



# POST EXERCISE ASSESSMENT

November 14, 1990 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

August 28, 1991

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## FEDERAL EMERGENCY MANAGEMENT AGENCY

Region II

26 FEDERAL PLAZA, NEW YORK, NY 10278

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## CONTENTS

PARTICIPATING GOVERNMENTS .....	iv
ACRONYMS.....	v
SUMMARY.....	1
1 INTRODUCTION.....	3
1.1 Exercise Background.....	3
1.2 Federal Evaluators.....	4
1.3 Evaluation Criteria.....	7
1.4 Exercise Objectives.....	7
1.4.1 New York State Emergency Operations Center.....	8
1.4.2 Southern District Emergency Operations Center.....	8
1.4.3 Emergency Operations Facility.....	9
1.4.4 Joint News Center.....	9
1.4.5 Orange County Emergency Operations Center.....	9
1.4.6 Orange County Field Activities.....	10
1.4.7 Putnam County Emergency Operations Center.....	11
1.4.8 Putnam County Field Activities.....	12
1.4.9 Rockland County Emergency Operations Center.....	12
1.4.10 Rockland County Field Activities.....	13
1.4.11 Westchester County Emergency Operations Center.....	14
1.4.12 Westchester County Field Activities.....	14
1.4.13 Dutchess County Emergency Operations Center.....	15
1.4.14 Dutchess County Field Activities.....	16
1.4.15 Bergen County, New Jersey, Emergency Operations Center...	16
1.4.16 Bergen County, New Jersey, Field Activities.....	16
1.5 Objective Descriptions.....	17
1.6 Exercise Scenario.....	21
1.6.1 Scenario Overview.....	21
2 EXERCISE EVALUATION.....	26
2.1 New York State.....	26
2.1.1 New York State Emergency Operations Center.....	26
2.1.2 Southern District Emergency Operations Center.....	29
2.2 Emergency Operations Facility.....	31
2.3 Joint News Center.....	34
2.4 Orange County, New York.....	39
2.4.1 Orange County Emergency Operations Center.....	39
2.4.2 Orange County Field Activities.....	47
2.4.2.1 Field Monitoring Team.....	47
2.4.2.2 Traffic Control Points.....	49
2.4.2.3 School Evacuation Bus Runs.....	51
2.4.2.4 General Population Evacuation Bus Runs.....	52
2.4.2.5 Reception Center.....	54
2.4.2.6 Congregate Care Center.....	56
2.4.2.7 Personnel Monitoring Center.....	57
2.4.2.8 School Interview.....	59
2.4.2.9 Medical Drill.....	59

2.5	Putnam County, New York.....	62
2.5.1	Putnam County Emergency Operations Center.....	62
2.5.2	Putnam County Field Activities.....	67
2.5.2.1	Field Monitoring Team.....	68
2.5.2.2	Traffic Control Points.....	70
2.5.2.3	School Evacuation Bus Runs.....	71
2.5.2.4	General Population Evacuation Bus Runs.....	72
2.5.2.5	Personnel Monitoring Center.....	74
2.5.2.6	School Interviews.....	75
2.5.2.7	Medical Drill.....	77
2.6	Rockland County, New York.....	79
2.6.1	Rockland County Emergency Operations Center.....	79
2.6.2	Rockland County Field Activities.....	85
2.6.2.1	Field Monitoring Team.....	85
2.6.2.2	Traffic Control Points.....	89
2.6.2.3	School Evacuation Bus Runs.....	90
2.6.2.4	General Population Evacuation Bus Runs.....	91
2.6.2.5	Reception Center.....	92
2.6.2.6	Personnel Monitoring Center.....	94
2.6.2.7	School Interviews.....	95
2.7	Westchester County, New York.....	98
2.7.1	Westchester County Emergency Operations Center.....	98
2.7.2	Westchester County Field Activities.....	103
2.7.2.1	Field Monitoring Team.....	103
2.7.2.2	Traffic Control Points.....	105
2.7.2.3	School Evacuation Bus Runs.....	105
2.7.2.4	General Population Evacuation Bus Runs.....	107
2.7.2.5	Reception Center.....	111
2.7.2.6	Congregate Care Center.....	112
2.7.2.7	Personnel Monitoring Center.....	114
2.7.2.8	School Interviews.....	115
2.7.2.9	Medical Drill.....	117
2.8	Dutchess County, New York.....	119
2.8.1	Dutchess County Emergency Operations Center.....	119
2.8.2	Reception Center.....	120
2.8.3	Congregate Care Center.....	122
2.9	Bergen County, New Jersey.....	124
2.9.1	Bergen County Emergency Operations Center.....	124
2.9.2	Congregate Care Center.....	125
3	REMOVAL OF COMPLETED ARCAs FROM PREVIOUS PEA.....	129
4	SUMMARY OF AREAS REQUIRING CORRECTIVE ACTION.....	130
5	SUMMARY OF PLANNING INADEQUACIES.....	149



## TABLES

1	Events and Simulated Off-site Events Matrix.....	23
2	Emergency Classification Timeline.....	24
3	Protective Action Decision/Public Notification Timeline.....	25
4	ARCA Summary - New York State EOC.....	131
5	ARCA Summary - New York State Southern District EOC.....	132
6	ARCA Summary - Emergency Operations Facility.....	133
7	ARCA Summary - Joint News Center.....	134
8	ARCA Summary - Orange County.....	136
9	ARCA Summary - Putnam County.....	139
10	ARCA Summary - Rockland County.....	141
11	ARCA Summary - Westchester County.....	144
12	ARCA Summary - Dutchess County.....	146
13	ARCA Summary - Bergen County, New Jersey.....	147
14	ARCA Summary - Medical Drills.....	148
15	Summary of Planning Inadequacies.....	149

## PARTICIPATING GOVERNMENTS

The State of New York  
Orange County, New York  
Putnam County, New York  
Rockland County, New York  
Westchester County, New York  
Dutchess County, New York  
Bergen County, New Jersey

## NON-PARTICIPATING GOVERNMENTS

None

# ACRONYMS

A&E	Assessment and Evaluation
ANL	Argonne National Laboratory
ARC	American Red Cross
ARCA	Area Requiring Corrective Action
ARFI	Area Recommended for Improvement
BEOC	Bergen County Emergency Operations Center
BOCES	Board Of Cooperative Educational Services
CADEMO	County Assistant Director of the Emergency Management Office
CAN	Community Alert Network
CAP	Civil Air Patrol
CRO	Control Room Operator
DEOC	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
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
HHS	U.S. Department of Health and Human Services
INEL	Idaho National Engineering Laboratory
IP-2	Indian Point Nuclear Power Station
JNC	Joint News Center
KI	Potassium Iodide
LNO	Liaison Officer
LOCA	Loss of Coolant Accident
MIDAS	Meteorological Information and Dose Assessment System
NRC	U.S. Nuclear Regulatory Commission
NYSP	New York State Police
OEOC	Orange County Emergency Operations Center
OMRDD	Office of Mental Retardation and Developmental Disabilities
PAD	Protective Action Decision
PAG	Protective Action Guide
PAR	Protective Action Recommendation
PEOC	Putnam County Emergency Operations Center
PIO	Public Information Officer
PMC	Personnel Monitoring Center
RAC	Regional Assistance Committee
RACES	Radio Amateur Civil Emergency Services
RCS	Reactor Coolant System
RECS	Radiological Emergency Communications System
REOC	Rockland County Emergency Operations Center
RERP	Radiological Emergency Response Plans
SAE	Site Area Emergency

SDEOC	Southern District Emergency Operations Center
SEMO	State Emergency Management Officer
SEOC	State Emergency Operations Center
TCP	Traffic Control Point
TLD	Thermoluminescent Dosimeter
USDA	U.S. Department of Agriculture
WP	Warning Point
WEOC	Westchester County Emergency Operations Center

## SUMMARY

On November 14, 1990, a team of 47 Federal evaluators assessed the level of State and County preparedness in responding to a radiological emergency at the Indian Point Nuclear Power Station. This exercise involved Indian Point Unit 2 (IP-2), which is owned by Consolidated Edison. It was a full-participation, announced exercise occurring between 0715 and 1700. Following the exercise, a preliminary evaluation was made by the Radiological Assistance Committee (RAC) Chairman and the Federal evaluation team. A briefing for County and State exercise participants, emergency management staff, and utility representatives, was held on Friday, November 16, 1990, at 1030 in the Bear Mountain Inn 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 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, so as not to affect the general public

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

## 1. INTRODUCTION

### 1.1 EXERCISE BACKGROUND

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

- Taking the lead in off-site emergency planning and in the review and evaluation of radiological emergency response plans developed by State and local governments,
- Determining whether such plans can be implemented, on the basis of observation and evaluation of exercises of the plans conducted by State and local governments, 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. In Region II, Paul Weberg is the RAC Chairman.

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 first joint radiological emergency preparedness exercise for the IPNS was conducted on March 3, 1982, and two public meetings were held in June 1982 to acquaint the public with the plan contents, answer questions, and receive suggestions on the plans.

A second joint exercise was conducted on March 9, 1983, and the post-exercise assessment was issued by FEMA, Region II on April 14, 1983. An exercise of New York State's Interim Plan for implementing compensating measures for Rockland County was conducted on August 14-15, 1983, and the post-exercise assessment was issued by FEMA Region II on September 16, 1983. A third joint exercise was conducted on November 18, 1984, and the post-exercise assessment was issued by FEMA Region II on February 17, 1985. Following this full-scale exercise, a remedial exercise was held on April 10, 1985, to evaluate the implementation of corrective actions taken by the State and local governments.

A fourth joint exercise was conducted on June 4, 1986. Following this full-scale exercise, several remedial exercises were held between November 10, 1986, and December 3, 1986, for Westchester, Rockland, and Orange Counties. On February 18, 1987, another remedial exercise was conducted in Westchester County. A fifth joint exercise (unannounced) was conducted on March 22, 1988, by the New York State Power Authority. In conjunction with the March 22, 1988, exercise, a medical drill was conducted in Westchester County. A remedial drill was conducted on March 29, 1988. Each of these exercises was designed to assess the capability of the State and local emergency preparedness organizations to implement their radiological emergency plans and procedures and protect the public in a radiological emergency involving IPNS.

The 47 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, November 16, 1990. A Public Meeting, as required by 44 CFR 350, was conducted on November 20, 1990.

The findings presented in this report are based on the findings of the evaluators, with final determinations by the FEMA Region II RAC Chairman. FEMA requests that New York State and the Counties submit corrections to planning inadequacies in the next plan revision.

## 1.2 FEDERAL EVALUATORS

Forty-seven 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. Anthony	ANL	Rockland County School Evacuation Bus Runs Orange County Reception Center
R. Bernacki	FDA	Westchester County Congregate Care Center



V. Beverly	FEMA	Rockland County EOC Team Leader
G. Brozowski	FEMA	Putnam County Field Monitoring, Personnel Monitoring Center, and School Interviews
K. Call	FEMA	Orange County EOC, Team Leader, School Interviews, and Equipment Inventory Review
T. Carroll	ANL	Putnam County Reception Center and Personnel Monitoring Center
G. Connolly	FEMA	Westchester County EOC, Team Leader
A. Davis	FEMA	Four County Communications Hardware Analysis
D. Duncan	ANL	Rockland County Field Monitoring
M. Farrell	FEMA	Putnam County Traffic Control Points
H. Fish	ANL	Putnam County Warning Point and EOC Communications and Operations
K. Flynn	ANL	Orange County Personnel Monitoring Center and School Evacuation
E. Fox	NRC	Emergency Operations Facility
B. Galloway	FEMA	Putnam County Congregate Care Center
S. Gray	FEMA	New York State EOC, Team Leader
E. Hakala	ANL	Rockland County Congregate Care Center
A. Hall	ANL	Putnam County General Population Evacuation
C. Hunckler	ANL	Westchester County Warning Point and EOC Communications and Operations
G. Jacobson	ANL	Orange County Field Monitoring
S. James	FEMA	Joint News Center Distribution of Public Information
B. Jones	FEMA	Putnam County School Evacuation and Rockland County Congregate Care Center
P. Kier	ANL	Rockland County Warning Point and EOC Communications and Operations
W. Knoerzer	ANL	Orange County Traffic Control Points and Congregate Care Center

W. Leuders	ANL	Rockland County Traffic Control Points and Orange County Reception Center
A. Lookabaugh	ANL	New York State Southern District Office
J. Megruder	EPA	Westchester County Field Monitoring
J. Mitrani	ANL	Orange County General Population Evacuation and Personnel Monitoring Center
S. Nelson	ANL	New York State Warning Point and EOC Communications and Operations
S. Peleschak	INEL	Putnam County EOC Dose Assessment
M. Pensak	EPA	Westchester County Reception Center
D. Petta	DOT	Bergen County EOC
E. Robinson	ANL	Rockland County Reception Center
B. Salmonson	INEL	Rockland County EOC Dose Assessment
L. Schmidt	ANL	Hotel Based Liaison
W. Serrano	INEL	Orange County EOC Dose Assessment
L. Slagle	INEL	Westchester County EOC Dose Assessment
N. Smith	ANL	Orange County Warning Point and EOC Communications and Operations
J. Staroba	ANL	Westchester County Personnel Monitoring Center
J. Sutch	ANL	Westchester County School Evacuation Bus Runs
A. Teotia	ANL	Westchester County General Evacuation Bus Runs
L. Testa	FEMA	EBS Station and Westchester County Traffic Control Points
A. Thompson	FEMA	Rockland County General Evacuation Bus Runs
W. Trolenberg	ANL	New York State EOC Dose Assessment Activities
P. Weberg	FEMA	RAC Chairman
M. Willis	ANL	Dutchess County EOC Team Leader
F. Wilson	ANL	Rockland County Personnel Monitoring Center

### 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-1, Rev. 1, Sec. II. For the purpose of exercise assessment, FEMA uses an evaluation methodology to apply the criteria of NUREG-0654. FEMA classifies exercise inadequacies as Deficiencies or Areas Requiring Corrective Action (ARCA). Deficiencies are demonstrated and observed inadequacies that would cause a finding that off-site emergency preparedness is not adequate to provide reasonable assurance that appropriate protective measures can be taken to protect the health and safety of the public living in the vicinity of a nuclear power facility in the event of a radiological emergency. Because of the potential impact of Deficiencies on emergency preparedness, any deficiencies must be corrected as soon as possible through appropriate remedial actions, including remedial exercises, drills, or other actions. ARCA's are demonstrated and observed inadequacies of State and local government performance, and although their correction is required, they are not considered, by themselves, to adversely impact public health and safety. An ARCA which is not corrected in the next biennial exercise may be reclassified as a Deficiency. In addition to these inadequacies, FEMA also identifies Areas Recommended For Improvement (ARFI), which are problem areas observed during an exercise that are not considered to adversely impact public health and safety. While not required, correction of these problems 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 Consolidated Edison's Indian Point Nuclear Power Plant Station (IP-2). The exercise was to involve activation and participation of staff and response facilities of IP-2 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 the emergency workers telling the Federal evaluator what actions would be taken, rather than actual demonstrations requiring 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 IP-2 or in the safety of the public.

The State of New York, Orange County, Putnam County, Rockland County, Westchester County, Bergen County, Dutchess County, Consolidated Edison and FEMA agreed on the use of certain objectives for the evaluation of each facility to be activated in this exercise. A full description of these objectives is contained at the end of this section.

#### **1.4.1 New York State Emergency Operations Center**

- Objective 1 - Emergency Classification Levels
- Objective 2 - Mobilization of Emergency Personnel
- Objective 3 - Direction and Control
- Objective 4 - Communications
- Objective 5 - Facilities, Equipment and Displays
- Objective 10 - Plume Dose Projection
- Objective 11 - Plume Protective Action Decision Making
- Objective 12 - Alert, Notification and Emergency Information -Initial Alert and Notification
- Objective 13 - Initial Alert and Notification - Public Instructions
- Objective 16 - Use of KI

#### **1.4.2 Southern District Emergency Operations Center**

- Objective 1 - Emergency Classification Levels
- Objective 2 - Mobilization of Emergency Personnel
- Objective 3 - Direction and Control
- Objective 4 - Communications
- Objective 5 - Facilities, Equipment and Displays

#### 1.4.3 Emergency Operations Facility

- Objective 1 - Emergency Classification Levels
- Objective 2 - Mobilization of Emergency Personnel
- Objective 4 - Communications
- Objective 5 - Facilities, Equipment and Displays

#### 1.4.4 Joint News Center

- Objective 1 - Emergency Classification Levels
- Objective 2 - Mobilization of Emergency Personnel
- Objective 4 - Communications
- Objective 5 - Facilities, Equipment and Displays
- Objective 12 - Alert, Notification and Emergency Information - Initial Alert and Notification
- Objective 13 - Initial Alert and Notification - Public Instructions
- Objective 14 - Alert, Notification and Emergency Information - Media
- Objective 15 - Alert, Notification and Emergency Information - Rumor Control

#### 1.4.5 Orange County Emergency Operations Center

- Objective 1 - Emergency Classification Levels
- Objective 2 - Mobilization of Emergency Personnel
- Objective 3 - Direction and Control
- Objective 4 - Communications
- Objective 5 - Facilities, Equipment and Displays
- Objective 6 - Emergency Worker Exposure Control
- Objective 7 - Field Radiological Monitoring - Ambient Radiation Monitoring
- Objective 9 - Field Radiological Monitoring - Particulate Activity

- Objective 10 - Plume Dose Projection
- Objective 11 - Plume Protective Action Decision Making
- Objective 12 - Alert, Notification and Emergency Information - Initial Alert and Notification
- Objective 13 - Initial Alert and Notification - Public Instructions
- Objective 16 - Use of KI
- Objective 18 - Implementation of Protective Actions - Plume Emergency Planning Zone (EPZ)
- Objective 19 - Implementation of Protective Actions - Evacuation of Schools
- Objective 20 - Traffic Control

#### 1.4.6 Orange County Field Activities

- Objective 1 - Emergency Classification Levels
- Objective 2 - Mobilization of Emergency Personnel
- Objective 3 - Direction and Control
- Objective 4 - Communications
- Objective 5 - Facilities, Equipment and Displays
- Objective 6 - Emergency Worker Exposure Control
- Objective 7 - Field Radiological Monitoring - Ambient Radiation Monitoring
- Objective 8 - Field Radiological Monitoring - Airborne Iodine Monitoring
- Objective 9 - Field Radiological Monitoring - Particulate Activity
- Objective 16 - Use of KI
- Objective 18 - Implementation of Protective Actions - Plume EPZ
- Objective 19 - Implementation of Protective Actions - Evacuation of Schools
- Objective 20 - Traffic Control

- Objective 21 - Reception Centers - Registration, Monitoring and Decontamination
- Objective 22 - Relocation Centers - Congregate Care
- Objective 23 - Medical Services - Transportation
- Objective 24 - Medical Services - Facilities
- Objective 25 - Decontamination

