.

## DEFICIENCIES

There were no Deficiencies observed at the Dutchess County Reception Center during this exercise.

## AREAS REQUIRING CORRECTIVE ACTION

1. **Description:** Monitors in the men's shower area were unaware of the correct method for handling the radioactive waste (NUREG-0654, J.10.h).

**Recommendation:** The monitors should receive additional training on the handling of radioactive waste.

2. **Description:** Maps indicating the location of the congregate care center were not available for dissemination. This is a problem for individuals who may want to drive in their own vehicle to the center, but are not familiar with the area (NUREG-0654, J.10.h).

**Recommendation:** Maps indicating the location of the congregate care center should be made available.

3. **Description:** It was unclear where "clean" cars would be parked after being monitored and decontaminated, as no signs was available to direct the cars (NUREG-0654, J.12).

**Recommendation:** Signs must be posted to direct cars to a "clean" parking area.

## PLAN ISSUES

There were no plan issues observed at the Dutchess County Reception Center during this exercise.

## AREAS RECOMMENDED FOR IMPROVEMENT

1. **Description:** It should be noted that the three types of cleansers, as indicated in the County Emergency Response plan, necessary for decontamination were not available for observation.

**Recommendation:** All materials need to be present for the full evaluation of the Reception Center.

2. **Description:** The vehicle monitoring was conducted very thoroughly, although having one individual monitor and record the results at the same time was awkward.

**Recommendation:** Assign two individuals to handle vehicle monitoring: one for monitoring and one for recording the results.

### 2.8.3 Congregate Care Center

The Dutchess County Congregate Center, located at the Poughkeepsie Middle School, was evaluated out-of-sequence on August 18, 1992. Two objectives were to be demonstrated. One objective was met and one was partially met.

**DC CCC Objective 4 - MET** - At least four commercial telephone lines were available at the Middle School. These lines would be used to communicate with the EOC, food-vendors, and other volunteer agencies. The shelter manager had clear and concise communications with the ARC EOC liaison, who was present during the demonstration. Radio communications were explained but not demonstrated. The Dutchess County Chapter does not have access to the standard ARC 47.42 Mhz frequency. However, a RACES operator was available.

**DC CCC Objective 19 - PARTIALLY MET** - At approximately 0955, members of the Dutchess County Chapter of the ARC arrived at the school. After introductions, the ARC began the operation at 1005 by identifying themselves to school personnel. The ARC congregate care center sign was immediately placed near the access way to the Middle School. The Middle School had fire exits and evacuation routes clearly marked and occupancy signs posted were clearly visible. The ARC has an agreement with the Middle School. A floor-plan of the center was available. The ARC was able to effectively explain how the shower facilities would be accessed while still maintaining control of the halls. The restrooms and school grounds were able to accommodate the physically disabled. There is an operating elevator, which is a great benefit for the handicapped. Security for the Congregate care Center at the Poughkeepsie Middle School was not requested until half-way into the demonstration. Local police should be available at the beginning of the exercise to provide security (See ARCA 1 for the DC CCC).

At 1037, the ARC reported that the shelter was prepared to receive evacuees. The ARC reported a center capacity of 937 as provided by the Board of Education. When presented with a free-play message stating an onsite shelter population of 500, the ARC advised they would immediately request the opening of an additional center and still have the capability to house up to 400 more victims. A "live" demonstration of the registration process and screening was provided. Cots and blankets could be accessed through the ARC New York State Mutual Aid Plan. The gymnasium and auditorium were under repair. In an actual event, the gym could have been cleared of debris, but the strong odor of a gasoline engine was present, possibly creating a health hazard. The School District should notify the Chapter of any construction which might interfere with the use of the school as a congregate care center. Alternate center(s) should be temporarily made available (See ARCA 2 for the DC CCC).

Twenty-six ARC staff members handled the congregate care center. An on-call list and notification procedure was available. Prior arrangements for an outside vendor to provide meals for the first 24-hours, and for the Board of Education to provide food after that, were made. The Chapter may wish to explore an agreement with the voluntary agencies to arrive when the shelter is opened. Nursing and Family Services staff were present for appropriate functions. Additional equipment and supplies could be provided through agreements with other voluntary agencies, such as the Salvation Army, for clothing.

## **DEFICIENCIES**

There were no Deficiencies observed at the Dutchess County Congregate Care Center during this exercise.

## **AREAS REQUIRING CORRECTIVE ACTION**

1. **Description:** Security for the Congregate Care Center at the Poughkeepsie Middle School was not requested until half-way into the demonstration (NUREG-0654, H).

**Recommendation:** Local police should be available at the beginning of the exercise to provide security.

2. **Description:** The gymnasium and auditorium were under repair. In an actual event, the gym could have been cleared of debris, but the strong odor of a gasoline engine was present, possibly creating a health hazard (NUREG-0654, H).

**Recommendation:** The School District should notify the Chapter of any construction which might interfere with the use of the school as a congregate care center. alternate center(s) should be temporarily made available.

## **PLAN ISSUES**

There were no plan issues observed at the Dutchess County Congregate Care Center during this exercise.

## **AREAS RECOMMENDED FOR IMPROVEMENT**

1. **Description:** Prior arrangements for an outside vendor to provide meals for the first 24-hours, and for the Board of Education to provide food after that, were made.

**Recommendation:** The Chapter may wish to explore an agreement with the voluntary agencies to arrive when the shelter is opened.

## **2.9 BERGEN COUNTY, NEW JERSEY**

### **2.9.1 Bergen County Emergency Operations Center (BCEOC)**

Five objectives were demonstrated at the BCEOC located in the Bergen County Museum Building at 327 East Ridgewood Avenue in Paramus, New Jersey. Two objectives were met, one objective was partially met and two were not met.



**BCEOC Objective 1 - NOT MET** - All alert, mobilization and activation requirements were tied to receipt of the Alert ECL. The Alert ECL was declared at 0840, and notification was received at Bergen County at 0856. Bergen County, in turn, notified the New Jersey State Police North Region at 0859. No call-list or roster was used by Bergen County.

Several provisions of the Rockland County Plan, dated March, 1992, were not executed. Alert ECL notification from Rockland County to the Bergen County Communications Center did not occur, per paragraph 5.1.1. Instead, the call went directly from Rockland County to the Bergen County Office of Emergency Management because the office was open at that time. Once notified, the Bergen County Office of Emergency Management did not call the Bergen County Police or the local Police Coordinator, per paragraph 5.2.1. The Bergen County Executive and the Coordinator of the Bergen County Office of Emergency Management were not notified, per paragraph 5.2.2. The New Jersey State Office of Emergency Management was not contacted, per paragraph 5.2.3. The American Red Cross was not called, per paragraph 5.2.4. An ARC representative just happened to come by within 20 minutes of the Alert ECL receipt. In activating the EOC, the facsimile machine was tested, but not all telephones were checked for operability, per paragraph 5.3.1.1. A staff sign-in sheet was not used, per paragraph 5.3.8 (See ARCA 1 for the BCEOC).

The BCEOC was fully operational at 0940. The EOC staffing consisted of the EOC Director (Deputy Coordinator of the Bergen County Office of Emergency Management), an ARC representative, and the Rockland County Liaison to Bergen County.

**BCEOC Objective 2 - PARTIALLY MET** - The BCEOC is collocated with the County Education and Community Services Offices. It is more than adequate to support all anticipated emergency operations. Appropriate space, furnishings, lighting, restrooms, ventilation, and other equipment were also available. Equipment included telephones, typewriters, computers, word processors, copiers, and facsimile machines. The backup power generator was not operational, but portable generators could be in-place within one hour (See ARCA 2 for the BCEOC).

Telephones were available in the EOC as well as facsimile machines. Radio systems to connect the EOC with all appropriate locations were available, with multiple redundancies and back-ups in case of failure of one-or-more systems. All incoming and outgoing communications were appropriately passed on to EOC staff for action.

Maps and displays in the EOC are adequate, providing sufficient summary and tracking information necessary for management decision-making. Maps and displays (or listings) available included the following: Plume pathway emergency planning zone (EPZ) with sectors and/or emergency radiological planning areas labeled, Evacuation routes, Reception/Congregate Care Centers, Radiological Monitoring Points, Population by Evacuation Area, Emergency Classification Levels, Weather information and data, Special Facilities (i.e., schools, nursing homes, and hospitals by listing only), and Traffic and/or Access Control Points.



Status boards were available, prominently displayed, and promptly posted with current accurate information, reflecting significant changes in event information. Posting was within 10-minutes of the receipt and verification of significant changes in event information at the nuclear power plant. A copy of the organization's emergency plan was available at the facility for review.

**BCEOC Objective 3 - MET** - The Deputy Coordinator of the Bergen County OEM, as the Director of the Bergen County EOC, was effective in managing the EOC.

The EOC staff was small (three people), but demonstrated a thorough grasp of emergency operations, requirements, and procedures, enabling the organization to carry out its essential functions and activities. The Director ensured the establishment of procedures for the retention of message logs for incoming and outgoing messages and transmissions. He held frequent briefings to insure that all were knowledgeable regarding the status of events and provided leadership in decision-making and clarification of authorities. The Director solicited staff input prior to making decisions.

The Director attempted to resolve coordination and information issues with Rockland County with varying degrees of success. At his explicit request, Bergen County received faxed copies of EBS Messages 1 and 2 from Rockland County. Messages 3 through 5 were not received. Bergen County staff members were not aware of EBS messages 6 and 7 (See ARCA 1 for the RCEOC).

**BCEOC Objective 4 - MET** - Communications equipment, systems and procedures at the Bergen County EOC were excellent. Communication systems were available and operated properly. Communication links were established with all appropriate locations. Telephones, facsimile machines, hard-copy and/or radio systems provide the facility with multiple redundancies and back-ups in the event of failure of one or more systems. There were no delays caused by malfunctions or breakdowns in equipment. All incoming and outgoing communications were appropriately passed on to EOC staff for action or information.

Communications equipment demonstrated included the primary system, ten-commercial telephone lines and the backup system, county and local government radio systems, which included the following Departments: Police, Fire, Highways, and the American Red Cross. Also available were cellular telephones in Bergen County Police vehicles.

During this exercise, staff at the Bergen County EOC communicated with staff at the Rockland County EOC, New Jersey State Police, and Bergen County Red Cross Chapters.

**BCEOC Objective 30 - PARTIALLY MET** - The capability to maintain staffing on a continuous, 24-hour basis through an actual shift change was not demonstrated.