#### 1.4.7 Putnam County Emergency Operations Center

- Objective 1 - Emergency Classification Levels
- Objective 2 - Mobilization of Emergency Personnel
- Objective 3 - Direction and Control
- Objective 4 - Communications
- Objective 5 - Facilities, Equipment and Displays
- Objective 6 - Emergency Worker Exposure Control
- Objective 7 - Field Radiological Monitoring - Ambient Radiation Monitoring
- Objective 9 - Field Radiological Monitoring - Particulate Activity
- Objective 10 - Plume Dose Projection
- Objective 11 - Plume Protective Action Decision Making
- Objective 12 - Alert, Notification and Emergency Information - Initial Alert and Notification
- Objective 13 - Initial Alert and Notification - Public Instructions
- Objective 16 - Use of KI
- Objective 18 - Implementation of Protective Actions - Plume EPZ
- Objective 19 - Implementation of Protective Actions - Evacuation of Schools
- Objective 20 - Traffic Control

#### **1.4.8 Putnam County Field Activities**

- Objective 1 - Emergency Classification Levels
- Objective 2 - Mobilization of Emergency Personnel
- Objective 4 - Communications
- Objective 5 - Facilities, Equipment and Displays
- Objective 6 - Emergency Worker Exposure Control
- Objective 7 - Field Radiological Monitoring - Ambient Radiation Monitoring
- Objective 8 - Field Radiological Monitoring - Airborne Iodine Monitoring
- Objective 9 - Field Radiological Monitoring - Particulate Activity
- Objective 16 - Use of KI
- Objective 18 - Implementation of Protective Actions - Plume EPZ
- Objective 19 - Implementation of Protective Actions - Evacuation of Schools
- Objective 20 - Traffic Control
- Objective 23 - Medical Services - Transportation
- Objective 24 - Medical Services - Facilities
- Objective 25 - Decontamination

#### **1.4.9 Rockland County Emergency Operations Center**

- Objective 1 - Emergency Classification Levels
- Objective 2 - Mobilization of Emergency Personnel
- Objective 3 - Direction and Control
- Objective 4 - Communications
- Objective 5 - Facilities, Equipment and Displays
- Objective 6 - Emergency Worker Exposure Control



- Objective 7 - Field Radiological Monitoring - Ambient Radiation Monitoring
- Objective 9 - Field Radiological Monitoring - Particulate Activity
- Objective 10 - Plume Dose Projection
- Objective 11 - Plume Protective Action Decision Making
- Objective 12 - Alert, Notification and Emergency Information - Initial Alert and Notification
- Objective 13 - Initial Alert and Notification - Public Instructions
- Objective 16 - Use of KI
- Objective 18 - Implementation of Protective Actions - Plume EPZ
- Objective 19 - Implementation of Protective Actions - Evacuation of Schools
- Objective 20 - Traffic Control

#### 1.4.10 Rockland County Field Activities

- Objective 1 - Emergency Classification Levels
- Objective 2 - Mobilization of Emergency Personnel
- Objective 4 - Communications
- Objective 5 - Facilities, Equipment and Displays
- Objective 6 - Emergency Worker Exposure Control
- Objective 7 - Field Radiological Monitoring - Ambient Radiation Monitoring
- Objective 8 - Field Radiological Monitoring - Airborne Iodine Monitoring
- Objective 9 - Field Radiological Monitoring - Particulate Activity
- Objective 18 - Implementation of Protective Actions - Plume EPZ
- Objective 19 - Implementation of Protective Actions - Evacuation of Schools
- Objective 20 - Traffic Control

Objective 21 - Reception Centers - Registration, Monitoring and Decontamination

Objective 25 - Decontamination

#### 1.4.11 Westchester County Emergency Operations Center

Objective 1 - Emergency Classification Levels

Objective 2 - Mobilization of Emergency Personnel

Objective 3 - Direction and Control

Objective 4 - Communications

Objective 5 - Facilities, Equipment and Displays

Objective 6 - Emergency Worker Exposure Control

Objective 7 - Field Radiological Monitoring - Ambient Radiation Monitoring

Objective 9 - Field Radiological Monitoring - Particulate Activity

Objective 10 - Plume Dose Projection

Objective 11 - Plume Protective Action Decision Making

Objective 12 - Alert, Notification and Emergency Information - Initial Alert and Notification

Objective 13 - Initial Alert and Notification - Public Instructions

Objective 16 - Use of KI

Objective 18 - Implementation of Protective Actions - Plume EPZ

Objective 19 - Implementation of Protective Actions - Evacuation of Schools

Objective 20 - Traffic Control

#### 1.4.12 Westchester County Field Activities

Objective 1 - Emergency Classification Levels

Objective 2 - Mobilization of Emergency Personnel

- Objective 4 - Communications
- Objective 5 - Facilities, Equipment and Displays
- Objective 6 - Emergency Worker Exposure Control
- Objective 7 - Field Radiological Monitoring - Ambient Radiation Monitoring
- Objective 8 - Field Radiological Monitoring - Airborne Iodine Monitoring
- Objective 9 - Field Radiological Monitoring - Particulate Activity
- Objective 16 - Use of KI
- Objective 18 - Implementation of Protective Actions - Plume EPZ
- Objective 19 - Implementation of Protective Actions - Evacuation of Schools
- Objective 20 - Traffic Control
- Objective 21 - Reception Centers - Registration, Monitoring and Decontamination
- Objective 22 - Relocation Centers - Congregate Care
- Objective 23 - Medical Services - Transportation
- Objective 24 - Medical Services - Facilities
- Objective 25 - Decontamination

#### **1.4.13 Dutchess County Emergency Operations Center**

- Objective 1 - Emergency Classification Levels
- Objective 2 - Mobilization of Emergency Personnel
- Objective 3 - Direction and Control
- Objective 4 - Communications
- Objective 5 - Facilities, Equipment and Displays

#### **1.4.14 Dutchess County Field Activities**

Objective 4 - Communications

Objective 5 - Facilities, Equipment and Displays

Objective 6 - Emergency Worker Exposure Control

Objective 21 - Reception Center - Registration, Monitoring and  
Decontamination

Objective 22 - Relocation Center - Congregate Care

#### **1.4.15 Bergen County, New Jersey, Emergency Operations Center**

Objective 1 - Emergency Classification Levels

Objective 2 - Mobilization of Emergency Personnel

Objective 3 - Direction and Control

Objective 4 - Communications

Objective 5 - Facilities, Equipment and Displays

#### **1.4.16 Bergen County, New Jersey, Field Activities**

Objective 4 - Communications

Objective 22 - Relocation Centers - Congregate Care

## 1.5 OBJECTIVE DESCRIPTIONS

### Objective 1      Emergency Classification Levels

Demonstrate the ability to monitor, understand and use emergency classification levels (ECL) through the appropriate implementation of emergency functions and activities corresponding to ECL's as required by the scenario. The four ECL's are: Notification of Unusual Event, Alert, Site Area Emergency and General Emergency.

### Objective 2      Mobilization of Emergency Personnel

Demonstrate the ability to fully alert, mobilize and activate personnel for both facility and field-based emergency functions.

### Objective 3      Direction and Control

Demonstrate the ability to direct, coordinate and control emergency activities.

### Objective 4      Communications

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

### Objective 5      Facilities, Equipment and Displays

Demonstrate the adequacy of facilities, equipment, displays and other materials to support emergency operations.

### Objective 6      Emergency Worker Exposure Control

Demonstrate the ability to continuously monitor and control emergency worker exposure.

### Objective 7      Field Radiological Monitoring - Ambient Radiation Monitoring

Demonstrate the appropriate equipment and procedures for determining field radiation measurements.

- Objective 8      Field Radiological Monitoring - Airborne Iodine Monitoring
- Demonstrate the appropriate equipment and procedures for the measurement of airborne radioiodine concentrations as low as  $10^{-7}$  (.0000001) microcuries per cc in the presence of noble gases.
- Objective 9      Field Radiological Monitoring - Particulate Activity
- Demonstrate the ability to obtain samples of particulate activity in the airborne plume and promptly perform laboratory analyses.
- Objective 10      Plume Dose Projection
- Demonstrate the ability, within the plume exposure pathway, to project dosage to the public via plume exposure, based on plant and field data.
- Objective 11      Plume Protective Action Decision Making
- Demonstrate the ability to make appropriate protective action decisions, based on projected or actual dosage, EPA PAG's, availability of adequate shelter, evacuation time estimates and other relevant factors.
- Objective 12      Alert, Notification and Emergency Information - Initial Alert and Notification
- Demonstrate the ability to initially alert the public within the 10-mile EPZ and begin dissemination of an instructional message within 15 minutes of a decision by appropriate State and/or local official(s).
- Objective 13      Alert, Notification and Emergency Information - Public Instructions
- Demonstrate the ability to coordinate the formulation and dissemination of accurate information and instructions to the public in a timely fashion after the initial alert and notification has occurred.
- Objective 14      Alert, Notification and Emergency Information - Media
- Demonstrate the ability to brief the media in an accurate, coordinated and timely manner.

Objective 15

Alert, Notification and Emergency Information - Rumor Control

Demonstrate the ability to establish and operate rumor control in a coordinated and timely fashion.

Objective 16

Use of KI

Demonstrate the ability to make the decision to recommend the use of KI to emergency workers and institutionalized persons based on predetermined criteria, as well as to distribute and administer it once the decision is made, if necessitated by radioiodine releases.

Objective 18

Implementation of Protective Actions - Plume EPZ

Demonstrate 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 population, handicapped persons and institutionalized persons).

Objective 19

Implementation of Protective Actions - Evacuation of Schools

Demonstrate the ability and resources necessary to implement appropriate protective actions for school children within the plume EPZ.

Objective 20

Traffic Control

Demonstrate the organizational ability and resources necessary to control evacuation traffic flow and to control access to evacuated and sheltered areas.

Objective 21

Reception Centers - Registration, monitoring, and Decontamination

Demonstrate the adequacy of procedures, facilities, equipment and personnel for the registration, radiological monitoring and decontamination of evacuees.

Objective 22

Relocation Centers - Congregate Care

Demonstrate the adequacy of facilities, equipment and personnel for congregate care of evacuees.

Objective 23

Medical Services - Transportation

Demonstrate the adequacy of vehicles, equipment, procedures and personnel for transporting contaminated, injured or exposed individuals.

Objective 24

Medical Services - Facilities

Demonstrate the adequacy of medical facility's equipment, procedures and personnel for handling contaminated, injured or exposed individuals.

Objective 25

Decontamination

Demonstrate the adequacy of facilities, equipment, supplies, procedures and personnel for decontamination of emergency workers, equipment and vehicles and for waste disposal.



## 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 - 0645 hrs

Consolidated Edison's Indian Point Unit Number 2 had been operating at 97% power for the prior 60 days. All plant parameters were stable and normal. Equipment not in service included Spray Pump Number 22 and Charging Pump Number 23. Also, the gas turbine auto-transformer had been held off to repair an oil leak.

Drill Commences - 0700 hrs

Reactor Coolant System (RCS) Sample activity results indicated levels above Tech. Spec. The Senior Watch Supervisor should declare a Notification of Unusual Event due to the Tech. Spec. limit being exceeded and should direct the Control Room Operator (CRO) to start plant shutdown. At 0815, chemistry sampling the of RCS showed an increase in activity, indicating a barrier breach. Due to this increase in activity, an Alert was declared.

At 1030, a large break LOCA had occurred and there was a loss of offsite power. All 480 volt busses were stripped and re-energized. SIS Pump No. 22, Cont Spray Pump No. 21 and Serv. Water Pump No. 23 failed to start. FCU No. 24 failed to start and FCU No. 25 had a high vibration. At this time, a Site Area Emergency was declared due to second barrier (RCS) breach.

The gas turbine auto-transformer was empty of oil. Refilling started at approximately 1030. SIS Pump No. 22 failed and had a motor burnout. FCU No. 25 tripped and failed to restart on repeated attempts.

At 1115, recirc sequence was started. Recirc Pump No. 22 failed to start. At 1130, the loss of 480 volt bus 5A removed available core cooling. MOV 882 did not operate after the loss of power. SIS Pump 23 failed to start due to mechanical damage to the coupling.

At 1200, there were indications of core uncovering. At 1215, R025 readings showed  $1.0 \times 10^5$  R/hr causing a General Emergency to be declared due to R-25 greater than  $9.4 \times 10^{-4}$  R/hr.

At 1230, core cooling was re-established.

At 1400, a fork lift dropped through an opening in the floor onto Spray Pump No.2 and piping. The piping broke, providing a release path from the containment. Valve 869 B was shut at 1630, stopping the release.

At 1645, a two day time warp occurred. Reactor was in safe shutdown condition. Core cooling was maintained with no radioactive releases to the environment.

The drill was terminated at 1700.

Table 1 - Events and Simulated Off-Site Event Matrix <sup>a</sup>

Event	----- RISK COUNTIES -----					-- HOST COUNTIES --	
	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 EOF	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>	A	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
Emergency Message Broadcasting	N/A	S	S	S	S	N/A	N/A
Collect Dose Assessment	A	A	A	A	A	N/A	N/A
PAG Recommendation	N/A	A	A	A	A	N/A	N/A
Dispatch Field Survey Teams	N/A	A	A	A	A	N/A	N/A
General 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 Equipment	N/A	S	S	A	A	N/A	N/A
School Interviews	N/A	A	A	A	A	N/A	N/A
Medical Drills	A	A	A	N/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 2 - Emergency Classification Timeline<sup>a</sup>

Emergency Classification	Utility 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	Bergen County EOC
Notification of Unusual Event	0711	0724 <sup>b</sup>	0718 <sup>b</sup>	0718 <sup>b</sup>	0718 <sup>b</sup>	0718 <sup>b</sup>	0718 <sup>b</sup>	N/A	0805	N/A
Alert Notification	0817	0825	0835	0826	0826	0826	0826	0832	0826	0846
Facility Declared Operational	0908	0925	0925	0910	0925	0925	0832	0922	0915	0910
Site Area Emergency Declaration	1034	1037	1037	1037	1037	1037	1037	1040	1037	1042
General Emergency Notification	1218	1223	1223	1223	1223	1223	1223	1222	1223	1227
Release Started	1400	1409	1409	1409	1409	1409	1408	1418	1409	1409
Release Terminated	1630	1645	1645	1645	1645	1645	1645	1648	N/R	N/R
Exercise Termination	1700	1700	1700	1700	1700	1700	1700	1700	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.

Table 3 - Protective Action Recommendation 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	Orange: Putnam: Rockland: Westchester:	All parks have been closed All parks have been closed, Schools have been dismissed early All parks have been closed, Schools have been dismissed early All parks have been closed; Schools respond per plans Hudson River has been closed to navigation	1017	1029	1032	Orange Putnam Rockland  Westchester
2	Orange: Putnam: Rockland: Westchester:	Shelter ERPAs 39, 40 Shelter ERPAs 16, 18 Shelter 29, 38, 39, 40 Shelter ERPAs 2, 4, 7, 8, 9; Evacuate ERPAs 1, 3	1058	1110	1113	Orange Putnam Rockland Westchester
3	Orange: Putnam: Rockland:	Evacuate ERPAs 39, 40 Shelter ERPAs 17, 19 Evacuate ERPAs 29, 38, 39, 40	1130	1142	1145	Orange Putnam Rockland
4	Putnam: Rockland: Westchester:	Evacuate ERPAs 16, 17, 18, 19, 20, 23 Shelter ERPAs 30, 31 Evacuate ERPA 7	1256	1308	1311	Putnam Rockland Westchester
5	Orange: Westchester:	Shelter ERPAs 24, 26 Evacuate School Children in ERPA 26 Shelter ERPAs 5, 6, 47, 48, 49	1329	1341	1344	Orange Westchester
6	Utility	Radioactive Release at the Indian Point Nuclear Plant	1500	1512	1515	Utility
7	Rockland: Westchester:	Shelter ERPAs 32, 33, 34, 35 Evacuate ERPAs 30, 31 Evacuate ERPA 4	1540	1552	1555	Rockland Westchester
8	Rockland:	Shelter ERPA 36	1615	1627	1630	Rockland

<sup>a</sup>Simulation

N/A = Not Applicable

## 2. EXERCISE EVALUATION

### 2.1 NEW YORK STATE

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

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

**SEOC Objective 1 - MET** - After the Unusual Event, which came in over the Radiological Emergency Communication System (RECS) line, the SEOC was notified promptly, by facsimile, of emergency classification level (ECL) changes and verified these changes with the utility, the four counties, and the Southern District EOC over the RECS line. This procedure insured accuracy of the declaration and took about 5 minutes. The ECLs were then communicated to all staff at the SEOC via briefings. The current ECL was prominently displayed, in a timely manner, on status boards in the SEOC. Through these two methods, the staff were aware of the current ECL as soon as it changed or when they arrived at the SEOC.

Below is the notification sequence at the SEOC.

ECL	Time Declared	Time Notified
Unusual Event	0711	0724
Alert	0817	0825
Site Area Emergency	1034	1037
General Emergency	1218	1223

**SEOC Objective 2 - MET** - Notification calls to a limited number of staff via telephone, as required by procedures at the Unusual Event ECL, occurred from 0724 to 0728, and were completed by a New York State trooper at the State Warning Point. Notification calls to place the remainder of staff on standby, as required by procedures at the Alert ECL, were made from the SEOC from 0831 to 0850. All key agency staff were mobilized, and the remainder were placed on standby. All key agency staff arrived within 50 minutes of their notification. Receipt of notification by the Department of Military and Naval Affairs representative was delayed by 20 minutes as they were sending a coded message and no one else was in their office to receive the message. Thus, it took 1 hour 10 minutes, after their agency was notified, to arrive. The remaining staff were alerted promptly (from 1038 to 1047) upon receipt of the Site Area Emergency (SAE). All reported within an hour except the Civil Air Patrol, who had a long (over 1 hour) drive, and the representative from the Office of Mental Retardation and Developmental Disabilities (OMRDD). The OMRDD staff secretary took the activation message and failed to pass it on. A second call was made 2 hours later and the OMRDD representative reported to the SEOC at 1330, 45 minutes after being notified.

The call-up list proved accurate and the procedure reasonably efficient. About 10 minutes lapsed from message verification to completion of activation call-ups. The facility was declared operational at 0830 and enough offsite representatives were available by 0920 to allow effective functioning during an emergency.

Offsite notifications included the alerting of the DOE RAP Team, FEMA, other States and Amtrak were completed at approximately 0900.

**SEOC Objective 3 - MET** - The Commissioner of Health, under the auspices of the Disaster Preparedness Commission, was clearly in charge. He made frequent contact with the Counties over the RECS line to recommend and discuss protective actions. Briefings were conducted periodically to update the staff on the developing situation. Messages and information flowed freely under the Commissioner's direction. The tracking of the evacuation, as well as the plume, was accurate and periodically discussed.

**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. However, the SEOC had difficulty contacting Dutchess County, due to telephone system problems. This problem of communicating with Poughkeepsie was dealt with by communicating over the RACES communication system. This improvised system worked well. No delays in communication were experienced. It was determined that the RECS line in Peekskill wasn't working and the SDEOC used a back-up system (facsimile machine) to send necessary information to them without undue delay.