A roster was provided, according to the extent-of-play agreement listing three positions which were subject to a shift change. One actual shift change was observed at 1400 hours (Emergency Management Coordinator). In accordance with plans and procedures, the oncoming individual was properly briefed and demonstrated proficiency in continuing operations without interruption.

One shift change was simulated (ARC) 15-minutes after the shift change period of 1000 to 1400 had expired. One shift change was not demonstrated or simulated (Rockland County Liaison to Bergen County (See ARCA 3 for the BCEOC).

## **DEFICIENCIES**

No Deficiencies were observed for the BCEOC.

## **AREAS REQUIRING CORRECTIVE ACTIONS**

1. **Description:** Several provisions of the Rockland County Plan, dated March, 1992, were not executed. The Bergen County Office of Emergency Management did not call the Bergen County Police or the local Police Coordinator, per paragraph 5.2.1. The Bergen County Executive and the Coordinator of the Bergen County Office of Emergency Management were not notified, per paragraph 5.2.2. The New Jersey State Office of Emergency Management was not contacted, per paragraph 5.2.3. The American Red Cross was not called, per paragraph 5.2.4. An ARC representative happened to come by within 20-minutes of the Alert ECL receipt. In activating the EOC, the facsimile machine was tested, but not all telephones were checked for operability, per paragraph 5.3.1.1. A staff sign-in sheet was not used, per paragraph 5.3.8 (NUREG-0654 N.1.a).

**Recommendation:** EOC personnel should receive additional or refresher on the plan procedures for mobilizing EOC personnel and activating the EOC in a timely and orderly manner.

2. **Description:** The backup power generator was not operational, but portable generators could be in-place within one hour (NUREG-0654, H).

**Recommendation:** Backup power should always be operational.

3. **Description:** An actual shift change was demonstrated in one Bergen County EOC position. The extent-of-play agreement listed three positions for shift change (NUREG-0654 A.4).

**Recommendation:** Key position shift changes at the Bergen County EOC should be identified, coordinated, and properly executed.

## **PLAN ISSUES**

1. **Description:** Alert ECL notification from Rockland County to the Bergen County Communications Center did not occur, per paragraph 5.1.1. Instead, the telephone call went directly from Rockland County to the Bergen County Office of Emergency Management because the office was open at that time.

**Recommendation:** The Rockland County plan should be revised to state that all calls will be made to the Bergen County Communications Center during non-working hours.

#### **AREAS RECOMMENDED FOR IMPROVEMENT**

No ARFIs were observed for the BCEOC.

#### **2.9.2 Congregate Care Center**

The Bergen County Congregate Care Center, in support of Rockland County, was evaluated out-of-sequence on October 24, 1992. Two objectives were demonstrated. Both objectives were met.

**BC CCC Objective 4 - MET** - Staff at Ramapo College had excellent communications to support the Congregate Care facility. The college had three-telephones that were available at the main office. This would be the primary means of communication. Since this evaluation was performed out-of-sequence, no actual communication was performed. Communication would be with the Reception Centers and the Rockland County EOC.

**BC CCC Objective 19 - MET** - Bergen County demonstrated adequate facilities, equipment, and personnel to provide congregate care services to Rockland County evacuees. The Bergen County American Red Cross Chapter Manager arrived at the College at 1000. Designated areas for food services and temporary living accommodations were located throughout the facility. The school has adequate facilities and square footage to meet the requirements for the designated shelter capacity of 275. Security for the Center would be provided by either the Bergen County Sheriff's Deputies or the Mahwah Police.

The American Red Cross has as a backup, the school's USDA supplies and agreements with various fast-food establishments. The Chapter has an agreement with the Bergen County Board of Education for additional help in the cafeteria and for maintaining the building. Vouchers for clothing would be provided to evacuees after registration through local stores and the Salvation Army. The school is also handicapped-accessible.

**DEFICIENCIES**

No Deficiencies were observed for the Bergen County Congregate Care Center.

**AREAS REQUIRING CORRECTIVE ACTIONS**

No ARCA's were observed for the Bergen County Congregate Care Center.

**PLAN ISSUES**

No plan issues were observed for the Bergen County Congregate Care Center.

**AREAS RECOMMENDED FOR IMPROVEMENT**

No ARFIs were observed for the Bergen County Congregate Care Center.

### 3. REMOVAL OF COMPLETED ARCAs FROM PREVIOUS POST EXERCISE ASSESSMENT

The following list summarizes those ARCAs identified in the Post Exercise Assessment, for the November 14, 1990, exercise which have been corrected and verified and are shown as being complete.

New York SEOC (None)

New York State Southern District EOC (None)

EOF (None)

Joint News Center (1, 2, and 3)

Orange County (1-10)

Putnam County (1-6)

Rockland County (1-8)

Westchester County (1-4)

Dutchess County (None)

Bergen County (None)

Medical Drills (PC-1 and PC-2)

#### 4. SUMMARY OF AREAS REQUIRING CORRECTIVE ACTION

Tables 6 through 16 of this section summarize uncorrected ARCAs identified at previous exercise, which were addressed at the September 23, 1992, exercise, and new ARCAs identified at the September 23, 1992, exercise.

Below are the notes used in Tables 6 through 16:

- <sup>a</sup> NUREG-0654 FEMA-REP-1, Rev.1, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants, November, 1980.
- <sup>b</sup> Objective numbers are taken from FEMA-REP-15, Radiological Emergency Preparedness Exercise Evaluation Methodology, September, 1991)
- <sup>c</sup> C = Remedial action complete.  
I = Remedial action incomplete.



Table 6  
Indian Point Nuclear Power Station - September 23, 1992  
Summary of Areas Requiring Corrective Action

New York SEOC

No.	Areas Requiring Corrective Action	NUREG-0654 FEMA-REP-1 Rev. 1 Reference <sup>a</sup>	FEMA Objective <sup>b</sup>	<u>Exercise</u>	<u>Date of</u>	Present Status <sup>c</sup>
				<u>Date</u>	<u>Previous</u> <u>Exercise</u>	
				09/23/92		

No ARCAs were observed at the New York SEOC.

Table 7  
Indian Point Nuclear Power Station - September 23, 1992  
Summary of Areas Requiring Corrective Action

New York State SDEOC

No.	Areas Requiring Corrective Action	NUREG-0654 FEMA-REP-1 Rev.1 Reference <sup>a</sup>	FEMA Objective <sup>b</sup>	<u>Exercise</u>	<u>Date of</u>	Present Status <sup>c</sup>
				<u>Date</u>	<u>Previous</u> <u>Exercise</u>	
				09/23/92		

No ARCAs were observed at the New York State SDEOC.

Table 8  
Indian Point Nuclear Power Station - September 23, 1992  
Summary of Areas Requiring Corrective Action

Emergency Operations Facility

No.	Areas Requiring Corrective Action	NUREG-0654 FEMA-REP-1 Rev. 1 Reference <sup>a</sup>	FEMA Objective <sup>b</sup>	<u>Exercise</u> <u>Date</u>	<u>Date of</u> <u>Previous</u> <u>Exercise</u>	Present Status <sup>c</sup>
				09/23/92		

No ARCAs were observed at the Emergency Operations Facility.

Table 9  
Indian Point Nuclear Power Station - September 23, 1992  
Summary of Areas Requiring Corrective Action

Joint News Center

No.	Areas Requiring Corrective Action	NUREG-0654 FEMA-REP-1 Rev.1 Reference <sup>a</sup>	FEMA Objective <sup>b</sup>	<u>Exercise Date</u> 09/23/92	<u>Date of Previous Exercise</u>	Present Status <sup>c</sup>
1.	EBS messages 2 (issued at 1149) and 3 (issued at 1210) incorrectly listed ERPAs 50 and 51 as sheltered. This was corrected in EBS messages 4 (issued at 1225) and 5 (issued at 1242). The decision to shelter ERPAs 50 and 51 was correctly contained in EBS message 6.	G.3.a G.4.a	11	X		I
2.	EBS message 4 was confusing because the message contained a statement (first page of the message, last paragraph) that "The chief executives of Westchester, Rockland, Orange and Putnam counties in consultation with the New York State Disaster Preparedness Commission, advise people in the following Emergency Response Planning Areas to EVACUATE at this time." Subsequent narrative in the EBS message (page 2) indicated that this action was in addition to those areas in Rockland and Orange Counties which had previously been ordered to evacuate. However, the only ERPAs identified were those which had been ordered to evacuate earlier. No new or additional ERPAs are identified for evacuation in the EBS message, which is inconsistent with the statements contained in the EBS message at the end of page 1 and the beginning of page 2. The EBS messages should only contain clear and concise emergency information for the general public.	G.3.a G.4.a	11	X		I
3.	The JNC did not have a map showing the plume direction, only the wind direction. This would cause confusion for the media if they assumed that the wind and plume directions were the same, which they were not. A map should be available at the JNC to avoid any possible confusion. Early on, explanations to the media of the effect of the valley on wind direction and how this is depicted on the map would help ensure that the media disseminates accurate information to the public.	G.3.a G.4.a	2		11/14/90	C
4.	After the release from the plant, it took the JNC 75 minutes to formulate and disseminate an EBS message to the public alerting them of this important change in plant conditions. The public should be notified of plant releases in a more timely manner.	E.5, G.4.b	11		11/14/90	C

Table 9 (Continued)

No.	Areas Requiring Corrective Action	NUREG-0654 FEMA-REP-1 Rev.1 Reference <sup>a</sup>	FEMA Objective <sup>b</sup>	<u>Exercise Date</u> 09/23/92	<u>Date of Previous Exercise</u>	Present Status <sup>c</sup>
5.	The rumor control number, provided to the general public in the emergency planning brochures for each County, only elicited a response from Westchester County.	G.4.c	13		11/14/90	C

Table 10  
Indian Point Nuclear Power Station - September 23, 1992  
Summary of Areas Requiring Corrective Action