**SEOC Objective 5 - MET** - The SEOC demonstrated the adequacy of facilities, equipment, displays and other materials to support emergency operations. The SEOC had ample space, equipment, ventilation, etc. The following information was available on maps in both the Executive and Operations Room:

Emergency Response Planning Area (ERPA) Boundary  
Monitoring Points  
Plume  
Population by ERPA

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

Security to the facility, 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 10 - MET - Plume dose projection functions were performed by the State EOC Assessment and Evaluation Group (A&E Group) under the direction of the Chief of the group. The A&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 that determined plant status. The two units were in the same room in the SEOC and coordinated in developing projections of offsite radiological conditions. Approximately 14 personnel (engineers, Health Physicists, etc) staffed the A & E Group. During the performance of their functions, the group referred to the New York State RERP, Procedures G, H, and J. Automated (computer) dose projections were available (MIDAS and RASCAL) 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 or acquired, these were compared with the isopleths (contour lines defining boundaries of radiation dose rates) and projections. The SEOC staff 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, A&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 11 - MET - Protective Action Recommendations (PAR) were made by the SEOC command staff. PARs, originating from the Emergency Operations Facility (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 briefs and advice from the radiological A&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 broadcasts, sheltering, evacuation, etc. The PARs were made on the conservative side in due consideration of State and local plans, Protection Action Guides (PAG), analysis of plant and radiological conditions, and other influencing factors such as meteorology, weather conditions, evacuation times, etc. New protective action decisions were made and disseminated as conditions changed.

SEOC Objective 12 - NOT DEMONSTRATED - This objective would only have been demonstrated if the Governor of the State of New York had declared a State of Emergency. Since a State of Emergency was not declared, this objective was not demonstrated because the State plan, page I-5, states that the affected counties have lead responsibility for carrying out emergency activities unless a "State Declaration of Disaster Emergency" is declared by the Governor.



SEOC Objective 13 - NOT DEMONSTRATED - This objective would only have been demonstrated if the Governor of the State of New York had declared a State of Emergency. Since a State of Emergency was not declared, this objective was not demonstrated because the State plan, page I-5, states that the affected counties have lead responsibility for carrying out emergency activities unless a "State Declaration of Disaster Emergency" is declared by the Governor.

SEOC Objective 16 - Met - The Radiological A&E Group at the SEOC periodically reviewed projected offsite child thyroid doses and found them to be below the PAGs. Because of these projected doses, no recommendation was made to use Potassium Iodide (KI).

#### DEFICIENCIES

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

#### AREAS REQUIRING CORRECTIVE ACTION

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

#### AREAS RECOMMENDED FOR IMPROVEMENT

1. **Description:** RECS line communication between the State EOC and Peekskill was not operational.

**Recommendation:** Communications links between the State and local governments responsible for actions during an incident should be tested quarterly to avoid communications failures.

2. **Description:** The OMRDD representative did not receive notification from the SEOC until 1245. A message was left with his secretary at 1045, who did not pass it on. The SEOC staff did not verify the notification of the OMRDD until two hours later.

**Recommendation:** Procedures should be rewritten to ensure that the verification of notification calls is accomplished.

3. **Description:** Since a State of Emergency was not declared, Objective 12 was not demonstrated.

**Recommendation:** The extent-of-play agreement should cover this objective.

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

Five objectives were demonstrated at the New York State SDEOC during this exercise. All five objectives were met.

SDEOC Objective 1 - MET - The EOC staff were kept aware of the current ECL through briefings and prominent posting of the current status in the EOC.

ECL	Time Declared	Time Notified
Unusual Event	0711	0718
Alert	0817	0835
Site Area Emergency	1034	1037
General Emergency	1218	1223

SDEOC Objective 2 - MET - Activation of the facility took 59 minutes which began after receipt of the Alert ECL at 0835. The EOC was declared operational at 0925. An up-to-date call-down list was used to notify the staff and State agencies. These notifications were made via telephone and were accomplished in a timely manner. Thirteen New York State agencies and one Federal agency were represented at the EOC. These agencies and the number of staff responding included the Department of Agriculture and Markets (1), Division of State Police (3), Department of Transportation (1), Department of Environmental Conservation (1), Civil Air Patrol (1), Office of Parks and Recreation (2), Department of Labor (2), Department of Social Services (1), Southern District Staff (6), Radiological Defense (1), Department of Health (1), Office of Mental Health (1), Office of Fire Prevention and Control (1), and U.S. Department of Agriculture (1). The SDEOC were not required to notify any offsite response organizations, only SDEOC staff and other State agencies.

SDEOC Objective 3 - MET - The Southern District Regional Director, assisted by the Operation Officers, was effectively in charge of the SDEOC operation. Periodic briefings were held to update the staff on the emergency situation. Key staff 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. Messages 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 include the utility, SEOC, the EPZ Counties and host Counties. The telephone communications capability included fifteen telephone lines, a RECS line, and the executive hotline. Radio capabilities included high and low band radios, and RACES, State police, State EOC, local government radio, State Fire and Department of Transportation frequencies. In addition to the primary systems, the back-up systems were used during the exercise without any break downs.

SDEOC Objective 5 - MET - The SDEOC is located in a secure, underground facility with adequate space, lighting, ventilation, back-up power and sleeping facilities. The facility is fully capable of extended operations. Access to the EOC was controlled by a 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 all staff could see them and were updated in a timely manner.

#### DEFICIENCIES

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

#### AREAS REQUIRING CORRECTIVE ACTION

There were no ARCAs 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 (EOF)

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

EOF Objective 1 - MET - The State and County liaison officers (LNO) were informed of the current ECL upon arrival, at the EOF, when plant conditions escalated, and when the recovery phase was entered. The ECLs were prominently displayed. The LNOs were also aware of the current ECL due to the Emergency Director's periodic briefing as the ECLs escalated.

Below is the declaration sequence at the EOF.

ECL	Time Declared
Unusual Event	0711
Alert	0817
Site Area Emergency	1034
General Emergency	1218

EOF Objective 2 - MET - The State and County (Orange, Putnam, Rockland and Westchester) LNOs were alerted, mobilized and staffed at the EOF in accordance with their respective plans. The New York State Emergency Management representative was prepositioned, as provided for in the extent-of-play agreement. He displayed capabilities and functions commensurate with the position, but appeared to have a misunderstanding relative to when the State had the lead in the response and when the Counties have the lead. Utility personnel started arriving at the Alert ECL (0817).

The Westchester County representative, in accordance with the County Executive, was directed to go to the EOF shortly after the declaration of the NUE. A written call-down list was used to notify other County representatives. The last County LNO did not arrive until approximately 0954. The EOF was declared operational at 0908. The staff present at the EOF were in accordance with State and County Plans. No State or County staff were dispatched from the EOF to other locations.

The March 22, 1988 ARCA for Orange County (OC-1) on demonstrating 24-hour staffing was properly demonstrated at the Orange County EOC through the presentation of a roster. However, this roster listed a representative from the New York Emergency Management Office as an alternate for the Orange County LNO.

**EOF Objective 4 - MET** - The LNOs established communications with their respective County EOCs almost immediately upon arrival and maintained these communication links throughout the exercise. Putnam County employs a radio in addition to regular telephones. At no time during the exercise did communications break down. Primary communications systems were able to handle the communications flow.

**EOF Objective 5 - MET** - The EOF has recently been improved to provide additional space for the State and County LNOs. The County had access to at least two tables, two chairs, and approximately four telephone lines. The State was provided with six tables, eight chairs, eight telephone lines and a RECS speakerphone. A separate briefing area was available for the State and Counties to meet in and was located so that they could still obtain data from the utility. The State and Counties obtained information through periodic briefings, status boards and from the utility representatives. This representative was responsible for answering technical questions arising from briefings, accident events, etc. Each representative was questioned concerning the adequacy of the new facility and all were completely satisfied with the facility and the available equipment. Access and egress to and from the EOF was controlled by security guards at the EOF entrance. The security guard manned this position at 0908. Persons entering the EOF before 0908 were verified to be authorized in the EOF by security and new arrivals were verified continuously thereafter. All relevant maps were available to support this exercise. Status boards were used and positioned for viewing by the State and County LNOs. These status boards were manually updated every 15 minutes or as changes occurred.

## **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.

## AREAS RECOMMENDED FOR IMPROVEMENT

1. **Description:** The Orange County representative did not present a roster at the EOF to correct the March 22, 1988 ARCA referencing 24 hour staffing. However, a roster was available at the Orange County EOC. That roster showed the current LNO from Orange County and a representative of the New York State Emergency Management Office, as the alternate of the Orange County LNO.

**Recommendation:** The roster should indicate an alternate from Orange County on the roster who is independent from the New York State Emergency Management Office.

2. **Description:** The New York State Emergency Management representative at the EOF displayed capabilities and functions commensurate with the position, but appeared to have a misunderstanding relative to when the State had the lead in the response and when the Counties have the lead.

**Recommendation:** The State representative, dispatched to the EOF, should be thoroughly trained on his/her role at the EOF and the State's and Counties' roles during an emergency.

## 2.3 JOINT NEWS CENTER (JNC)

Eight objectives were demonstrated at the JNC during this exercise. Five objectives were fully met and three were partially met.

**JNC Objective 1 - MET** - The JNC received notification of changes in ECLs from each County EOC, the SEOC, and the Utility. The ECLs were prominently displayed and the status board was updated within 10 minutes of the upgrade of each ECL.

Below is the notification sequence at the JNC.

ECL	Time Declared	Time Notified
Unusual Event	0711	N/A
Alert	0817	0832
Site Area Emergency	1034	1040
General Emergency	1218	1222

The JNC staff were aware of the ECLs and responded according to the plan for each ECL.

**JNC Objective 2 - MET** - The JNC had some staff prepositioned as provided for in the exercise extent-of-play agreement. The utility was present before the Alert was declared. After the declaration of Alert, the four County staff members began reporting to the JNC. At 0922 the four County Public Information Officers (PIO), the State PIO and the Utility representative declared the JNC Operational. Activation time of the JNC was 65 minutes. Notifications of the JNC staff occurred at the County and State EOCs.

**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 the WABC radio 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 their County Operations Room in the JNC where dedicated telephone lines were available for communications with other EOC personnel. Each County JNC Operations Room also contained a television monitor whereby the media briefings were viewed to maintain constant communication with the Media Room. The same communications capabilities were located in the State, utility, FEMA, and Nuclear Regulatory Commission (NRC) Rooms. In the Communications Room, radios, televisions, and VCRs were available. 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 5 - PARTIALLY MET** - There was sufficient space, furnishings, supplies and ventilation at the JNC. The status boards were updated in a timely manner. The boards showed ECLs, wind direction, release status and plant status. The status boards did not mention the plume direction, or show PARs. The maps present in the JNC showed evacuation routes, Reception and Congregate Care Centers, ERPAs and their population and wind direction. However, there was not a map showing the plume direction in the JNC. This is particularly important because, due to the valley effect, the wind and plume direction may not be the same. This might have caused some confusion to the media, since they were only able to receive information on the wind direction. This fact may have caused them to believe that the wind and plume direction were the same. When the release began at 1400, a media briefing was conducted shortly thereafter, at 1405, in which the State Health Physicist explained the valley effect and why there is a difference in the wind direction and the plume path. (See ARCA 1 for the JNC.)

**JNC Objective 12 - MET** - Information contained in the EBS messages was coordinated with the County PIOs and the State PIO at the JNC. There was a computer in the EBS Room which contained a pre-scripted EBS message format, so that new information could be quickly included. Also, each of the four Counties had their PIOs present who were 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, information/content was verified by the four County PIOs and signed off on, so that the messages were ready to be read. WABC radio was put on standby, and, on cue, the siren (simulated at 1029) was sounded. Three minutes later, the message was read by the Westchester County PIO. The first EBS message contained information on parks, lakes and schools. No evacuation or shelter was recommended at this time (1032). The second EBS message contained PARs for the general public (shelter and evacuation). The content was verified to be correct and the 15 minute requirement was met. Again the Westchester County PIO read the message. For all eight EBS messages, the same format was followed, the content verified and the 15 minute time requirement met.

**JNC Objective 13 - PARTIALLY MET** - Eight EBS messages were formulated at the JNC. The EBS staff demonstrated the ability to verify message content and simulate airing the messages within 15 minutes from the decision time. The four County PIOs and the State PIO were responsible for formulating the content of the EBS messages. The information was verified with the respective County EOCs and State EOC, the message was drafted, the content was analyzed and verified, then broadcasted (simulated). The content of the messages was clear and accurate and advised the public of the most recent ECL status at the plant. There was no information in the EBS messages about the consumption of fruits or vegetables. Also, 75 minutes after the radioactive release began (1400), an EBS message was issued informing the public that a release had begun. The message did advise the public of the reception centers. (See ARCA 2 for the JNC.)

Three previous ARCAs were corrected and verified during this exercise. ARCAs JNC-2, and JNC-3 were incurred at the March 22, 1988 exercise and ARCA JNC-4 was incurred at the June 4, 1986 exercise.

JNC Objective 14 - MET - The ability to brief the media in an accurate, coordinated and timely manner at the JNC was met. After each EBS message was simulated to have been broadcasted, media briefings were conducted in the Press Briefing Room. The four County PIOs, the State PIO and the Utility PIO consolidated the information for presentation to the media. The briefings were clear, providing updated information. The PIOs were available for questions after each briefing.

JNC Objective 15 - PARTIALLY MET - The media inquiry and rumor control staff handled 126 telephone calls from emergency workers, the media, and some real life calls requiring actual responses. The staff consulted the PIOs for the appropriate response and then telephoned the appropriate person with the response. The emergency worker rumor control number was not given to the public, so the calls received were emergency worker calls only. The public rumor control numbers listed in the Emergency Planning Brochures were telephoned per FEMA injects. Westchester County had an individual answering their rumor control number. Rockland and Putnam Counties had a tape recorded message advising people to stay tuned to EBS stations. Orange County had a recording referring the caller to another number, which when called was forwarded to another number. In all four Counties, only one line was manned for general population calls. Another system must be provided to handle the influx of calls anticipated in a real emergency. (See ARCA 3 for the JNC.)

FEMA policy, provided to the Region II RAC Chairman in a memorandum dated December 21, 1990, states the following:

1. The listing in the public information brochure of toll-free (800) emergency telephone numbers for rumor control is necessary. These telephone numbers should be readily available to the public and, in addition, presented over the air during the emergency. However, it is confusing and misleading to print them in the public information brochure and maintain that they are for non-emergency use only. If there are different numbers for use in non-emergency and emergency situations, they should be included in the brochure and so identified.
2. Although the State and Counties maintain that they instruct residents not to use telephones in an emergency--except for requesting help--that in itself is contradictory, since these are the only telephone numbers listed. While the overload of telephone circuits is a concern during an emergency, the public should be given the opportunity to contact rumor control centers.
3. Providing rumor control numbers to emergency workers does not satisfy NUREG-0654 Evaluation Criterion G.4.c. Although emergency workers should also be apprised of emergency events and activities to dispel rumors, the intent of this criterion is for verifying or squelching rumors from the general public.
4. The number of telephone lines servicing the rumor control activity is dependent on the population to be served. One line for each of the four Indian Point counties is not adequate.



However, the number of lines that is adequate is a contextual planning decision made on the basis of an estimated number of calls and the resources available to State and local governments.

5. The number of calls to rumor control centers can be significantly reduced through the monitoring of rumors and addressing them in official government releases to the media and the public. Rumors can be monitored to identify the most predominant and significant rumors through the following methods: tracking incoming calls to rumor control centers, listening to radio programs and broadcasts, and watching television broadcasts pertaining to the radiological emergency. Once the predominant and significant rumors are identified, government officials can address them with the public through EBS releases and/or media briefings.

The plan and public information brochure should be revised to specify the dedicated rumor control numbers that will be operational during an emergency and, of course, an exercise. Any other numbers such as for non-emergency use should also be clearly identified. Further, the number of telephone lines to accommodate rumor control for the general public should be expanded. This, therefore, in addition to an ARCA, constitutes a major planning inadequacy.

A previous ARCA (JNC-1), incurred in the March 22, 1988 exercise, has been corrected and verified.

## DEFICIENCIES

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

## AREAS REQUIRING CORRECTIVE ACTION

1. **Description:** 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. Fortunately, at the release at 1400, an explanation of the differences and the valley effect was given to the media at a briefing. (NUREG-0654, G.3.a and G.4.a)

**Recommendation:** A plume map should be available at the JNC to avoid any possible confusion between wind and plume direction. 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 to ensure that the media disseminates accurate information to the public.

2. **Description:** 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. (NUREG-0654, E.5 and G.4.b)

**Recommendation:** The public should be notified of plant releases in a more timely manner.

3. **Description:** The rumor control number, provided to the general public in the emergency planning brochures for each County, only elicited a response from Westchester County. (NUREG-0654, G.4.c)

**Recommendation:** Provisions should be made to have an adequate number of lines and a system to handle the calls received from the public in the event of a real emergency.

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

1. **Description:** The status boards did not display the plume direction or PARs. The PARs were stated only in the News Releases and EBS messages.

**Recommendation:** PARs should be displayed on the status boards so that the JNC staff is aware of them at a glance.

#### **PLANNING INADEQUACIES**

1. **Description:** Sufficient rumor control for the general population is not available with the present plans and procedures.

**Recommendation:** Plan revisions are necessary to provide adequate rumor control for the general public.

## 2.4 ORANGE COUNTY, NEW YORK

### 2.4.1 Orange County Emergency Operations Center (OEOC)

Sixteen objectives were demonstrated at the Orange County EOC. Thirteen objectives were met and three objectives were partially met.

OEOC Objective 1 - MET - At 0718, the Warning Point, located at the Sheriff's Dispatch Office, was notified by the Control Room via the RECS line, of an Unusual Event at the Indian Point Nuclear Power Station, Unit 2. The Communications Officer correctly recorded the information on Part I of the New York State Radiological Emergency Data Form, then immediately notified the County Assistant Director of Emergency Management (CADEMO). At 0826, the Control Room notified the Warning Point of an Alert declaration. Again, the Communications Officer recorded the information on the correct form and notified the CADEMO, located at the OEOC. The Officer used a facsimile machine to transmit the two forms to the CADEMO.

The Warning Point staff understood the meaning of the ECLs and the actions to be taken at each level. The staff understood that, in the event of a fast moving situation which would require siren activation before the OEOC is manned, they have the capability of entering the OEOC and activating the siren system.

After the Alert, the Utility notified the OEOC, using the RECS line, of subsequent changes in ECLs. These notifications were immediately followed by a facsimile of the RECS form, which served as verification of notification. The facsimile machine in the Dose Assessment Room was used for this purpose. The appropriate ECL was posted in a timely fashion on the status board in the Operations Room, which is visible from the Command Room. The ECL and additional information regarding the change in condition was also entered into the computer system and displayed on terminals devoted solely to the accident status. These terminals are located in the Dose Assessment Room, Operations Room and Command Room. All staff were aware of the current status, understood their meaning and took actions appropriate to the existing ECL.