Orange County

No.	Areas Requiring Corrective Action	NUREG-0654 FEMA-REP-1 Rev.1 Reference <sup>a</sup>	FEMA Objective <sup>b</sup>	<u>Exercise Date</u> 09/23/92	<u>Date of Previous Exercise</u> 11/14/90	Present Status <sup>c</sup> C
1.	Although the entire EOC staff reported for duty, the Community Alert Network reports indicated several persons were not contacted by the automatic call-out and there was no record of them being manually called. While these persons all responded, there was no record of how or when the County Executive or other staff were notified.	F.1.a	1		11/14/90	C
2.	Displays of present plant status and pertinent offsite activities were not all posted, and delays were encountered in some instances in making such postings. The confusion, in the OEOC, over whether the students in ERPA 26 were being sheltered or just held could have been eliminated with the proper use of the status board. Procedures should be formalized on keeping present status and significant events posted in a timely fashion. This might include consideration of the designation of an individual assigned this specific responsibility.	G.3.a H.2, H.3	2, 16		11/14/90	C
3.	Decisions to stop the collection of produce, put cows on stored feed and recommend that the public collect water in containers were not transmitted to the public.	J.10.m	9		11/14/90	C
4.	The Highland Falls Police Officer, who accompanied the field monitoring team, did not have a TLD and lacked adequate knowledge concerning the use of his dosimeters.	K.3.a K.3.b	5		11/14/90	C
5.	The field monitoring team spent approximately 20 minutes more than necessary in the plume while obtaining samples. They were filling out forms, calling the OEOC for information on any wind changes and taking dosimeter readings. Additional training is needed to impress on the team the need to quickly obtain samples in the plume and then move out of the plume.	K.3.a K.3.b	8		11/14/90	C
6.	Only one of the four police officers manning the two TCPs knew the exposure call-in values.	K.3.a K.3.b	5		11/14/90	C



Table 10 (Continued)

No.	Areas Requiring Corrective Action	NUREG-0654 FEMA-REP-1 Rev.1 Reference <sup>a</sup>	FEMA Objective <sup>b</sup>	<u>Exercise</u> <u>Date</u> 09/23/92	<u>Date of</u> <u>Previous</u> <u>Exercise</u>	Present Status <sup>c</sup>
7.	ERPA identifications together with traffic zones and a lack of coordination on the part of the OEOC Sheriff's Department and TCP officers, caused some misunderstanding of the proper evacuation routes. ERPA identifications, traffic zones and the OEOC protective actions should be coordinated to provide TCP officers with a clear understanding of the source of the traffic and the Reception Center the evacuees are to be directed to.	J.10.j J.10.k	17		11/14/90	C
8.	Bus drivers did not know what the ECL status was nor its significance.	0.4	1		11/14/90	C
9.	The American Red Cross Disaster Specialist was misusing ECLs ("General Alert").	0.4	1		11/14/90	C
10.	Emergency workers at the TCPs were not aware of the proper dose limits at which authorization is required nor were they familiar with the frequency at which to read and record their dosimeters. Training should be provided for law enforcement personnel who will be staffing the TCP. Also, it would be helpful if the exposure limits were printed on the field log sheets for quick reference by emergency personnel.	K.3.a K.3.b	5		11/14/90	C

Table 11  
Indian Point Nuclear Power Station - September 23, 1992  
Summary of Areas Requiring Corrective Action

Putnam County

No.	Areas Requiring Corrective Action	NUREG-0654 FEMA-REP-1 Rev.1 Reference <sup>a</sup>	FEMA Objective <sup>b</sup>	<u>Exercise Date</u> 09/23/92	<u>Date of Previous Exercise</u>	Present Status <sup>c</sup>
1.	The bus driver from the Mahopac School District stated that she would take KI when she needed it.	G.9 J.10.e.f	5	X		I
2.	The Radiological Officer directed the Field Monitoring Team to only one prearranged monitoring point during the entire exercise and thus did not define the plume in Putnam County. Additional training should be provided to the Radiological Officer and Field Monitoring Team on properly defining the plume pathway.	I.10	7		11/14/90	C
3.	When the State Observer asked the field team to obtain a background reading, the monitor reported background as 2 mR/hr when the scale on the meter (E-520) was set to the 0.01 setting. On this setting the reading was actually 0.02 mR/hr. The reading transmitted to the PCEOC differed from the actual background reading by a factor of 100. Also, the filter paper was placed into the air sampler cartridge incorrectly. This would have given a low reading for the air filter. After sampling, the sample cartridge was wrapped in a plastic bag and the whole air sampler was placed into the equipment box, used for transporting the equipment. This would cause contamination of the equipment box. Additional training is needed for field monitors in the use of their equipment.	I.8, I.11	7		11/14/90	C

Table 11 (Continued)

No.	Areas Requiring Corrective Action	NUREG-0654 FEMA-REP-1 Rev.1 Reference <sup>a</sup>	FEMA Objective <sup>b</sup>	<u>Exercise</u> <u>Date</u> 09/23/92	<u>Date of</u> <u>Previous</u> <u>Exercise</u>	Present Status <sup>c</sup>
4.	The bus drivers did not demonstrate a thorough knowledge or understanding of the ECL definitions. The dispatcher did not relay ECL information to the drivers.	0.4	1		11/14/90	C
5.	Of the two school evacuation bus drivers, one was unsure of the exposure reporting requirements. Additional training should be provided to the bus drivers in exposure limits.	K.3.a K.3.b	5		11/14/90	C
6.	One of the school evacuation bus drivers did not know the purpose of the trip to the school and then to the School Reception Center. Additional training is needed for bus drivers to reinforce in them their role during an evacuation.	J.9 J.10.g	16		11/14/90	C
7.	A School Evacuation Bus Driver's route map, showing how to get to the School Reception Center, was incorrect. A review of the maps is necessary to get the evacuees to their designated locations.	J.9 J.10.g	16		11/14/90	C
8.	The general population bus driver missed two stops on the bus route. The first was missed because a number was missing on a mail box (134) and the second was missed because an intersection was not marked. Though the driver was aware of the missed stops, additional training is necessary regarding the location of stops along each bus route. Road markings need to be readily visible for all bus stops.	J.10.g	15		11/14/90 3/22/88	C