Below is the notification sequence at the OEOC

ECL	Time Declared	Time Notified
Unusual Event	0711	0718
Alert	0817	0826
Site Area Emergency	1034	1037
General Emergency	1218	1223

OEOC Objective 2 -PARTIALLY MET - At 0718 the Communications Officer at the Warning Point completed the call to the Control Room which notified him of the Unusual Event declaration. At this time, the CADEMO was notified.

The Warning Point failed to notify the County Executive and the Sheriff of the Unusual Event, as called for in Section 3.0 of Procedure 2. After the Alert notification, the Communications Officer again failed to notify the Sheriff, as called for in Section 4.0 of Procedure 2.

After the CADEMO was notified at 0826 of the Alert, he notified the County Public Information Officer by beeper and the County Executive by telephone. These two notifications took place at 0830. At 0833, home notification of the remaining OEOC staff was initiated by the Radiological Officer using the Community Alert Network (CAN). At 0858 the home notifications were stopped to begin notification of staff using their work telephone numbers.

The CAN network is a County owned system which provides automatic call out to emergency responders. Results of these calls are then reported in tabular form. Although the entire EOC staff reported for duty, the CAN reports indicated several persons were not contacted by this means and there is no record of them being manually called. While these persons all responded there is no record of how or when the County Executive or other staff were notified. There does not appear to be a single check off list, or form, to record the notification of all key responders, except for the automatic call out system reports. These reports were incomplete. It should be noted that Appendix L of the Orange County plan indicates that the CAN is a commercial service when, in fact, it is a County-owned network. (See ARCA 1 for the OEOC)

The facility was activated quickly and was declared operational at 0910, taking 44 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 in the March 22, 1988 exercise, has been corrected and was verified.

**OEOC Objective 3 - MET** - The County Executive displayed command and control of the OEOC throughout the exercise. She appropriately discussed with the 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.

Staff briefings were held very 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 for reference if needed. Incoming and outgoing messages and other actions taken by each emergency worker were recorded on a three part "Message/Action Log and Journal."

The CADEMO coordinated the actions of the Operations Room which was staffed by County agencies other than the dose assessment staff. Due to the fact that the CADEMO spent a large amount of time in the Command Room, activities in the Operations Room were not monitored or coordinated as effectively as possible. Although the OEOC accomplished their objective of responding adequately to the emergency, more coordination could heighten this effectiveness.

**OEOC 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 30 commercial telephone lines in the OEOC with every desk in the Operations Room having access to one. In addition to the telephone lines in the OEOC, there are two drops on the RECS line, one in the Assistant Director's Office and one in the Dose Assessment Room, and a hot-line installation in the Command Room. In the Communications Room, there were six base stations (Sheriff, Fire, Department of Public Works, State Police, County, and State), a RACES station with computer, and siren encoder with its associated equipment. The radio dispatchers were apparently professional personnel with emergency assignments at the OEOC. There are three facsimile machines with computer links to the MIDAS system, the State Police Network (NYSPN) and to other County agencies.

The only concern with communication capabilities was the size and layout of the Communications Room. While the Communications Room did not experience any specific problems during the exercise, due to the limited communications traffic, the size and layout of this area do not appear to be adequate to support the actual emergency operations of the six dispatchers, who would be continuously busy, as well as accommodating the siren activation functions.

**OEOC Objective 5 - PARTIALLY MET -** The EOC and its equipment and displays partially met the requirements of the plan and Federal guidance. The layout of the Operations Room and its location near the Command Room and the Dose Assessment Room is excellent. Displays, maps and status boards were well positioned for easy reference. However, a map of the ingestion EPZ was not posted in the OEOC. Support functions such as communications (see objective 4), security, sanitation facilities, kitchen supplies were all adequately demonstrated.

The effort to maintain updated information relative to the plant (ECL) status and offsite conditions through the use of television monitors needs improvement. First, all posted information should indicate the effective time of the display. Second, the procedure for making entries should be formalized and include all pertinent data. During the exercise there were no postings of such events as the traffic impediment, establishment of traffic control points (TCP), opening and status of Reception and Congregate Care Centers, park closings, measures taken to ensure the safety of water supplies from open reservoirs, etc. Third, entries on the monitors and the status boards were not always timely. For example, at 1330 it was decided to evacuate ERPAs 24 and 26 and move school children in ERPA 26 to Newburgh; however, this information was not posted until 1405, 35 minutes later. (See ARCA 2 for the OEOC)

**OEOC Objective 6 - MET -** The plume entered Orange County near the end of the exercise. Consequently, there was minimal exposure time for emergency workers in the plume. Emergency workers in the field were equipped with 0-200 R and 0-5 R direct reading dosimeters. Exercise injects were introduced in the field to test the knowledge of the emergency workers in the field and the OEOC staff's ability to deal with any reports of exposure by the field workers. For instance, at 1130, a member of the Field Monitoring Team reported that the low range (0-5 R) dosimeter had gone off-scale.

Instructions were given to recharge the dosimeter and monitor it carefully for the next 15 minutes. If it had again discharged, then arrangements would have been made to replace the faulty dosimeter. The police escort would have been directed to travel to a designated spot and obtain a replacement dosimeter for the team member. The dosimeter was monitored for 15 minutes and was determined to be acceptable. At the end of the exercise the field teams would have been directed to report to BOCES for monitoring and decontamination. Appropriate knowledge of emergency worker exposure control was observed.

**OEOC Objective 7 - MET** - Using the pager system at 0840, the Field Monitoring Team was requested to report to the OEOC. At 0843, a call was made to request a police escort for the field team. The team arrived at the OEOC at 0855 and at 1015 was dispatched to Sampling Location 12. The team arrived at 1058. Radio communication with the team was quite clear until 1555 when radio communication was lost. The pager system was used to instruct the team to phone the OEOC. It was determined that communications should be temporarily reestablished, using the Highland Falls police dispatcher to relay messages to and from the field team. Radio communications were reestablished at 1630. The field team reported their ambient radiation dose rate readings to the OEOC.

**OEOC Objective 9 - MET** - Since the plume arrived in Orange County at the end of the exercise, only a single particulate and iodine air sample was collected by the Orange County Field Monitoring Team. The Radiological Officer at the OEOC arranged for the samples to be transported to Stewart Airport in Newburgh, New York, by the field team's police escort. At the airport, the sample would be delivered to the Civil Air Patrol (CAP). The CAP would then transport the samples to the radiological laboratory in Albany for analysis. The actual transportation of samples was simulated, as provided for in the extent-of-play agreement.

**OEOC Objective 10 - MET** - Throughout the morning of the exercise and prior to a release, the dose assessment staff were continuously making dose projections based on plant conditions and potential releases, including the use of existing and projected meteorological data. In a real event, the meteorological data would be available through the MIDAS system and at 0926 the MIDAS system was activated for demonstration purposes. The MIDAS data is real and therefore not used during this exercise. The plant and meteorological data were received via direct telephone communications with the EOF and hard copies via the RECS system. The primary method for dose calculations was manual calculations with the results being checked by an independent manual calculation. New projections were made as plant status and meteorological data changed. In the area of Indian Point, the plume travel is influenced by both the wind direction and wind speed. The dose assessment staff were careful to consider both of these factors in their dose projections. The dose projections prepared by Orange County were compared to the values obtained by the EOF and to the results measured by the adjacent counties' field teams.

The existing and projected meteorological data were used when directing the field teams to their sampling locations.

OEOC Objective 11 - PARTIALLY MET - The increase in wind speed and the change in wind direction caused the plume to enter Orange County late in the day. At 1419, the dose projected due to the magnitude, contents of the release and using a four hour default release time, resulted in projected doses of approximately 1.4 R at 5 miles. Since the protective action decision at 1330 to shelter ERPAs 24 and 26 and to evacuate school children from ERPA 26 were already in place, there were no new protective action recommendations made based on plant release information. Regardless, the magnitude of the projected doses was considered during protective action discussions and the appropriate PAGs were included in the discussions.

At 1430, there were PARs to put cows on stored feed, halt the collection of produce, and for the public to fill jugs with water, until 1630, in preparation for shutting down the public water system. These issues were discussed at length and the EOC staff were advised at the 1450 staff meeting. The Commissioner of Health made a telephone call to a local apple grower to tell him to halt the collection of his produce. These decisions were not relayed to the public by any means. (See ARCA 3 for the OEOC)

OEOC Objective 12 - MET - The extent-of-play agreement provided that the first EBS message recommending evacuation or sheltering to the general population (more than just closing parks along the Hudson River) would be used to evaluate this objective. EBS Message 2 was used to satisfy this objective. At 1058, the four County Executives, using the executive hotline, agreed to release an EBS message. Orange and Rockland Counties used this message to instruct the general population in ERPAs 39 and 40 to shelter. Since these ERPAs have land area in both Counties, it is required that this is a joint decision. A coordinated siren sounding occurred at 1110. The executive hotline was used by the County Executives to hear the countdown to ensure that all sirens were sounded simultaneously.

OEOC Objective 13 - MET - Information from the OEOC was communicated from the OEOC PIO directly to Orange County's PIO at the JNC. A telephone was used for this purpose and its line 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.

Critical information, important to County residents, was broadcasted in EBS messages. Message 1 included the closing of parks within ten miles of Indian Point. Message 2, as discussed under Objective 12, recommended sheltering of ERPAs 39 and 40. In Message 3, these ERPAs were told to evacuate. Messages 4, 7 and 8 contained no additional protective actions for Orange County. Message 5 recommended sheltering in ERPAs 24 and 26 and the evacuation of school children in ERPA 26. Message 6 provided information regarding the release of radioactivity from the plant site. All EBS messages were preceded by the sounding of the sirens and aired within 15 minutes of the decision time to do so.

Previous Orange County ARCA's OC-2 and OC-7 have been corrected and verified. ARCA OC-2 was incurred in the March 22, 1988 exercise and ARCA OC-7 was incurred in the June 4, 1986 exercise.

**OEOC Objective 16 - MET** - The decision was made, in the Command Room, not to recommend the use of potassium iodide (KI) by emergency workers. Throughout the morning of the exercise and prior to the radioactive release, the dose assessment staff made dose projections based on plant conditions. At 1140, it was determined that KI probably would not be required. Following the radioactive release at 1400, the dose assessment staff made the decision at 1434 not to recommend the use of KI. This decision was based on dose projections using plant release and meteorological data, as well as field measurement data obtained by the Field Monitoring Teams in the other counties.

The Field Monitoring Teams had an ample supply of KI tablets which had an expiration date of December 1993. The Field Monitoring Teams were not advised of the decision concerning KI, but are instructed to not take it unless directed to do so by the OEOC.

**OEOC Objective 18 - MET** - The County Executive with the assistance of the CADEMO and other staff made several recommendations to protect the public living within 10 miles of Indian Point. Other agencies, represented in the OEOC, were knowledgeable in the appropriate actions to take in all cases.

In the case of closing parks, the County Sheriff contacted the State Police to deploy its helicopter to alert persons in the parks.

After the order to shelter, the CADEMO arranged for the notification of hearing impaired individuals. One telephone call was actually made to an evaluator posing as a hearing impaired person, the rest of the calls were simulated.

Upon the order to evacuate, the Department of Transportation coordinated with the West Point Tours to simulate the evacuation of mobility impaired individuals. West Point Tours is a commercial bus company which would provide buses in the event of a real emergency.

Many other actions were taken by the various agencies to insure that the protective actions recommended were fully implemented. For instance, the Salvation Army representative planned on the distribution of clothing and the American Red Cross coordinated mass care trailers to be deployed to the Congregate Care Centers.

**OEOC Objective 19 - PARTIALLY MET** - At 1042, the staff in the Command Room decided to keep the school children of ERPA 26 at the school. From the time of this decision until the children were evacuated at 1344 there was some confusion as to whether the children were being sheltered or just kept at school. When questioned by the evaluator, the BOCES representative said that the children in ERPA 26 were being sheltered. A minute later the County Executive was questioned and said that the children are not being sheltered, just retained at school. Although this did not impact the safety of the children, it displayed a lack of coordination in the OEOC.



This could have been corrected through the correct use of the computerized status board. See Objective 5 (ARCA 1) for critique of the status board. The staff at the OEOC demonstrated the ability to protect the school children within the plume EPZ.

OEOC Objective 20 - MET - Throughout the exercise the County Sheriff and 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. Two traffic control points, Estrada Road at Nazzaro Street and US 9W/NY218 at Stony Lonesome Road, were activated from the OEOC.

## DEFICIENCIES

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

## AREAS REQUIRING CORRECTIVE ACTION

1. **Description:** Although the entire EOC staff reported for duty, the CAN reports indicated that several persons were not contacted by the automatic call-out and there is no record of them being manually called. While these persons all responded, there is no record of how or when the County Executive or other staff were notified. (NUREG-0654, E.2)

**Recommendation:** Ensure that a backup system to the CAN network is used. The automatic call out system only reported the notification of those persons contacted by that means. There is no overall record of how every responder was notified, including those not reached by the automatic call out system.

2. **Description:** Displays of present plant status and pertinent offsite activities were not all posted, and delays were encountered, in some instances in making such postings. An example of the confusion which this could cause is evidenced by the concern about whether the school children were being sheltered or just retained at their schools. See Objective 19 for further discussion. (NUREG-0654, G.3 and H.3)

**Recommendation:** Formalize procedures on keeping present status and significant events posted in a timely fashion. This might include the consideration of designating an individual assigned to this specific responsibility.

3. **Description:** 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. (NUREG-0654, J.10.m)

**Recommendation:** Ensure that these decisions are transmitted to the public for their benefit.

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

1. **Description:** Either equipment failure or a communications dead spot at a particular monitoring point caused a lapse in communication between the OEOC and the Field Monitoring Team.

**Recommendation:** It is suggested that a survey be made at each sampling location to determine if dead spot communications areas exist. The dead spot knowledge could then be considered by the field team dispatcher.

2. **Description:** Procedure 2, Law Enforcement, indicates that the Warning Point will advise the County Executive and the Sheriff of an Unusual Event declaration and the Sheriff of an Alert declaration. In actual practice, the Assistant Director of Emergency Management advises these officials of the appropriate ECL.

**Recommendation:** Revise Procedure 2 to indicate that the Warning Point notifies only the Assistant Director of the declaration of an Unusual Event or an Alert, and he, in turn, notifies the other officials.

3. **Description:** Appendix L indicates that the automatic call out system is a commercial service known as the CAN. In fact, the system in use is a county-owned network, similar to the CAN.

**Recommendation:** Amend Appendix L to properly describe the automatic call out system.

4. **Description:** Although a map of the ingestion EPZ is included in the Orange County plan, the map is not posted in the OEOC as called for in Item 4 of Objective 5. (Note: Responses to ingestion pathways are not the responsibility of the County; this is a State function.)

**Recommendation:** Post a map of the Ingestion EPZ in the Operations Room.

5. **Description:** Due to the CADEMO's almost continuous presence in the Command Room, the staff in the Operations Room were not used as effectively as they could have been.

**Recommendation:** An additional staff person to act as manager of the Operations Room would relieve the pressure on the CADEMO to be in two places at once. The manager could also be helpful in feeding more information into the status board system.

6. **Description:** During the exercise the OEOC Communications Room did not experience any specific problems with the limited communications traffic. However, during an actual emergency the size and layout of the area would not easily accommodate the necessary activities.

**Recommendation:** More space should be allotted to the communications function. If the same room is to be utilized the radio positions should be separated as much as possible.

#### 2.4.2 Orange County Field Activities

In Orange County various field activities were demonstrated. These activities included field monitoring, traffic control, school evacuation bus runs, general population bus runs, one reception center, one congregate care center, and one personnel monitoring center. The evaluation of these activities follows.

##### 2.4.2.1 Field Monitoring Team

Eight objectives were demonstrated by the Orange County Field Monitoring Team during this exercise. Seven objectives were fully met and one was partially met.

**OC FM Objective 1 - MET** - The Orange County Field Monitoring Team was activated at the Alert ECL. The team was advised of all ECL changes by the team leader at the OEOC. The team recorded the ECL updates and performed corresponding activities.

**OC FM Objective 2 - MET** - The two man Orange County Field Monitoring Team and police escort were activated in a timely manner at the Alert ECL. The CAN system and/or pager were used to notify team members. At 0843, the team reported to the OEOC and began checking their equipment. At 1013, 90 minutes later, the team had completed their equipment checks, received their initial briefing, and were dispatched.

**OC FM Objective 4 - MET** - While in the field, the team used a radio installed in a pickup truck. Because of the terrain, two repeater towers are used for communications. However, it was necessary to use the telephone and the Highland Falls Police radio to relay field team data from monitoring points 11 and 13. The field team responded appropriately to these dead spots.

The communication links used to notify the team members experienced no problems.

**OC FM Objective 6 - PARTIALLY MET** - The Field Monitoring Team demonstrated their knowledge of exposure control techniques. Dosimeter readings were taken and recorded every 15 minutes. The team was also aware of its reporting limits. However, there are some areas which need improvement.

The Highland Falls Police Officer did not have a TLD and needs training on the use of dosimeters. (See ARCA 1 for the OC FM) During the time the team was in the plume, they had communications problems and temporarily lost sight of the need to get the necessary samples and move to a non-radiation area quickly. The team remained at the monitoring point for an extra 20 minutes to fill out forms and call the OEOC to request information about wind shifts. (See ARCA 2 for the OC FM)

**OC FM Objective 7 - MET** - The Orange County Field Monitoring Team was capable of determining field radiation measurements. The team was knowledgeable, had calibrated equipment, conducted battery and source checks, enclosed the probe in a plastic bag and took readings as the plan specifies. All readings were recorded and transmitted to the OEOC. Open and closed window readings were taken at three inches and three feet above the ground and then properly logged and transmitted to the OEOC. A Highland Falls Police Officer assisted the team in finding and moving to the monitoring locations promptly.

**OC FM Objective 8 - MET** - The team used a calibrated air pump equipped with a particulate filter and a simulated silver zeolite cartridge for their assignment. The team prepared the air pump and filters, as specified in the plan, prior to leaving the OEOC. The air volume was carefully measured using flow rate and a stop watch was used to time the sample duration. Readings for the air sample media were relayed via radio to the OEOC by the Highland Falls Police Officer.

**OC FM Objective 9 - MET** - The transfer of the sample to the laboratory for analysis was discussed. It was simulated as having been picked up by a runner at a point specified by the OEOC and taken to Stewart Airport for air transport to a laboratory in Albany. Samples were properly bagged and labeled with time, date, locations, and field team identification.

**OC FM Objective 16 - MET** - A supply of KI (14 tablets with an expiration date in 1993) was available to each team member and the Highland Falls Police Officer. The Orange County Health Director talked to the team members prior to dispatch and told them not to take KI unless specifically told to do so. There were no messages concerning KI while the team was in the field.

## DEFICIENCIES

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

## AREAS REQUIRING CORRECTIVE ACTION

1. **Description:** The Highland Falls Police Officer did not have a TLD and lacked adequate knowledge concerning the use of his dosimeters. (NUREG-0654, K.3.a and K.3.b)

**Recommendation:** Ensure that TLDs are available for all Field Monitoring Team members. Additional training to the Highland Falls Police Department is needed in radiation exposure control.

2. **Description:** The Field Monitoring Team spent approximately 20 minutes more than necessary in the plume while obtaining samples. They were filling out forms, calling the EOC for information on any wind changes, and taking dosimeter readings. (NUREG-0654, K.3.a and K.3.b)

**Recommendation:** 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.

#### AREAS RECOMMENDED FOR IMPROVEMENT

1. **Description:** Radio transmission was not possible from monitoring points 11 and 13.

**Recommendation:** Determine the cause for the radio transmission break and correct or arrange for an alternate method of communications.

#### 2.4.2.2 Traffic Control Points

Three objectives were demonstrated at two Orange County TCPs. Of these objectives, one was met and two were partially met.

**OC TCP Objective 1 - MET** - At the initial briefing of the police officers, the existing ECL was not mentioned, also plant and meteorological conditions were not discussed. At the first TCP location (Estrada Road at Nazzaro Street), no up-dated ECL information was transmitted to the police officers. The only ECL related information relayed to the police officers, was a 1243 radio message informing the police officers at the second TCP of the ECL change to a General Emergency.

**OC TCP Objective 6 - PARTIALLY MET** - The Orange County Sheriff's Department demonstrated the ability to continuously monitor and control emergency worker exposure. At the initial briefing (0900 at the Sheriff's Department), each officer received a "Civil Defense" envelope. The envelope contained Appendix H of the Orange County plan, 2 direct reading dosimeters (0-5 R and 0-200 R), ID card, radiation exposure card, and an information card. This information card had exposure limits printed, as suggested in ARCA OC-3. Chargers were available, dosimeters were zeroed, and initial readings recorded. After arriving at the designated TCPs, the officers read and recorded dosimeter readings every 15 minutes. This activity corrects part of ARCA OC-3. The other part of ARCA OC-3 remains uncorrected. Only one of the four responding officers was familiar with the exposure call-in values listed on the information card. (See ARCA 1 for the TCPs.)

All the dosimeters had calibration stickers and the re-calibration due date had not been exceeded. Information and knowledge of KI was demonstrated by each officer. The KI expiration date was in 1993.

The previous ARCA OC-3 from the March 9, 1983 and the June 6, 1986 exercises remains uncorrected and requires demonstration at the next exercise.

**OC TCP Objective 20 - PARTIALLY MET** - Two locations within Orange County, were designated to be used as activated TCPs for this exercise. Neither location was precisely located. At the 1030 demonstration, Estrada Road was easily located, but Nazzerò Street was never located. At the second TCP the Sheriff's Department personnel and vehicles were stationed at the intersection of 9W - 293 and 218 (Post 8) which is approximately 2 miles north of the Stony Lonesome 218-9W intersection.

The officers were at their regular duty stations when they received instructions to report to the Sheriff's Department for their emergency worker dosimetry kits and an initial briefing. Each TCP was manned by two Orange County Sheriff's Department officers. Each officer was interviewed separately to observe each individual's knowledge of emergency exposure control and TCP procedures. Radio communications and use of traffic management procedures are daily routines for these officers. Each officer clearly understood the mechanics of traffic control at the TCPs. Additionally, each officer clearly understood the need to keep the flow of traffic moving away from any impediments that might arise. Evacuation routes at the first TCP were clearly identified, using Route 32 north to Newburgh. At the second TCP, some discrepancies were observed. First, Orange County Appendix H lists ERPA 26 TCPs (no mention of Subareas A and B). On Table 2 of the Orange County Procedure 6, traffic zones 26A and 26B have Reception and Congregate Care Centers identified. One officer suggested sending traffic toward Central Valley on Route 293. (See ARCA 2 for the TCPs.)

## **DEFICIENCIES**

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

## **AREAS REQUIRING CORRECTIVE ACTION**

1. **Description:** Only one of the four police officers manning the two TCPs evaluated in this exercise knew the exposure call in values. (NUREG-0654, K.3.a and K.3.b)

**Recommendation:** Training should be provided for law enforcement personnel who will be staffing TCPs.

2. **Description:** 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. (NUREG-0654, J.10.j and J.10.k)

**Recommendation:** Coordinate ERPA identifications, traffic zones and OEOC protective actions 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.

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

1. **Description:** ECL information and existing plant and meteorological data were not provided at the initial police officer briefing or in the field.

**Recommendation:** The Orange County Sheriff's Communication Center Procedures should be changed to include periodic briefings, including ECL updates, of field personnel.

#### **PLANNING INADEQUACIES**

1. **Description:** Designated and actual TCPs should be clearly described and located on maps. In addition, there are discrepancies between the TCPs identified in Table 7B in Appendix H of the Orange County plan, and the TCPs plotted on maps in the OEOC.

**Recommendation:** Written descriptions (routes and intersections) and maps utilized in the OEOC should reflect the same intersections.

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

Three objectives were demonstrated by two Orange County school evacuation bus drivers. All three objectives were met.

**OC SE Objective 1 - MET** - The West Point Tours facility was promptly mobilized following a telephone call at 0903 from the OEOC to advise it of an Alert situation. The drivers were mobilized following notification of school evacuation from the OEOC at 0950. The drivers arrived at the garage and were ready for dispatch within 20 minutes of call-up. The other ECLs were called into the dispatcher by the OEOC. This activity was demonstrated out of sequence as provided for in the extent-of-play agreement.

**OC SE Objective 6 - MET** - The bus drivers were equipped with a thermoluminescent dosimeter (TLD) and two direct reading dosimeters (0-5 R and 0-200 R). The drivers were familiar with the use of the instrumentation and the use of KI. The drivers 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 19 - MET - The call up and dispatch of the drivers and vehicles was accomplished in a timely fashion and according to the plan guidelines. The facilities and equipment were adequate to the task. All communication systems, including back up systems, operated properly.

The first bus driver left the garage at 1013 and arrived at the Highland Falls Elementary School at 1032. The bus driver departed the school at 1040 and arrived at the South Junior High School Reception Center at 1102. The second driver left the garage at 1130 and arrived at the James O'Neill High School at 1157. The bus departed the high school at 1200 en route to the South Junior High School Reception Center.

## DEFICIENCIES

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

## AREAS REQUIRING CORRECTIVE ACTION

There were no ARCAs 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 General Population Evacuation Bus Runs

Three objectives were demonstrated by the Orange County general population bus drivers. Of these objectives, one was met and two were partially met.

OC GP Objective 1 - PARTIALLY MET - The Orange County general population evacuation bus drivers did not know what the ECL status was. Furthermore, the drivers were not aware of the significance of each level. (See ARCA 1 for the OC GP) However, at the West Point Tours facility, the director of operations was knowledgeable of the ECLs and was aware of the current ECL status. The director did not brief the drivers on ECL status prior to dispatch and did not relay any change or upgrade in ECL status to the bus drivers during the route.

OC GP Objective 6 - PARTIALLY MET - Each general population evacuation bus driver had a TLD and two direct reading dosimeters (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 at 1 R, 3 R and 5 R.



Each driver reported any dosimeter readings above zero to the dispatcher and would receive instructions on whether to proceed or if they were to go to the Personnel Monitoring Center (PMC).

A controller inject was presented to each driver which stated that his low range dosimeter read 1 1/2 R and that he dropped his high range dosimeter sending the hairline off scale. The first driver reported this via radio to his dispatcher and was told to continue on his route. The second driver acknowledged the reading but did not immediately report it by radio to the dispatcher. After 10 minutes and reaching the end of the route, the driver radioed in the reading. The dispatcher just told the driver to proceed to the Reception Center. For each inject there was communications with the Director of the Department of Transportation at the OEOC, who instructed the drivers to continue with their assignments. However, there was no observation or written record of a conversation between DOT and the Dose Assessment staff to authorize this instruction. (See ARCA 2 for the OC GP)

**OC GP Objective 18 - MET** - The ability and resources necessary to implement appropriate protective actions for the impacted permanent and transient plume EPZ population was demonstrated during this exercise. Orange County demonstrated two general population bus routes. Route 134 was dispatched from West Point Tours at 1020, arriving at the initial pick-up point at 1040. The route was completed at 1046 and the driver was instructed to proceed to the appropriate Reception Center (Newburgh Free Academy) at 1049, arriving there at 1115. The driver missed pointing out two pick-up points to the evaluator, although through discussion with the evaluator, it was determined that he knew where they were.

Route 132 was dispatched from West Point Tours at 1145, arriving at the initial pick-up point at 1158. This route was completed at 1210 and the driver departed for the appropriate Reception Center (Temple Hill School) at 1212. He arrived at the Reception Center at 1225.

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

## DEFICIENCIES

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

## AREAS REQUIRING CORRECTIVE ACTION

1. **Description:** Bus drivers did not know what the ECL status was nor its significance. (NUREG-0654, 0.4)

**Recommendation:** Bus drivers should be trained on ECLs. Train the West Point Tour facility director to assure that bus drivers are briefed on ECLs and any upgrades or changes in ECL status are relayed to drivers.

2. **Description:** There was no communication between the Department of Transportation and the Dose Assessment staff concerning the high reading on the low range dosimeter. One of the bus drivers hesitated for 10 minutes before he called his dispatcher about the high reading on his low range dosimeter. (NUREG-0654, K.3.a and K.3.b)

**Recommendation:** Training should be provided to the Department of Transportation to instruct them on conferring with the Dose Assessment staff when they receive information on an emergency worker with a dosimeter reading of 1 R or higher. Provide retraining on dosimeter record/reporting procedures to ensure that the drivers are confident of what actions to take when seeing a high reading on a dosimeter.

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

There were no ARFIs observed during the Orange County general population bus run.

##### **2.4.2.5 Reception Center**

Five objectives were demonstrated at the Middletown High School Reception Center. All five objectives were met.

**OC RC Objective 1 - MET** - The staff at the Orange County Reception Center at the Middletown High School understood the meaning of the various ECLs. The staff was also aware of the current ECL pertaining to their out of sequence Reception Center activities. The Reception Center demonstrated the ability to perform the appropriate functions at the appropriate ECL.

**OC RC Objective 4 - MET** - The Reception Center staff demonstrated the ability to communicate with appropriate locations. In this case, the appropriate locations were the OEOC and the outside decontamination activities at the Reception Center. Five commercial telephones 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** - This reception center had adequate space to accommodate vehicles and evacuees which would be directed to the facility. The necessary equipment was available. A computerized process was used for efficient registering and tracking of evacuees.

OC RC Objective 6 - MET - The staff were issued two dosimeters (0-5 R and 0-200 R) each that had just been zeroed, a TLD, instructions for use, and an individual radiation exposure record. Staff members knew that they were to read the dosimeters every 15 to 30 minutes and, if they incurred a reading of more than 1 R, they were to report it to the Team Leader. The Team Leader knew that if any staff reported readings of 3 R, the staff member was to be rotated out of the area and, if instructed by the OEOC, referred for possible medical attention, depending upon TLD reading results and Health Department evaluation.

OC RC Objective 21 - MET - The Orange County Department of Social Services was the lead agency in establishing the reception center at the Middletown High School. Other involved agencies included the American Red Cross, Office of the Aging, Mental Health, Public Works, volunteer RACES and monitors, as well as school custodial staff. Approximately 18 staff members participated in the exercise. More staff were available for fully staffing the center and for maintaining operations. The facility was prepared by placing signs outside and inside, roping off areas, stationing guides, laying paper on floors where contaminated individuals might walk, positioning monitors, clean clothing, bathing materials, registration tables, and staff assistance locations. The facility was arranged to provide smooth traffic flow for the evacuees, with junctions where persons needing special attention, such as decontamination or medical assistance, could be diverted quickly to their needs and not impede the main traffic flow. There was an easily followed traffic pattern to allow contaminated evacuees to go through separate male and female showers and back into the main flow at the reception station. Three staff members, who volunteered to act as evacuees, were monitored accurately and within time standards, thereby preventing delays and back-ups. Handling of contaminated items was in accordance with procedures. Forms were available and staff were proficient in completing them. Transportation to the Congregate Care Center was available for anyone needing it.

## **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.

## **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

Three objectives were demonstrated at the Orange County Congregate Care Center. Two objectives were met, and one was partially met.

OC CCC Objective 1 - PARTIALLY MET - The American Red Cross Disaster Specialist was misusing ECLs ("General Alert"). Additionally, no one else responding to the Temple Hill Congregate Care Center was concerned that the latest ECL was a "General Emergency Alert". Using mixed ECL names would not be comforting to arriving evacuees. (See ARCA 1 for the OC CCC)

OC CCC Objective 4 - MET - The OEOC demonstrated the ability to communicate with appropriate locations, organizations and field personnel at the Congregate Care Center located at the Temple Hill School. A public telephone was located a few feet from the registration desk. School telephones were available at the nurses' station and at the crisis counseling area. RACES personnel provided the primary communication link to the OEOC. Both systems worked satisfactorily and no delays were noted.

OC CCC Objective 22 - MET - Orange County demonstrated adequate facilities, equipment and personnel to provide congregate care to evacuees. As provided for in the extent-of-play agreement, an exercise inject was inserted at the OEOC at 1345 to begin activation of the Temple Hill School as a Congregate Care Center for evacuees. American Red Cross personnel and other response agencies arrived about 1430. To further comply with the concerns of school officials, equipment used in the school as a congregate care center was not set in place until the last school bus departed. Designated areas for food services, nurses' station, crisis counseling, 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 1234. The nurses' station used was the school's regular first aid station. This is a large area which included a separate examination room. Crisis Counseling was provided by a Mental Health Specialist using a separate group of offices. Thought was given to the merging of evacuated school children and parents evacuated to this facility. Food services were simulated to be in transit to the Temple Hill School. The American Red Cross has, as backup, the school's USDA supplies and agreements with various fast food establishments and local grocery stores.

The staff were questioned about what actions they would take if a person arrived at the facility who 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.

The extent-of-play agreement of no pre-positioning at demonstrated facilities was violated. Signs, used to direct evacuees, were posted and facility kits were open.

## DEFICIENCIES

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

## AREAS REQUIRING CORRECTIVE ACTION

1. Description: ECL nomenclature was misused. The names of the different levels were used together. (NUREG-0654, 0.4)

Recommendation: Training on the proper use and verification of the correct ECL in communications with the OEOC. Possibly have individual signs for the Alert, Site Area Emergency and General Emergency classifications to avoid the mixing of ECLs.

## AREAS RECOMMENDED FOR IMPROVEMENT

1. Description: The extent-of-play agreement of no pre-positioning was violated. Signs, used to direct evacuees, were posted and facility kits were open.

Recommendation: Extent-of-play agreements should be adhered to.

### 2.4.2.7 Personnel Monitoring Center

Six objectives were demonstrated at the Orange County PMC. All six objectives were met.

OC PMC Objective 1 - MET - The PMC was activated by direction from the OEOC and operated according to the plan. The personnel were familiar with the ECL concepts, but the activities were demonstrated out of sequence.

OC PMC Objective 3 - MET - The Risk Manager for the BOCES did an excellent job of coordinating the efforts of the emergency workers and maintaining the efficient operation observed. All appropriate steps in the plan were followed.

OC PMC Objective 4 - MET - This facility communicated with the OEOC by use of a RACES operator and with each other by use of hand held two way radios. Commercial telephones to the OEOC were used for back-up communications. All communications systems functioned properly. The initial command to activate the facility came via the land line. No significant delays or confusion in communications were observed.

OC PMC Objective 5 - MET - The facilities, equipment, displays and other materials to support the emergency operations at this location were shown to be more than adequate.

The space, furnishings and equipment were superb. The layout of the area for the purpose of monitoring and contamination control was excellent. This particular area could be readily isolated from the rest of the facility and hence, not impinge on other activities in progress. The staff was adequate for the task and appropriately trained. All record keeping supplies and logs were available. The "suiting up" of one of the emergency workers was successfully demonstrated.

**OC PMC Objective 6 - MET** - The ability to continuously monitor and control emergency worker exposure was demonstrated at the PMC during the exercise. Each monitor had a TLD and at least one direct reading dosimeter, 0-5 R. The outside monitoring team had both a 0-5 R and a 0-200 R direct reading dosimeter. Each team had access to a charger and dosimeters were zeroed before being issued. Each monitor had an individual radiation exposure record and recorded their dosimeter readings every 15 minutes. Each monitor was aware of the reporting requirements at 1 R, 3 R and 5 R and knew the authorization limit. Each monitor knew who to contact for authorization to exceed the limit. Each monitor knew to go inside for decontamination if an exposure above the mission authorized 5 R limit was received.

**OC PMC Objective 25 - MET** - The facility had sufficient space inside and outside to accommodate the expected number of emergency workers. Parking for emergency worker vehicles was abundant and separated clean and contaminated vehicles. The facility operates a system to keep clean equipment and personnel separate from contaminated. Initial outside monitoring of vehicles and drivers occurred after passengers had been instructed to go inside for monitoring. If contaminated, vehicles were decontaminated and rechecked before being allowed to park. Monitors used CDV-700 survey meters, with the probe in the open window position. To avoid their becoming contaminated, the probes were covered in plastic to monitor both vehicles and personnel. A proper scanning speed and distance was observed. The trigger point of .1 mR/hr above background was known and recorded. Decontamination of personnel was simulated, according to the plan. Personnel were aware of procedures for further decontamination at the hospital, if necessary.

## **DEFICIENCIES**

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

## **AREAS REQUIRING CORRECTIVE ACTION**

There were no ARCAs 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 19 - 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 James O'Neil High School, located in Highland Falls, New York, in the Highland Falls/Fort Montgomery School District, was contacted and interviewed. A pre-determined series of questions was asked by two Federal evaluators.

The parents of school children are notified of the County's protective action decisions regarding the closing of schools through the EBS. The principal interviewed at the school in Orange County 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 was 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 were kept informed through school publications which contain the addresses of the designated relocation centers.

The official interviewed was 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 Orange County school interview.

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

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

#### **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 4, 1989, during which two objectives were demonstrated. Both objectives were met.

OC Medical Drill Objective 23 - MET - At approximately 0939 the OEOC was informed by personnel at the Orange County Emergency Worker PMC of a contaminated, injured individual in need of medical treatment. The OEOC notified the Newburgh Mobile Life Support Ambulance Service and Horton Memorial Hospital. The injured person had been initially cared for and monitored by the PMC staff and was found to be contaminated. The ambulance, with a crew of two, arrived at approximately 0949. The ambulance was properly equipped with protective clothing and supplies, with the exception of material to drape the inside of the ambulance.