Table 12  
Indian Point Nuclear Power Station - September 23, 1992  
Summary of Areas Requiring Corrective Action

Rockland County

No.	Areas Requiring Corrective Action	NUREG-0654 FEMA-REP-1 Rev.1 Reference <sup>a</sup>	FEMA Objective <sup>b</sup>	<u>Exercise</u> <u>Date</u> 09/23/92	<u>Date of</u> <u>Previous</u> <u>Exercise</u>	Present Status <sup>c</sup>
1.	At the request of the Director of the Bergen County Office of Emergency Management, Bergen County received faxed copies of EBS messages 1 and 2 from Rockland County. Messages 3 through 5 were not received. Bergen County staff were not aware of EBS messages 6 and 7.	F.1.b	4	X		I
2.	One individual at the Reception Center was aware of the 1 R, 3 R, and 5 R reporting requirements, but was uncertain as to the proper units of measurement. He said "mR" instead of "R".	K.3.b.4.	5	X		I
3.	The vehicle monitor at the Reception Center touched a contaminated car with his hand while monitoring. This resulted in the potential for cross contamination.	J.10.h	18	X		I
	The two monitors in the men's shower area were uncertain about the following areas: (1) mission dose levels and units (Roentgens instead of milli-Roentgens), (2) the proper order for the use of cleaners (start with mild soap and then move on to the fourth attempt with Lava soap), (3) the correct position of the probe window on the CDV-700. The probe window was in the "closed" position instead of the "open" position, (4) the proper procedure to employ if an individual could not be decontaminated after four attempts, and (5) the proper use of cloth towels (as in the women's shower area), instead of paper towels for drying the hands and arms	K.5.a. H.10	22	X		I
5.	There was confusion in the RCEOC concerning the proper use of Table 1 from Procedure DOH-5. This could have lead to incorrect dose projections. Also, there was some uncertainty as to how to relate field measurement data to the projected dose calculations. Additional training should be provided on the use of Table 1 of Procedure DOH-5 and on the use of environmental data and field measurements.	I.10	7	11/14/90		C

Table 12 (Continued)

No.	Areas Requiring Corrective Action	NUREG-0654 FEMA-REP-1 Rev.1 Reference <sup>a</sup>	FEMA Objective <sup>b</sup>	<u>Exercise</u> <u>Date</u> 09/23/92	<u>Date of</u> <u>Previous</u> <u>Exercise</u>	Present Status <sup>c</sup>
6.	The intersection of Strawtown Road and Demarest Avenue, a TCP, was not included on the TCP Map used in the RCEOC. The map, used in the RCEOC should be revised to agree with County procedures.	J.10.j J.10.k	20		11/14/90	C
7.	The field team members did not understand the reason for open and closed window measurements or the reason for waist height (3 foot) and ground level (3 inch) measurements.	I.8, I.11	7		11/14/90	C
8.	All instruments were bagged in plastic for contamination control, while monitoring en route to the first sampling location. However at the first sampling location, the plastic covering was removed and not replaced while monitoring in the plume.	I.8, I.11	7		11/14/90	C
9.	The air sampler was assembled properly outside the plume and then put inside a plastic bag to protect the sampler from contamination and protect the back of the vehicle from being contaminated after the sample was collected. This was very good, but the bagged sampler was then placed back in the equipment case necessitating opening the case in the plume to get the sampler out. Additional training should be provided to the Field Monitoring Teams in sampling procedures and contamination control.	I.8, I.11	6		11/14/90	C
10.	The field team members were provided with an exposure card indicating 1 R/hr reporting level. However, the plan calls for a 3 R/hr reporting level.	I.8	5		11/14/90	C
11.	The Field Monitoring Team Coordinator frequently provided situation and meteorological information to the Field Monitoring Team. However, the protective actions being taken were not provided to the field team. Protective actions, particularly evacuations, should be provided to the Field Monitoring Team so that, if possible, they can avoid travelling on evacuation routes.	F.11.e	4		11/14/90	C
12.	The Police Officers, manning the TCPs, lacked the required knowledge regarding the use of the dosimetry equipment. Additional training and briefings prior to dispatch should be given to Police Officers assigned to traffic control	K.3.a K.3.b	5		11/14/90	C

Table 13  
Indian Point Nuclear Power Station - September 23, 1992  
Summary of Areas Requiring Corrective Action