Each crew member was equipped with one 0-200 mR and one 0-5 R direct reading dosimeter, as called for in the County's procedure. Although the PMC staff monitored the individual for contamination, the ambulance did carry a CDV-700 survey meter and the crew was knowledgeable in its use. The crew was also aware of appropriate dosimetry procedures and read and recorded dosimeter readings at the appropriate intervals. The ambulance crew was briefed by the PMC staff on the patient's vital signs and contamination levels. The handling and care of the patient was effectively demonstrated by the ambulance crew. The patient was wrapped to prevent the spread of contamination and transported to the hospital. En route to the hospital, communication was provided by the EMS two-way radio system. Upon arrival at the hospital, the patient was received by the medical team in the Radiological Emergency Area (REA), which had been prepared by the hospital staff. After briefing the medical team on the patient's vital signs and contamination levels, the ambulance crew and ambulance were monitored by a radiological safety officer from the Nuclear Medicine Department of the hospital. They were found to be free of contamination and were released.

This drill demonstrated that the Newburgh Mobile Life Support Ambulance Service members were well trained personnel, and possessed the necessary knowledge, equipment and vehicles to effectively transport and manage a contaminated, injured individual.

OC Medical Drill Objective 24 - MET - Upon being notified by the OEOC to expect a contaminated, injured patient, the Horton Memorial Hospital alerted the appropriate personnel and began preparing the REA for reception of the patient. The medical team was provided protective clothing, one 0-200 mR direct reading dosimeter and one film badge. These were distributed to the team by name and serial number. The initial readings on the dosimeters were recorded. The hospital staff demonstrated professional and effective knowledge in the handling and care of the patient. There was excellent interface between the medical team and the monitor during the treatment and decontamination procedures. The monitor was from the Nuclear Medical Department of Horton Memorial Hospital. After the treatment and decontamination, the patient was properly transferred from the REA for further care in the hospital.

Access to and from the REA was well controlled by the buffer zone nurse and the Radiological Safety Officer. Exit procedures from the REA were adequately demonstrated, with dosimeter readings recorded at the exit of each staff member.



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

#### **DEFICIENCIES**

No Deficiencies were observed during the Orange County medical drill.

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

No ARCA's were observed during the Orange County medical drill.

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

1. **Description:** The ambulance had no material for draping inside the ambulance to prevent the spread of contamination.

**Recommendation:** Material should be provided on the ambulance for the draping of the inside of the ambulance.

## 2.5 PUTNAM COUNTY, NEW YORK

### 2.5.1 Putnam County Emergency Operations Center (PEOC)

Sixteen objectives were demonstrated at the PEOC during this exercise. Fifteen objectives were met and one objective was partially met.

**PEOC Objective 1 - MET** - The Putnam County Sheriff's Office, designated as the County Warning Point, maintains a 24 hour communications capability. At 0718, the Communications Officer received a telephone call from the utility via the RECS line advising that Indian Point Unit 2 had declared an Unusual Event at 0711. 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 0725. At 0826, the Communications Officer received a call via the RECS line advising of an Alert declared at 0817. He completed all notifications as per procedures. He was advised by the County Emergency Operations Director that further communications would be handled at the PEOC.

The staff at the County Warning Point understood the ECLs and took the appropriate actions.

The PEOC Director was notified, via telephone by the Communications Officer at the County Warning Point, of an Unusual Event at Indian Point Unit 2 via telephone at 0718. A call was made to the County Executive. This procedure is in accordance with the Putnam County Plan. Upon receipt of the an Alert at 0826, the County Emergency Management Director, who had reported to work, initiated the call up process. As of 0930, the posting of ECLs began in the PEOC and continued throughout the exercise. All staff were aware of the current status, understood their meaning and took actions appropriate to the level.

Below is the notification sequence at the PEOC

ECL	Time Declared	Time Notified
Unusual Event	0711	0718
Alert	0817	0826
Site Area Emergency	1034	1037
General Emergency	1218	1223

**PEOC Objective 2 - MET** - The staff at the County Warning Point took actions to notify the appropriate individuals at the Unusual Event and the Alert ECLs. At the Alert, the Emergency Management Director began mobilization of the remaining staff. Notification of the other staff began at 0830 and was completed at 0900. Commercial telephones were used and an up-to-date call-up list was followed. Persons notified and mobilized included approximately 24 individuals from 11 agencies and seven support personnel. Secretarial support and security personnel were also activated in a timely

manner. The County Executive and an assistant arrived at 0915 and participated throughout the exercise. Staffing of the PEOC proceeded in a timely manner. The facility was declared operational at 0925 with a full staff present.

**PEOC 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 designated in the plan. Other key staff were consulted when their expertise was needed. The executive hotline was utilized by the County Executive to coordinate decisions with the other Counties. Periodic briefings were conducted throughout the exercise with all agencies in the PEOC to provide updates of the actions taken. All staff members were well trained and knowledgeable of their responsibilities. Plans and procedures were available for reference. An efficient three part form was used to distribute messages and requests for action throughout the PEOC.

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

At the PEOC the communications system is serviced primarily by 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 proved another vital link by connecting all four Counties for decision making and functioned well throughout the exercise. Telephone communications was the primary source employed by the agencies and it worked smoothly. Radio systems available (police, fire and emergency medical services (EMS)) 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.

**PEOC Objective 5 - MET** - The PEOC, although small, is adequate to support emergency operations. Lighting, ventilation and other necessary amenities to provide a coordinated response were sufficient. The status boards employed were excellent and contained details depicting activation, incident status, weather, precautionary and protective actions. Maps depicting monitoring points, TCPs, and ERPAs, with population data, were prominently displayed and utilized.

Periodic updates and exchange of information among the agencies were accomplished utilizing an adequate sound system. Back-up power was available although not demonstrated. Meteorological and radiological data were available in both the Dose Assessment area and in the Operations Room and were regularly updated. Security was maintained throughout the exercise and access was controlled. Crowded conditions did occur during the mobilization of the field teams and consideration should be given to assembling outside the Operations Room.

PEOC Objective 6 - MET - The PEOC staff were aware of what actions to take if emergency workers read levels of 1 R or greater on their dosimeters. An exercise inject in the field caused an emergency worker to call in and request instructions when their 0-5 R dosimeters were dropped, sending the hairline off-scale. The dose assessment staff were consulted. Since there had been no release, the emergency worker was instructed to wait for a police vehicle to arrive with new, zeroed dosimeters.

PEOC Objective 7 - MET - At 0910, the field team was notified to report to the PEOC. By 1001, the field team had arrived and was ready to be briefed. The field team was briefed by the Radiological Officer on their assignment and dispatched at 1045 to Monitoring Point 8.

The Field Monitoring Team transmitted field readings to the PEOC via the RACES operator. The RACES operator promptly provided this information to the Radiological Officer.

PEOC Objective 9 - MET - At 1519, the Field Monitoring Team communicated with the Dose Assessment staff to arrange the drop-off point for his iodine particulate filter. The Radiological Officer instructed the team to take the sample to Point 6, located at Route 9D and Indian Brook Road. The team transported (simulated) the sample to the location where it was picked up by a State Police Officer. From there it would be transported to the Stewart Airport in Newburgh, New York, from which it would be flown to Albany, New York, for analysis.

PEOC Objective 10 - PARTIALLY MET - The Radiological Officer is responsible for Plume Dose Projection. The primary method for dose projection is a manual calculation and is backed-up by a computer program utilized by Putnam County. The initial projection was made during the Alert declaration. Plant status data was provided every 15 minutes and the Radiological Officer used this information to perform offsite dose projections. When field monitoring data became available, new dose projections were made. The projected plume was correctly plotted and displayed. Projected wind shifts were considered.

Due to the late release, the Radiological Officer directed the Field Monitoring Team to only one sampling location. The Radiological Officer then attempted to define the plume in Putnam County by this one data point. (See ARCA 1 for the PEOC.) The Field Monitoring Team was then directed to move to a prearranged monitoring point outside the plume and wait for further instructions.

PEOC Objective 11 - MET - The PEOC demonstrated the ability to make appropriate protective action decisions based upon projected or actual doses, EPA PAGs, availability of adequate shelter, evacuation time estimates and other relevant factors.

The first protective action decision, broadcasted at 1032, closed the parks and dismissed school children early. Throughout the day, an increasing number of ERPAs were sheltered and then evacuated. Eventually, all ERPAs in Putnam County were evacuated.

**PEOC Objective 12 - MET** - The extent-of-play agreement provided that the first EBS message recommending evacuation or sheltering to the general population (more than just closing parks along the Hudson River) would be used to evaluate this objective. EBS Message 2 was used to satisfy this objective. At 1058, the four County Executives, using the executive hotline, agreed to issue an EBS message. A coordinated siren sounding occurred at 1110. The executive hotline was used to monitor the countdown to ensure all sirens were sounded simultaneously. The EBS message was broadcasted at 1113.

The ability to initially alert the public within the 10 mile EPZ and disseminate an instructional message within 15 minutes of a decision by the County officials was met. The simulated sounding of the sirens was coordinated with the other Counties and followed by the initial EBS message. The coordination of the EBS message was effective. When agreement was reached on the contents of the message, a "decision time" was agreed upon, along with the time for simulated siren sounding and EBS air time. The "15 minute clock" was met. Simulated route alerting was demonstrated after an evaluator's impediment inject. This demonstration consisted of a discussion at the PEOC between the State Police, County Sheriff and the Deputy Director of the EOC at 1035. No actual vehicle deployment was performed.

**PEOC Objective 13 - MET** - All broadcasted messages met the 15 minute requirement and were preceded by the sounding of sirens. All messages accurately reflected decisions made by Putnam County officials.

Information, important to County residents, was broadcasted through EBS messages. Message 1 included the closing of parks and the early dismissal of school children. Message 2, as discussed in objective 12, sheltered residents in ERPAs 16 and 18. Message 3 added ERPAs 17 and 19 to those ERPAs already sheltered. The remaining EBS Messages (4, 5, 6, 7 and 8) called for the evacuation of ERPAs 16, 17, 18, 19, 20, and 23 and informed the listening public of the three Reception Centers opened to receive evacuees.

Due to the simulated failure of Siren 85, the Sheriff dispatched (simulated) a police car to notify people in the affected area.

A previous ARCA (PC-1), incurred during the March 22, 1988 exercise, has been corrected and was verified.

**PEOC Objective 16 - MET** - At 1435, there was a discussion in the Command Room between the Director, the Radiological Officer and the Deputy Director about the low iodine levels. The determination was made that it was not necessary to administer KI to emergency workers. This discussion took place shortly after the release.

**PEOC Objective 18 - MET** - The County Executive, the Emergency Management Director and other staff made several recommendations to protect the public living in the County within 10 miles of Indian Point. Other agencies, represented in the PEOC, were knowledgeable about the appropriate actions to take in all cases.

One of the first PARs was the closing of parks. At 1017, the Sheriff ordered a police car to patrol the parks to verify notification of the PAR.

Notification of hearing impaired individuals was simulated, except for an exercise inject. The Department of Aging was responsible for this function and had a current list of hearing impaired and mobility impaired persons available. Hearing impaired persons have "buddies" which would be called to ensure the person was notified of the protective actions to be taken. Actual contact was made with a hearing impaired person (simulated by a FEMA evaluator) to inform her of the recommendation to shelter. Later when the recommendation to evacuate was issued, the individual could not be contacted. The Emergency Management Director ordered a uniform patrol to be sent to her residence to ensure she evacuated. If medical assistance was needed, the Police Officer was instructed to notify the Fire Coordinator so he could direct a Peekskill ambulance (under Mutual Aid) to assist.

The Office of Aging, Public Health Nurses, Patient Services, School Coordinator, Fire Coordinator and County Purchasing Agent coordinated extensively to ensure the efficient evacuation of mobility impaired individuals and nursing home residents. To evaluate the staffs ability to provide assistance to the hearing impaired, the FEMA evaluator inserted an exercise inject at 1032 to trigger demonstration. The current lists of hearing impaired were provided and checked by the Federal evaluator. The location on the hearing impaired person was identified, and a call to the hearing impaired person was made in a timely manner. Action was completed on this demonstration by 1100.

Arrangements were also made for evacuation buses to stop at motels to ensure that guests had been evacuated to Reception Centers.

Buses were also provided for the evacuation of transient dependent people and school children. The School Coordinator effectively directed these activities.

An exercise inject was inserted at 0850 to the Deputy PEOC Director (Acting as the Schools Coordinator, who had not arrived at the PEOC yet) to initiate the running of the general population bus Route 88. The Deputy contacted the principal at 0851. The principal was to notify the dispatcher to commence the general population bus evacuation route. This event was also coordinated with the Director of the PEOC.

PEOC Objective 19 - MET - Putnam County authorized the early dismissal of school children at 1017. This decision was transmitted to the public through the first EBS message, broadcasted at 1032. This authorization was then transmitted to the public school system superintendent by the Schools Coordinator. He then called the dispatchers for the four school districts and instructed them to mobilize the bus drivers.

An exercise inject to run the two school evacuation routes, was inserted at 0820. The PEOC Deputy Director (acting as the County School Emergency Operations Coordinator, who had not yet arrived at the PEOC) contacted the Garrison School principal, by telephone, at 0825.

The principal was to call the dispatcher who would then activate the school evacuation bus runs. The same procedure was demonstrated for the Putnam Valley School. Both demonstrations were coordinated with the Emergency Management Director.

PEOC Objective 20 - MET - Throughout the exercise, the County Sheriff and the Highway Department coordinated traffic throughout the affected areas of the Plume EPZ.

At 1130, an exercise inject, simulating an impediment to evacuation, was given to the Sheriff. The Sheriff immediately consulted with the Putnam Valley Chief of Police and devised an alternate route. They discussed this alternate route with the County Executive and the Emergency Management Director. The County Executive discussed the impediment and the rerouting of traffic on the executive hot-line with the other County executives. In addition, News Bulletin 6 describing the alternate evacuation route, was formulated at the JNC, with information provided by the PEOC, and authorized by the County Executive.

## DEFICIENCIES

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

## AREAS REQUIRING CORRECTIVE ACTION

1. **Description:** The Radiological Officer directed the Field Monitoring Team to only one prearranged monitoring point during the entire exercise and thus did not satisfactorily define the plume in Putnam County. (NUREG-0654, I.10)

**Recommendation:** Provide further training to the Radiological Officer and field teams on properly defining the plume pathway.

## AREAS RECOMMENDED FOR IMPROVEMENT

1. **Description:** Congestion in the EOC was increased during the assembly by the Field Monitoring Team.

**Recommendation** It is recommended that Field Monitoring Team report to an area outside the Operations Room. Possibly, they could assemble in the equipment storage area.

### 2.5.2 Putnam County Field Activities

The field activities demonstrated in Putnam County included field monitoring, traffic control, school evacuation bus runs, general population bus runs, and one PMC. 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

Eight objectives were demonstrated by the Putnam County Field Monitoring Team during this exercise. Seven objectives were met and one objective was partially met.

**PC FM Objective 1 - MET** - The Field Monitoring Team was kept informed by the EOC about the current ECL and plant status. The Radiological Officer briefed the field monitors at 1005 prior to their departure into the field. Periodic briefings about plant status and changes in ECLs were given via the RACES communications network. The Field Monitoring Team understood the meaning of the ECLs as they applied to their function.

**PC FM Objective 2 - MET** - At 0839, the Deputy County Director notified the Field Monitoring Team to report to the PEOC. The four members of the team were notified via telephone at that time. The team members arrived at 0920. At 1005, the Radiological Officer briefed the team on plant status and current ECL. At 1045, the team was dispatched to Monitoring Site 8.

**PC FM Objective 4 - MET** - All members of the volunteer Field Monitoring Team were RACES personnel. All had hand held radios which allowed them to communicate with the PEOC. The vehicle used by the Field Monitoring Team also had a radio. No communication problems or delays were encountered.

**PC FM Objective 6 - MET** - Each Field Monitoring Team member had one 0-5 R direct reading dosimeter, one 0-100 R direct reading dosimeter and a TLD. The team had access to a charger at their dispatch location and zeroed the dosimeters before being dispatched. One member could not zero his 0-100 R dosimeter, but could get it to 5 R. He decided to leave it at 5 R and account for the difference if a dose was incurred. The PEOC requested readings from the team every 10 to 20 minutes. Emergency workers utilized their exposure record cards to record these readings. The workers were knowledgeable of their exposure limits.

**PC FM Objective 7 - PARTIALLY MET** - The Field Monitoring Team had the proper equipment for their assignment and demonstrated good sampling techniques. The instrumentation was compatible with established procedures and was in calibration. The team simulated having a plastic bag over the probe to prevent contamination. The team took readings off of the meter for background. The background reading was inaccurately reported to the PEOC as 2 mR/hr. However, the meter was set on the 0.01x setting, thus making the actual background reading 0.02 mR/hr. (See ARCA 1 for the PC FM.)

**PC FM Objective 8 - MET** - At 1450, the Field Monitoring Team was instructed to take an air sample at Site 8. The team took out the sampler and hooked it up to the battery of the vehicle.



The filter paper was placed in the sampler incorrectly, which would have caused a low reading. The sample took 6 minutes and 40 seconds to be collected. The sample cartridge was wrapped in a plastic bag and the whole air sampler was placed into the equipment box. The air sampler should have been placed in a plastic bag to prevent the spread of contamination. After sampling, the team left the area to count the sample in a low background area. The team monitored the area to confirm that the area was suitable to read the sample. The team used proper geometry to count the samples.

**PC FM Objective 9 - MET** - After counting the samples and reporting the results to the PEOC, the Field Monitoring Team requested the PEOC to arrange for transport of the samples to the State laboratory. The PEOC instructed the team to take the sample to Point 6. There it would be taken by a Police Officer to Stewart Airport in Newburgh, New York. From there the sample would be flown to Albany, New York, and then transported to the State Laboratory. Actual transport of the sample was simulated, as provided for in the extent-of-play agreement.

**PC FM Objective 16 - MET** - At the 1005 initial briefing, the County Radiological Officer briefed the field team on the proper use of KI. The team had been instructed to take KI only when specifically instructed by the PEOC to do so. The Field Monitoring Team followed these instructions and did not take their KI.

## DEFICIENCIES

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

## AREAS REQUIRING CORRECTIVE ACTION

1. **Description:** The observer from New York State told the Field Monitoring Team to obtain a background reading. The monitor reported background as 2 mR/hr when the scale on the meter (E-520) was set on the 0.01 setting. On this setting, the reading was actually 0.02 mR/hr. Thus, the reading transmitted to the PEOC 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 the 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. (NUREG-0654, I.8 and I.11)

**Recommendation:** Additional training is needed for field monitors in the proper use of and care for their equipment.

## **AREAS RECOMMENDED FOR IMPROVEMENT**

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

### **2.5.2.2 Traffic Control Points**

Three objectives were demonstrated at two Putnam County TCPs. All three objectives were met.

**PC TCP Objective 1 - MET** - The Putnam County Sheriff's Office demonstrated their ability to receive ECL updates. The Site Area Emergency message was received by the Sheriff's Office and relayed to the TCP police officer when he was dispatched.

**PC TCP Objective 6 - MET** - The police officers radioed their dosimeter readings into the PEOC at 15 to 30 minute intervals. These readings were also recorded on their Individual Radiation Exposure Record. At their dispatch, the police officers received one 0-5 R direct reading dosimeter and one TLD, as per their procedures. A dosimeter charger was available for them to zero their dosimeter. The officers were knowledgeable about the use of their equipment and exposure limits. Protective clothing was available, but not demonstrated at the TCP.

**PC TCP Objective 20 - MET** - The objective to demonstrate the ability and knowledge of the responder to establish a TCP to control access to evacuated and sheltered areas was met. The Deputy Sheriff responded within 15 minutes of his dispatch. The officer had knowledge of the appropriate evacuation routes and the location of the reception centers.

## **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.

## **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

Three objectives were demonstrated during two Putnam County school evacuation bus runs. All three objectives were partially met.

**PC SE Objective 1 - PARTIALLY MET** - 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. (See ARCA 1 for the PC SE)

**PC SE Objective 6 - PARTIALLY MET** - Each bus driver and the accompanying communications person had one 0-5 R direct reading dosimeter 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 read the dosimeter at appropriate intervals, recorded the readings on their Individual Radiation Exposure Records, and continued to take dosimeter readings throughout the routes. When an exercise inject was given that the dosimeter had fallen, sending the hairline off-scale, the bus driver had the RACES operator call the PEOC for instructions. The PEOC called each bus driver within five minutes and instructed him to pull over and wait for a police car to arrive with a new dosimeter. One bus driver was unsure of the reporting requirements and whether he should notify his supervisor. The second bus driver knew his exposure limits and reporting requirements. (See ARCA 2 for the PC SE.)

**PC SE Objective 19 - PARTIALLY MET** - Although the first bus driver had incorrect directions to Rombout School, he was able to locate it. The second bus driver located the Putnam Valley J.H.S. to pick up the children, but did not know where at the school the children would be loaded on his bus. When the bus arrived in Dutchess County, the bus driver's directions to the school reception center (located in Dutchess County) were found to be incorrect. (See ARCA 3 for the PC SE) The driver used his own knowledge of the area to locate the school. Upon arriving at the Sargent School he did not know where to drop off the children.

One bus driver did not know the purpose of the trip to the school or the trip to the school reception center. (See ARCA 4 for the PC SE)

### DEFICIENCIES

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

### AREAS REQUIRING CORRECTIVE ACTION

1. **Description:** 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. (NUREG-0654, 0.4)

**Recommendation:** Further training of bus drivers in the understanding of ECLs.

2. **Description:** One bus driver was unsure of both the exposure limits and reporting requirements. (NUREG-0654, K.3.a and K.3.b)

**Recommendation:** Additional training should be provided to the bus drivers on both exposure limits and reporting requirements.

3. **Description:** The bus driver's route map, showing how to get to the School Reception Center, was incorrect. (NUREG-0654, J.9 and J.10g)

**Recommendation:** Review and correct the maps, as necessary, to get the bus drivers to their designated locations.

4. **Description:** The second bus driver did not know the purpose of the trip to the school and the directions to the School Reception Center. (NUREG-0654, J.9 and J.10.g)

**Recommendation:** Additional training is needed for bus drivers to reinforce in them their role during an evacuation.

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

There were no ARFIs observed during the Putnam County school evacuation bus runs.

##### **2.5.2.4 General Population Evacuation Bus Runs**

Three objectives were demonstrated during the Putnam County general population evacuation bus runs. All objectives were met.

**PC GP Objective 1 - MET** - The bus drivers were informed of the current ECL prior to leaving the Haldane Bus Garage, en route to the general population evacuation bus route. A RACES operator was assigned to each bus to provide direct communications between the bus and the PEOC. ECL information was transmitted to the bus drivers and current ECL information was maintained on the buses throughout the exercise.

**PC GP Objective 6 - MET** - The bus driver and the RACES operator were each issued a dosimetry package consisting of a TLD, one 0-5 R direct reading dosimeter, KI, dosimeter charger and an Individual Radiation Exposure Record. Written instructions included in this package stated that the dosimeter is to be zeroed at the start of activities and read and recorded every 15 minutes thereafter. A reading of 1 R is to be reported to the emergency worker's supervisor as well as a reading of 3 R. At this point (3 R), the emergency worker is to leave the area. These instructions were read and understood by participants.

A message inject was given to the driver at 1011. This message simulated that each driver had dropped their 0-5 R dosimeter and the hairline could not be read.

On the first route, the RACES operator called the PEOC and, after 16 minutes, was informed that the State police would deliver another dosimeter to the bus. The second driver said that he would call his supervisor. The RACES operator pointed out that he and the driver had zeroed their dosimeter at the same time and had remained together, so that they could rely on one dosimeter until the State police delivered a replacement.

PC GP Objective 18 - PARTIALLY MET - The first general population evacuation bus run was initiated from the Haldane Bus Garage at 0933 and the first pick-up point was passed at 1009. This route consisted of 10 pick-up points and covered several roads. This route took 70 minutes to complete, but this time frame is not realistic because about half of that time was spent trying to resolve ARCA PC-2 from the March 22, 1988 exercise. This ARCA, resulting from inadequate route markings and the bus driver's unfamiliarity with the route, was not resolved. The bus driver performed her duties satisfactorily in spite of inaccurately written instructions.

After considerable time reading and re-reading directions and consulting with the PEOC, it was determined that the route instructions were incorrect. (See ARCA 1 for the PC GP) In one instance, the instructions indicated six miles between pick-up points, whereas 0.6 mile is more accurate. The mail box referred to as Box 134 should be 34. Street signs in the area of this route are in a state of poor repair and/or are missing. The instructions should be evaluated and corrected as necessary.

The second general population evacuation bus run was initiated from the Mahopac Bus Barn at 1241, and the first pick-up point was passed at 1248. This route was basically along Wood Street and Lake Secor Road and consisted of 13 pick-up points. The route was completed in 20 minutes. No stops were made on the route and a trip to the Roy C. Ketcham 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 of 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 with an outside antenna to maintain excellent communications with the PEOC.

ARCA PC-2, incurred at the March 22, 1988 exercise, remains uncorrected and must be demonstrated in the next exercise.

## DEFICIENCIES

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

## AREAS REQUIRING CORRECTIVE ACTION

1. **Description:** ARCA PC-2 from March 2, 1988 was not resolved. From radio discussions between the bus driver and the PEOC it appears that the written instructions for Route 88 are not accurate as to distance between pick-up points (6 vs. 0.6 miles) and mail box numbering (Box 134 should be 34). Road signs are in need of repair or replacement. (NUREG-0654, G.9, and J.10.d.g.)

**Recommendation:** This route should be driven again and written instructions prepared to conform to actual distances and landmarks. An "on the ground" survey of street signs should be made and the needed repairs and replacements made.

## AREAS RECOMMENDED FOR IMPROVEMENT

There were no ARFIs observed at the Putnam County general population evacuation bus runs during this exercise.

### 2.5.2.5 Personnel Monitoring Center

There were five objectives demonstrated at the Putnam County PMC. All objectives were met.

**PC PMC Objective 1 - MET** - As provided for in the extent-of-play agreement, this objective was demonstrated out of sequence after the termination of the exercise, therefore the receipt of ECL information was not demonstrated. However, the Fire Captain in charge of the demonstration was aware of the four ECLs and knowledgeable in their use.

**PC PMC Objective 4 - MET** - The PMC is located at the Carmel Volunteer Fire Department. Telephone and radio communication capabilities were demonstrated. The radio system, which served as the primary method of communications, linked the PMC with the County Fire, Police, and Emergency Management organizations. The backup telephone system could be used to contact any desired organization. The PMC communicated with the PEOC and other fire companies within the County. Neither of the systems malfunctioned.

**PC PMC Objective 5 - MET** - The fire station had adequate space to serve as a PMC location. There were sufficient equipment and supplies to support the emergency operation. Two of the bays in the fire house were used for monitoring and decontamination activities. A portable shower with separate accommodations for males and females was set up with curtains around the shower for privacy. The building had kitchen facilities and cots which could accommodate approximately 100 emergency workers.

**PC PMC Objective 6 - MET** - Dosimeter kits were issued to each member of the staff at the PMC. Included in each kit were one O-5 R direct reading dosimeter, one TLD, one vial of KI, instructions for the use of dosimetry and

an Individual Radiation Exposure Record. The kits were issued by name, serial number and recording of the initial reading on the dosimeter. Staff members were aware of their exposure limitations, the exposure authorized for the mission and the necessary action to initiate if exposure exceeded the authorized limitations.

PC PMC Objective 25 - MET - The adequacy of this facility was satisfactorily demonstrated by the knowledgeable and well trained staff of the Carmel Volunteer Fire Department. Enthusiasm and team work were exhibited by the staff which exceeded 1/3 shift requirement. The facility and parking area could easily accommodate the expected number of emergency workers and assure separation of clean/contaminated personnel, vehicles and equipment. Monitoring technique was demonstrated in an acceptable manner and averaged 60 to 90 seconds per individual monitored and 3 to 4 minutes for vehicles surveyed. At this rate the 20% requirement would have been met. Eberline survey meters were used to monitor personnel and CDV-700 survey meters were used to monitor vehicles. All instruments were calibrated within the last year (Eberline-520 with a calibration date of September 12, 1990 and CDV-700 with a calibration date of March 1990). Appropriate records were completed on both personnel and vehicles when contamination was detected. The PMC demonstration was completed at 2030.

#### DEFICIENCIES

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

#### AREAS REQUIRING CORRECTIVE ACTION

There were no ARCAs 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

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

PC School Objective 19 - 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 to evaluate the degree of preparedness for each school.

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

1. Putnam Valley Junior High School  
Putnam Valley Central School District  
Putnam Valley, New York
2. Haldane Central Senior High School  
Haldane Central School District  
Cold Springs, New York
3. St. Philip's Nursery School  
Garrison Union Free School District  
Garrison, New York

At each school, either the principal or the school director 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 EBS message. 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 were 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 ARCA's 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 September 27, 1990. Two objectives were demonstrated. One of these objectives was met and the other was partially met.

PC Medical Objective 23 - PARTIALLY MET - The adequacy of vehicle equipment, procedures and personnel for transporting the contaminated injured individual was satisfactorily demonstrated by the Carmel Volunteer Ambulance Service, with the exception noted further in this narrative. The ambulance crew, consisting of three Emergency Medical Technicians, responded to the call from the Emergency Worker PMC to transport an emergency worker with severe chest pains and possible radiological contamination to the hospital. According to the scenario, personnel at the PMC were to perform monitoring activities, but no monitors were present. Radiological monitoring at the scene was not accomplished. Upon examination of the patient, the ambulance crew determined that the condition of the patient warranted immediate transportation to the hospital. This expedient decision by the ambulance crew to transport without waiting for monitoring should have been combined with proper packaging (wrapping) of the patient and draping the inside of the vehicle for containment of contamination. The patient was loosely wrapped with the patient's feet protruding from the blanket. Each crew member was provided one TLD, one 0-5 R direct reading dosimeter and gloves. No other protective clothing was provided. There was one recently calibrated CDV-700 in the ambulance. The crew indicated that they had only two hours of radiological training. The crew was familiar with the capabilities of the Putnam Hospital Center and contacted the hospital by radio, giving the patient's vital signs and the estimated time of arrival (10 minutes). (See ARCA's 1 and 2 for the Putnam County Medical Drill.)

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 technician from the hospital. Overall, the ambulance crew did a good job, but could use additional training in the handling of radiologically contaminated patients.

PC Medical Objective 24 - 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 Medical Center. The mobilization of the staff and preparation of the REA was most expedient. The first notification that the hospital received was from the ambulance, with an estimated time of arrival of ten minutes. Within this ten minute period, the REA was made ready, the medical reception team donned protective clothing and was provided with the necessary dosimetry (one 0-200 mR dosimeter, one dosimeter ring badge, and one TLD). A recently calibrated (8-18-90) survey meter was used for monitoring. The medical team present in the treatment room consisted of one doctor, two nurses and the radiological safety officer. In the buffer room, outside of the treatment room, there was one nurse and one radiological technician.

Excellent interface was demonstrated between the medical team and the monitor.

Handling and decontamination of the patient was 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. The hospital staff is to be commended on the expedient manner in which they mobilized the staff and prepared the hospital for the reception of the patient.

A previous ARCA (PCMD-1), incurred in the December 8, 1987 medical drill, has been corrected and verified.

#### DEFICIENCIES

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

#### AREAS REQUIRING CORRECTIVE ACTION

1. **Description:** The patient was not adequately wrapped to prevent the spread of contamination during transport to the medical facility. (NUREG-0654, L.4)

**Recommendation:** Additional training should be provided in the proper handling of radiologically contaminated patients.

2. **Description:** The ambulance crew was not provided adequate protective clothing nor material to drape the inside of the vehicle. (NUREG-0654, L.4)

**Recommendation:** Additional training should be provided on the use of protective clothing and draping material.

#### AREAS RECOMMENDED FOR IMPROVEMENT

There were no Areas Recommended for Improvement observed at the Putnam County medical drill.

## 2.6 ROCKLAND COUNTY, NEW YORK

### 2.6.1 Rockland County Emergency Operations Center (REOC)

The REOC demonstrated sixteen objectives for this exercise. Fourteen objectives were met and two objectives were partially met.

**REOC Objective 1 - MET** - The staff at the Warning Point were notified of the Unusual Event at 0718 and took the appropriate actions, as described in their procedures. The staff understood the ECLs they were exposed to. The REOC staff were aware of the current ECL at all times. The ECLs were prominently displayed throughout the REOC. The Operations Manager kept the REOC staff well informed about the current levels and plant status.

Below is the notification sequence at the REOC:

ECL	Time Declared	Time Notified
Unusual Event	0711	0718
Alert	0817	0826
Site Area Emergency	1034	1037
General Emergency	1218	1223

**REOC Objective 2 - MET** - The utility used the RECS line to call the County Warning Point at 0718 to notify them that an Unusual Event was declared at the IPNS-2. After this notification was completed, a radio operator notified key REOC staff (Operations Manager, Resources Manager, and the Director of Emergency Services) using a telephone and pager system. The current (October 1990) notification list was used. The notification began at 0725 and was completed by 0735. Notification by pager was verified by the responders calling and leaving a message on an answering machine. Also, after the Alert, a timely notification of EOC staff on the Sheriff's list was made using the same telephone and pager system during the Unusual Event. The Fire Chief and Deputy were notified via fire radio by the Warning Point. This process began at 0834 and was completed at 0850.

All staff were required to sign-in at the security desk and on a board located in the REOC. The staff arrived in a timely manner and the facility was declared operational at 0925. Staff was dispatched to other facilities as required (bus companies, field monitoring). The Rockland County liaison to Bergen County, New Jersey, was dispatched at approximately 0850.

**REOC Objective 3 - MET** - The Rockland County Executive was in charge of the emergency response. Hourly briefings to update the staff were conducted. In addition, the REOC staff was briefed whenever there was any change in plant status or an EBS message was broadcasted. Key staff were involved in all decision-making. The REOC used an internal message handling system and a record of these messages was maintained. All protective action decisions and implementation of those decisions were effectively discussed and coordinated with the other three Counties and the State over the hotline.

**REOC Objective 4 - MET** - The Unusual Event and Alert ECLs were received via the RECS line at the Warning Point. At 0850, command and control was transferred to the REOC. The RECS line functioned adequately at the REOC. Also at 0850, communications with Bergen County, New Jersey was established and at 0916 it was established with the JNC. The executive hot-line functioned flawlessly. Each County agency had a telephone line on their desk. Separated from the operations room were the Department of Highway, Emergency Medical Services, and Fire and Police radios. The RACES operator was in a separate room. A personal computer link to the JNC provided efficient formulation of news releases. A facsimile machine was used to receive copies of EBS messages from the JNC. The Handicapped representative had a TTY for communications with hearing impaired individuals. No difficulties were observed with the use of any of these communications links during the exercise.

**REOC Objective 5 - MET** - The REOC, a dedicated facility located in the Fire Training Center in Pomona, New York, is an excellent facility capable of extended emergency operations. The facility has adequate space, lighting, back-up power and other amenities. Displays were located near the emergency response functions they supported and were consulted throughout the exercise. For example, the map of siren locations were consulted to decide which route alerting team to activate when a siren failed and the map of TCP locations was consulted in deciding which TCPs should be activated to control access to evacuated ERPAs. Two Sheriff's Department personnel controlled access to the REOC. They verified identification and kept logs (one for the REOC staff and the other for visitors, evaluators, etc.) of persons entering and leaving the REOC. Also, admittance to the Sheriff's communications room was tightly controlled. Since the REOC is just within the plume exposure EPZ, a station for monitoring those entering the facility was set up after receiving notification of a radioactive release at 1409.

**REOC Objective 6 - MET** - The REOC staff members and the Exposure Control Coordinator demonstrated the ability to continuously monitor and control emergency worker exposure. Each REOC staff member was assigned a TLD when they signed into the REOC. Two ranges of direct reading dosimeters (0-200 R and 0-5 R) were placed on outside walls at various locations within the REOC as area monitors. These direct reading dosimeters were read at hourly intervals until the time of the radioactive release, then the reading and recording frequency was increased to every 15 minutes. The Exposure Control Coordinator and Field Team Coordinator demonstrated knowledge of the emergency worker exposure reporting requirements.

**REOC Objective 7 - MET** - The Field Monitoring Teams took gamma, as well as beta-gamma readings at heights of three feet and three inches. The results of these field measurements were promptly transmitted to the Field Team Coordinator at the REOC. The Field Team Coordinator recorded the field team data on the appropriate form for use by the REOC Dose Assessment Team.

**REOC Objective 9 - MET** - The simulated transfer of the air sample to a laboratory, for analysis, was discussed with the Operations Manager at the EOC. The Operations Manager knew that the transfer of the air sample would be picked up by a Rockland County Sheriff, and then taken up to Stewart Airport, for transfer to the State Laboratory in Albany, New York.

**REOC Objective 10 - PARTIALLY MET** - The REOC Dose Assessment Team demonstrated the ability to project dose to the public via plume exposure based on plant and field data. The Team utilized the manual calculation methods from Procedure DOH-5. Initially, there was confusion about the use of DOH-5, Table 1, Site Boundary Xu/Q, values for the dose projection calculations. (See ARCA 1 for the REOC.) The dose assessment team was very knowledgeable about the valley flow effects at low wind speeds and they demonstrated the proper choice of overlays to identify the areas affected by the plume. The dose assessment team was sensitive to the weather forecast and had completed dose projections for all of the predicted meteorological changes, well in advance of their occurrence. Plant status and in-plant monitoring data were available through the MIDAS System. There was a problem with the MIDAS System in that it would not stay on-line. This problem required that the MIDAS System be manually accessed every 15 minutes. Information from the plant was also available through the County Liaison at the EOF. As changes in plant status occurred, the Dose Assessment Team made new dose projections and revised their protective action recommendations accordingly. The field monitoring team was properly directed to define the plume boundaries and plume center line. Field measurements were compared to dose projections, however, the exercise termination limited the extent of this demonstration. The Dose Assessment Team gave a good demonstration of monitoring and plotting the field measurements by field teams from the utility and the other Counties.