Westchester County

No.	Areas Requiring Corrective Action	NUREG-0654 FEMA-REP-1 Rev.1 Reference <sup>a</sup>	FEMA Objective <sup>b</sup>	<u>Exercise</u> <u>Date</u> 09/23/92	<u>Date of</u> <u>Previous</u> <u>Exercise</u>	Present Status <sup>c</sup>
1.	The first update of the "Projected Radiation Exposure Data" status board did not occur until 1428 in the Operations Room, approximately one hour after the 1310 time of release.	H	2	X		I
2.	The Radiological Officer from Putnam County made arrangements with Westchester County to obtain Westchester's field data as it became available. For reasons unknown, Westchester County's dose assessment staff did not provide any of their field measurements to their counter-parts.	H.1	9	X		I
3.	EBS messages 2 and 3 incorrectly listed sheltering ERPAs 50 and 51. Planning areas 50 and 51 were previously sheltered. EBS message 6 correctly stated the decision made to shelter planning areas 50 and 51, and thereby, were correctly shown in the EBS message that followed.	G.3.a G.4.a	10	X		I
4.	At 0910, a decision was made to shelter the schools in the City of Peekskill, and to relocate the students attending schools in the Hendrick Hudson Central (located in ERPAs 1 and 4) and Lakeland Central School Districts (located in ERPAs 8 and 9) to schools located in ERPAs 10, 11, and 49. St Patrick's Pre-K school, located in Verplank (ERPA 3), was ordered to close for the day. This information did not appear in a news release until 1125.	G.3.a G.4.a	10	X		I



Table 13 (Continued)

No.	Areas Requiring Corrective Action	NUREG-0654 FEMA-REP-1 Rev.1 Reference <sup>a</sup>	FEMA Objective <sup>b</sup>	Exercise Date 09/23/92	Date of Previous Exercise	Present Status <sup>c</sup>
5.	The first school evacuation bus driver had a simulated reading on his dosimeter of 1.5 R. He phoned this information to his dispatcher, who ordered him to return to the bus depot. The dispatcher told the driver to return to the bus garage. By doing this, the driver could have unnecessarily spread contamination to the bus garage. There is no record of the dispatcher contacting the WCEOC, who should have instructed the dispatcher on the proper actions. The dispatcher should be instructed to obtain direction from the WCEOC when exposure levels of 1 R or greater are reached on any of the bus routes.	K.3.a K.3.b	5		11/14//90	C
6.	The general population bus driver for Route GP025 did not record the dosimeter readings on the Individual Radiation Exposure Record. No specific action was taken by the general population bus driver upon the exercise inject of the high dosimeter reading. The message was ignored by the driver. Additional training is necessary, emphasizing recording requirements and reporting requirements.	K.3.a K.3.b	5		11/14/90	C
7.	The bus drivers for the general evacuation were not clear on the limits to exposure. Additional training should be given, and the limits to exposure could be indicated on the checklists or record cards for quick reference.	K.3.a K.3.b	5		11/14/90 3/22/88	C
8.	The bus dispatcher and the drivers at the Hendrick Hudson School District Garage were not familiar with the definitions of all emergency classification levels. The staff should be trained in the understanding and use of ECLs.	0.4	1		11/14/90	C

Table 14  
Indian Point Nuclear Power Station - September 23, 1992  
Summary of Areas Requiring Corrective Action

Dutchess County

No.	Areas Requiring Corrective Action	NUREG-0654 FEMA-REP-1 Rev.1 Reference <sup>a</sup>	FEMA Objective <sup>b</sup>	<u>Exercise</u>	<u>Date</u>	Present Status <sup>c</sup>
				09/23/92	Previous Exercises	
1.	The quality of facsimile copies received at the EOC from the Southern District SEMO Office was unsatisfactory.	G.3.a, H.3	2	X		I
2.	The monitors in the Reception Center men's shower area were unaware of the correct method for handling the radioactive waste.	J.10.h	18	X		I
3.	Maps indicating the location of the Congregate Care Centers were not available for dissemination. This is a problem for individuals who may want to drive in their own vehicles to the Center, but are not familiar with the area.	J.10.h	18	X		I
4.	It was unclear where "clean" cars would be parked after being monitored and decontaminated, as no signs was available to direct the cars	J.12	18	X		I
5.	Security for the Congregate Care Center at the Poughkeepsie Middle School was not requested until half-way into the demonstration.	H	19	X		I
6.	The gymnasium and auditorium were under repair. In an actual event, the gym could have been cleared of debris, but the strong odor of a gasoline engine was present, possibly creating a health hazard.	H	19	X		I

Table 15  
Indian Point Nuclear Power Station - September 23, 1992  
Summary of Areas Requiring Corrective Action

Bergen County

No.	Areas Requiring Corrective Action	NUREG-0654 FEMA-REP-1 Rev.1 Reference <sup>a</sup>	FEMA Objective <sup>b</sup>	<u>Exercise</u> <u>Date</u> 09/23/92	<u>Date of</u> <u>Previous</u> <u>Exercise</u>	Present Status <sup>c</sup>
1.	Several provisions of the Rockland County Plan, dated March 1992, were not executed. Once notified of the Alert ECL, the Bergen County Office of Emergency Management did not call the Bergen County Police or the local Police Coordinator, per paragraph 5.2.1. The Bergen County Executive and the Coordinator of the Bergen County Office of Emergency Management were not notified, per paragraph 5.2.2. The New Jersey State Office of Emergency Management was not contacted, per paragraph 5.2.3. The American Red Cross was not called, per paragraph 5.2.4. An ARC representative happened to come by within 20 minutes of Alert ECL receipt. In activating the EOC, the facsimile machine was tested but not all telephones were checked for operability, per paragraph 5.3.1.1. A staff sign-in sheet was not used, per paragraph 5.3.8.	N.1.a	1	X		I
2.	The backup power generator was not operational, but portable generators could be in-place within one hour.	H	2	X		I
3.	An actual shift change was demonstrated in one EOC position. The extent of play agreement listed three positions for a shift change.	A.4	30	X		I

Table 16  
Indian Point Nuclear Power Station - September 23, 1992  
Summary of Areas Requiring Corrective Action

Putnam County Medical Drills

No.	Areas Requiring Corrective Action	NUREG-0654 FEMA-REP-1 Rev.1 Reference <sup>a</sup>	FEMA Objective <sup>b</sup>	<u>Exercise Date</u> 09/23/92	<u>Date of Previous Exercise</u>	Present Status <sup>c</sup>
1.	The patient was not adequately wrapped to prevent the spread of contamination during transport to the medical facility. Additional training should be provided in the proper handling of radiologically contaminated patients.	L.4	20		09/27/90	C
2.	The ambulance crew was not provided adequate protective clothing nor material to drape the inside of the vehicle. Additional training should be provided on the use of protective clothing and draping material.	L.4	20		09/27/90	C

## 5. SUMMARY OF PLAN ISSUES

Table 17 of this section summarizes the plan issues identified in the September 23, 1992 exercise.

Table 17  
Indian Point Nuclear Power Station - September 23, 1992  
Summary of Plan Issues

### New York State

1. **Description:** Even though the State's dose assessment personnel were recommending evacuation out to two miles and the Counties were still in command because no State of Emergency was declared, the State's command staff failed to recommend evacuation to Westchester County. The State's plan makes reference to implementing "General Sheltering" in lieu of evacuation due to "time constraints" should be deleted from the plans. This is found in Section 2.5.2, Plume Exposure Protective Action Response Options, page III-41/42, lines 7-10 .

**Recommendations:** The State' plan referring to implementing "General Sheltering" in lieu of evacuation due to "time constraints" should be deleted from the plan.

### Rockland County

1. **Description:** The directions listed in the bus package for evacuation route 28 are incorrect.

**Recommendation:** Correct the bus directions and review them with input from the various bus companies.

Table 15 (Cont)

Westchester County

1. **Description:** The Acting County Executive failed to order the evacuation of ERPAs 2, 7 and in spite of the fact that a GE had been declared at 1146, county dose assessment personnel were projecting a dose of 23 R/hour, and utility, State, and county were all recommending evacuation out to two miles (State) and five miles (county and utility). Key factors in the Acting County Executive's decision not to evacuate were (1) the failure of the county plan to specifically require evacuation at the time of the GE, (2) concerns about the logistics and time required to evacuate ERPA 2, (3) the demographics of ERPA 2, and (4) concern that the wind direction might change resulting in the possible exposure to radiation of people who were being evacuated.

**Recommendations:** Sections of the County plan dealing with protective actions, sheltering and evacuation, should be revised and corrected to resolve existing plan inadequacies and ambiguities. Specifically, the following revisions and corrections should be made in the plan and procedures.

- The general evacuation section(s) should be amended to state that, based either upon plant conditions or projected doses in excess of 1 R whole body or 25 R thyroid, an evacuation of the general population must immediately be ordered, unless adverse weather conditions prohibit evacuation. This is in accordance with Table 2-1 of EPA-400, dated October 1, 1991. The general sheltering section(s) should be amended to state that general sheltering must be recommended whenever adverse weather conditions prevent the implementation of an order to evacuate.
- The section(s) discussing procedures to be followed in the event of a GE declaration should require, and contain procedures for, a mandatory evacuation of the general population within a two-mile radius and five miles downwind from the plant immediately upon the declaration of a GE, unless adverse weather conditions prohibit evacuation.
- The plan's response action level guidelines for a GE ECL should be amended to include the language, contained in the NRC working paper entitled "Revised Protective Action Recommendations for Severe Accidents," dated August 20, 1993. Specifically, this language states: "For severe core damage accidents, recommend evacuation for two-mile radius and 5 miles downwind (unless conditions make evacuation hazardous) and assess need to extend distances. Shelter reminder of the plume EPZ."



- ° Any other plan sections which discuss sheltering or evacuation and/or procedures to be followed under a GE declaration should contain language consistent with the points above.
- ° "Time constraints" are not a valid justification for making a decision to shelter, rather than evacuate. Any plan (State or county) references to implementing "General Sheltering" in lieu of evacuation due to "time constraints" should be deleted for the plans. An example of this is found in the New York State Plan, Section 2.5.2, Plume Exposure Protective Action Response Options, page III-42, lines 7-10.
- ° It is deemed necessary to revise and update the Evacuation Time Estimates (ETEs). The State should provide a time schedule and plan of action for accomplishing this revision and update of the ETEs within a reasonable period of time.
- ° The revised and corrected plans should (1) emphasize the importance of thorough communication and coordination, as appropriate, among all State, county, and utility emergency response personnel at all levels of a radiological emergency and (2) develop and establish a mechanism in the plan and/or procedures to foster and facilitate that kind of communication and coordination.

Once the plans have been appropriately revised and corrected, training should be provided, as appropriate, to all radiological emergency response personnel involved in the protective action decision making process and implementing of these protective actions.

#### Bergen County

1. **Description:** Alert ECL notification from Rockland County to the Bergen County Communications Center did not occur, per paragraph 5.1.1. Instead, the telephone call went directly from Rockland County to the Bergen County Office of Emergency Management because the office was open at that time.

**Recommendation:** The Rockland County plan should be revised to state that all calls will be made to the Bergen County Communications Center during non-working hours.