**REOC Objective 11 - MET** - Utility PARs were considered by the REOC management, along with transportation requirements, evacuation time estimates and TCPs when making the protective action decision. Dose projections were compared to the Environmental Protection Agency's PAGs and projected changes in wind direction were utilized to determine the affected sectors and ERPAs for making changes in protective action decisions. The protective action decisions were coordinated, over the hotline, with the State and other risk Counties before being implemented. School closures (0835) and park closures (0849) were preplanned protective actions that were implemented during the Alert ECL, which was declared at 0817. At 1058, the decision was made to shelter ERPAs 29, 38, 39 and 40. As plant conditions worsened during the Site Area Emergency ECL, the decision was made to evacuate ERPAs 29, 38, 39 and 40. Subsequent protective actions were based on projected changes in wind direction and evacuation time estimates and dose projections, which resulted in the decision to evacuate ERPAs 30 and 31 and shelter ERPAs 32, 33, 34 and 35. Closure of public water supplies utilized surface water was also ordered.

**REOC Objective 12 - MET** - As provided for in the extent-of-play agreement, the first EBS message recommending evacuation or sheltering to the general population (more than just closing parks or the Hudson River) would be evaluated for this objective. Therefore, EBS Message 2 was used to satisfy this objective. At 1058, the four County Executives, over the executive hotline, agreed to release an EBS message. Orange and Rockland Counties used this message to instruct the general population in ERPAs 39 and 40 to shelter. Since these two ERPAs have portions in both Counties, it is required that this be a joint decision. Rockland County also called for the sheltering of ERPAs 29 and 38. A coordinated siren sounding occurred at 1110. The executive hotline was used to hear the countdown to ensure that all sirens were sounded simultaneously.

The ability to initially alert the public within the 10 mile EPZ and begin dissemination of an instructional message within 15 minutes of a PAD by the appropriate State and County officials was effectively demonstrated.

**REOC Objective 13 - MET -** Critical information, important to County residents was broadcasted in EBS messages. EBS message 1 notified the public that parks in Rockland County were closed and schools were being dismissed early. Message 2, as discussed under Objective 12, ordered the sheltering of ERPAs 29, 38, 39 and 40. Message 3 called for the evacuation of these ERPAs. Message 4 sheltered ERPAs 30 and 31. Message 7 instructed ERPAs 30 and 31 to evacuate and ordered ERPAs 32, 33, 34 and 35 to shelter.

The Rockland County PIO staff had access to all current information and communicated it to the JNC. The EBS messages effectively addressed information and instructions for the public. Copies of all releases and EBS messages were faxed to the REOC from the JNC. Copies were maintained for reference. The staff monitored broadcasts to keep track of information provided to the public.

The REOC staff responded to two exercise injects. First, the staff initiated route alerting in response to an exercise inject that Siren 257 had failed. Second, the staff was notified of a fictitious hearing-impaired person in response to another inject. In each case, the staff's actions were appropriate. The siren failure was injected at the Sheriff's communications center at 1048. The radio operator there promptly notified the Emergency Coordinator who instructed the Operations Manager to have the PIO draft a News Release and to instruct the Sheriff's representative to initiate route alerting. These instructions were conveyed to the PIO and the Sheriff's representative in a timely manner. News Release 4A contained the information on the failed siren.

The hearing impaired inject was given to the handicapped representative. He had a list of disabled persons in the County which contained the name, address, telephone number, ERPA in which resided, nature of the disability, and whether transportation would be needed. The representative used the handicapped person's address to first determine which ERPA the disabled person resided in. Then he called the specified telephone number and gave the person who answered the telephone, relevant information about the status of the accident. He also said that he would call back in the event that an evacuation of that ERPA was recommended.

**REOC Objective 16 - MET -** The ability to make decisions concerning the authorization of KI was demonstrated at Rockland County. The acting County Commissioner of Health compared the thyroid dose projections to the 25 Rem EPA emergency worker PAGs. At 1445, the decision was made not to issue KI since all of the thyroid dose projections indicated that the thyroid PAGs would not be exceeded. Emergency workers carried KI, which was within its expiration date, in their monitoring kits.

**REOC Objective 18 - MET -** The FEMA evaluator observed the decision-makers implement the appropriate protective actions. The REOC staff performed effectively when given PAR decisions to ensure the orders were fully implemented. For example, to ensure that the parks were fully closed, a helicopter was flown over the remote areas to notify hikers and campers.

Throughout the exercise, the special Facilities Coordinator maintained contact with County special facilities. Early in the exercise (0945), public transportation was suspended in order that the buses could be made available on short notice. Several buses were put on standby at the Yeager Health Center, in case an evacuation order was given.

A telephone number was established for the physically disabled, needing assistance in the event of an evacuation. The Office of the Physically Handicapped coordinated evacuations.

Special actions were taken to protect the residents of the County jail. A total of 224 KI kits were sent to the jail in case the recommendation to ingest KI was given.

**REOC Objective 19 - MET** - The Director of Emergency Services has the authority to close school after concurrence with the County Executive. The Rockland County plan states that the County Executive or his designee can close all schools at the Alert ECL as a precaution. After the Alert declaration at 0817 the decision was made at 0835 to dismiss County Schools early. At this time, the School Liaison called the school districts to inform them of this decision.

**REOC Objective 20 - PARTIALLY MET** - The REOC demonstrated the ability to control traffic throughout the plume EPZ. Two TCPs were activated from the REOC to be observed in the field. An exercise inject initiated a traffic impediment.

The Sheriff's representative at the REOC was given two exercise injects to establish TCPs. The first, injected at 1033, called for a TCP at the intersection of Strawtown Road and Demarest Avenue. The second, injected at 1130, called for the activation of a TCP at Palisades Interstate Parkway Interchange 9. In both cases, the Sheriff's representative consulted the TCP location map, conferred with the local police representative, and telephoned the Sheriff's Headquarters to dispatch a vehicle. The first inject caused some confusion because Strawtown Road and Demarest Avenue is not the location of a TCP according to the TCP map. However, Procedure RCS-2, Attachment 2 ("Traffic Control Points") lists this intersection as a "key intersection." (See ARCA 2 for the REOC.) About 1043, the Sheriff's representative called the Sheriff's Headquarters to dispatch a vehicle to the specified location. Apparently another vehicle was also dispatched to the nearest TCP location according to the TCP map. The vehicle dispatched to the interchange was reported by the Sheriff's Headquarters to have arrived there at 1147. Procedure NYSP-1 indicates that the New York State Police (NYSP) have responsibility for command and control of the Palisades Interstate Parkway. However, the Sheriff's representative was not observed to have discussed the activation of a TCP at the Palisades Interstate Parkway Interchange 9 with the NYSP representative.

When the exercise message was injected to simulate an impediment, the REOC staff assessed the need to reroute traffic around the impediment. The REOC staff demonstrated the capability to respond appropriately and they did so in a timely manner. The staff requested resources (simulated) to clear the impediment and assist in the rerouting of traffic.

## DEFICIENCIES

No Deficiencies were observed at the REOC.

## AREAS REQUIRING CORRECTIVE ACTIONS

1. **Description:** There was confusion concerning the proper use of Table 1 from procedure DOH-5. This could have lead to incorrect dose projections. (NUREG-0654, I.10)

**Recommendation:** Provide additional training on the use of Procedure DOH-5, Table 1 and provide additional training on the use of environmental data and field measurements.

2. **Description:** The intersection of Strawtown Road and Demarest Avenue, a TCP, was not included on the TCP Map used in the REOC. (NUREG-0654, J.10.j and J.10.k)

**Recommendation:** The TCP map and Attachment 2 of Procedure RCS-2 should be consistent.

## AREAS RECOMMENDED FOR IMPROVEMENT

1. **Description:** Although the Palisades Interstate Parkway is under the jurisdiction of the NYSP, the Sheriff's representative at the REOC was not observed discussing activation of a TCP at the Parkway's Interchange 9 with the NYSP representative.

**Recommendation:** Activation of TCPs on interchanges of the Palisades Interstate Parkway should be coordinated with the NYSP.

2. **Description:** The MIDAS System kept going off-line. This required that the system be manually accessed every 15 minutes to receive updates on the plant monitoring data.

**Recommendation:** Identify and correct the cause of the problem, i.e., mechanical repair or training on the use of the system.

### 2.6.2 Rockland County Field Activities

In Rockland County, various field activities were demonstrated. These include field monitoring, traffic control, school evacuation bus runs, general population bus runs, one reception center, and one personnel monitoring center. The evaluation of these activities follows. The Congregate Care Center for Rockland County is located in Bergen County. The evaluation of this facility appears in Section 2.9.



### 2.6.2.1 Field Monitoring Team

Eight objectives were to be demonstrated by the Rockland County field monitoring team during this exercise. Four of these objectives were met and four were partially met.

**RC FM Objective 1 - MET** - The ECLs described in the procedures were utilized by the Field Monitoring Team during this exercise; thus, the ability to monitor, understand and use the ECLs was demonstrated. The REOC staff notified the field monitoring team of any change in ECLs. The specific meaning of each of the emergency classifications was available in the procedures and they were understood.

**RC FM Objective 2 - MET** - After the receipt of the Alert from the utility at 0817, the Dose Assessment Supervisor notified the Radiation Monitor Coordinator at 0840 at the Health Department Complex. The Coordinator arrived at the EOC at 0855, was briefed and then notified the Field Monitoring Team at 0902, putting them on standby. They remained on standby at the Health Department until they were requested to come to the REOC at 1046 after the Site Area Emergency declaration. The team members arrived at 1059. There was initially some confusion because one member did not have his identification badge. The team members then performed their equipment checks, received a briefing at 1135 and were dispatched to Sampling Point 1 at 1145.

The equipment checks were very thoroughly performed in 35 minutes. Although not necessary for this scenario, the team could have been ready for dispatch two hours earlier at 0950. These pre-dispatch activities should be accomplished as soon as possible after the Alert notification to prepare the team for any fast-breaking accident.

**RC FM Objective 4 - PARTIALLY MET** - The field monitoring team communicated by using a vehicle short wave radio and a cellular telephone.

The area being monitored in the Hudson River Valley is very hilly. Thus, radio reception and transmission is not possible at many locations. However, the use of the cellular phone in these locations provided very good communications.

At times, all of the team members were involved with monitoring activities in front of the vehicle and the radio or telephone could not be heard over the engine noise. However, this did not cause any transmission delays of more than a minute. A hand held radio would prevent even the minimal delay. Communication updates during the day were frequent and the only information not provided related to the protective actions being implemented in the area. (See ARCA 1 for the RC FM.)

**RC FM Objective 6 - PARTIALLY MET** - The team members each wore a TLD and two direct reading dosimeters as directed by the plan procedures. Before the teams were dispatched to their first location, the dosimeters (0-500 mR and 0-5 R) were zeroed and the readings recorded. After that, the workers read and recorded the reading every 30 minutes during the exercise.

The team was aware of the need to accomplish their tasks as rapidly as possible (per procedure) while in the plume and then leave the plume and drive to a background area.

The team's demonstration of dosimetry use was good. However, the plan should be revised in compliance with the current FEMA guidance for direct reading dosimeter ranges.

In addition, the plan describes a 3 R/hr reporting level. The 3 R/hr was also provided to the team during their REOC briefing. However, a card provided to the team and carried in the vehicle indicated a 1 R/hr reporting level. The procedure should be revised to indicate the 1 R/hr value. In addition, the procedure should be changed to indicate that at 1 R/hr the team should immediately leave the area and report to the REOC, not contact the REOC and ask for instructions. (See ARCA 2 for the RC FM.)

**RC FM Objective 7 - PARTIALLY MET** - The appropriate equipment, which is described in the Rockland County procedure, was demonstrated during a complete equipment check-out and the plan and procedure were satisfactorily demonstrated during the exercise.

Instruments were turned on and probes were placed outside of the vehicle for monitoring en route and the probe was protected by a plastic bag. However, the plastic bag was removed at the first location. This problem was recognized by the team leader. The procedure was examined and the team members decided that the procedure did not mean that the probe should only be covered by a plastic bag during transit but also while on location.

All location survey measurements included a 3 inch, open and closed window, and also, a 3 foot, open and closed window measurements. The time and location of each measurement was also reported. The reason for the open and closed window and 3 foot and 3 inch measurement was not understood. (See ARCA 3 for the RC FM.)

**RC FM Objective 8 - PARTIALLY MET** - The procedure for providing instrument checks for the air sampling equipment was properly demonstrated as called for in the appropriate procedure.

Samples were properly collected, recorded, labeled and reported. The sampler was left assembled after collection and the instrument was covered with a large plastic bag and set back into the equipment case. The team exited the plume, and then purged and counted the sample in a background area. A new sampling filter and cartridge were then installed, the sampler bagged and put back into the equipment case thereby being ready if the team was requested to collect additional air samples. However, by placing the covered sampler back into the case, the case had to be opened in the plume to get the sampler out. Thus, the supplies in the case could become contaminated. (See ARCA 4 for the RC FM.)

**RC FM Objective 9 - MET** - The ability to properly obtain and provide a field count of a particulate sample was properly demonstrated on two occasions by the Rockland County field monitoring team.

The team members did indicate that it was their normal procedure to turnover the sample to someone for delivery to a laboratory. This activity was also discussed with the Operations Manager at the EOC.

**RC FM Objective 16 - MET** - The ability to adequately discuss the iodine exposures was reportedly demonstrated at the REOC/Dose Assessment Area. See Objective 16 at the REOC. The decision was that KI was not necessary. KI was available in sufficient quantities for the field monitoring team.

## DEFICIENCIES

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

## AREAS REQUIRING CORRECTIVE ACTIONS

1. **Description:** 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 teams. (NUREG-0654, F.1.e)

**Recommendation:** Protective actions, particularly evacuations, should be provided to the Field Monitoring Team so that, if possible, they can avoid travelling on evacuation routes.

2. **Description:** The field team members were provided with an exposure card indicating a 1 R/hr reporting level. However, the plan calls for a 3 R/hr reporting level. (NUREG-0654, I.8)

**Recommendation:** The plan should be changed to reflect the exposure card.

3. **Description:** 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. (NUREG-0654, I.8, and I.11)

**Recommendation:** Provide additional training on the monitoring procedures and the reasons for the different kinds of measurements. Add some additional discussion to the sampling procedures which explains the reasons for taking the measurements. Provide additional "hands on" training for contamination control.

4. **Description:** 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. (NUREG-0654, I.8, and I.11)

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. (NUREG-0654, I.8 and I.11)

**Recommendation:** Train the team members to bag the instruments in plastic in order to prevent contamination. Also, train the team members to place the bagged sampler in the back of the vehicle outside the case and then close the sampling case to prevent contaminating the other supplies by opening the case in the plume.

#### AREAS RECOMMENDED FOR IMPROVEMENT

1. **Description:** The field monitoring team was directed to standby at the Health Department at 0902 (after the Alert declaration), according to their plan. Also in accordance with the plan, the team was called to report to the REOC after the Site Area Emergency at 1046. The team arrived at 1059, checked their equipment, were briefed at 1135, and dispatched at 1145.

**Recommendation:** If the team reported at the Alert and readied their equipment, they could be available to be dispatched two hours earlier (ie. report to the EOC 0915 and then be briefed and ready for dispatch to the field at 0950). This would be important during fast-breaking accidents.

2. **Description:** On two occasions the REOC called the Field Monitoring Team on the radio and then by cellular phone and received no answer. The REOC called again and a Field Monitoring Team member heard the call. Thus, there was no undue delay.

**Recommendation:** One team member should always monitor the radio or a hand held radio should be provided to be able to hear the radio while away from the vehicle.

#### PLANNING INADEQUACY

1. **Description:** The field monitoring teams were each provided with one 500 mR and one 5 R direct reading dosimeter. The 5 R direct reading dosimeter does not provide a satisfactory upper range.

**Recommendation:** Revise the plan and equipment to meet the current FEMA guidance contained in FEMA REP-2.

2. **Description:** The team briefing and procedure indicated a 3 R/hr exposure notification level. However, a card carried in the vehicle indicated a reporting exposure rate of 1 R/hr.

**Recommendation:** One R/hr is appropriate, therefore the procedure should be revised to indicate the lower reporting level. If the County wants to retain the 3 R/hr reporting level, the card, carried by the team, should be revised.

3. **Description:** The procedures now indicate that the team should leave the area, contact the REOC and request instructions if 3 R/hr is encountered.

**Recommendation:** At the 3 or 1 R/hr instrument reading, whichever is stated in the final procedure, the team should immediately leave the area and then call the REOC.

#### 2.6.2.2 Traffic Control Points

Three objectives were demonstrated for the TCP activity. Two objectives were met and one objective was partially met.

**RC TCP Objective 1 - MET** - Emergency classification levels were limited in regard to this assignment because the TCP was established only after notification of the Site Area Emergency. However, the TCP Officers were notified of the current ECL by the Sheriff's Department Supervisor.

**RC TCP Objective 6 - PARTIALLY MET** - The Traffic Control Officer (Sheriff's Deputy) was equipped with a TLD and two direct reading dosimeters (0-5 R and 0-200 R). He was also equipped with a dosimeter charger, Individual Radiation Exposure Record and instructions regarding the use of the dosimeters. The deputy was conscientious and professional in his duties, but lacked some knowledge and experience in the use of the dosimeters and TLD operation. The officer did not read his dosimeter as per procedures. (See ARCA 1 for the RC TCP.) The officer was aware of the reporting levels and exposure authorized for the mission. Due to good coordination and instructions from the Supervisor, communications between the Sheriff's patrol and the REOC were excellent.

**RC TCP Objective 20 - MET** - At the first TCP, the officer arrived late at the predetermined TCP at Strawtown Road and Demarest Avenue. This was realized at the REOC after the officer was sent to another location. See Objective 20 for the REOC. The officers at both TCPs were well aware of their duties in regard to the TCP and had good communications with the Sheriff's Department Supervisor and the REOC. As provided in the extent-of-play agreement, there were no actual barricades or signs set up, but under actual conditions, this TCP could have been effectively controlled.

#### DEFICIENCIES

No Deficiencies were observed for the Rockland County TCP activities.

## AREAS REQUIRING CORRECTIVE ACTIONS

1. **Description:** The TCP Officer lacked the knowledge regarding the use of the dosimetry equipment. (NUREG-0654, K.3.a and K.3.b)

**Recommendation:** TCP Officers should be given more training or briefings in regard to the use and operation of dosimetry equipment, as necessary, for the manning of TCPs.

## AREAS RECOMMENDED FOR IMPROVEMENT

No ARFIs were observed for the Rockland County TCP activities.

### 2.6.2.3 School Evacuation Bus Runs

Three objectives were demonstrated during the Rockland County demonstration of school evacuation bus runs. All of these objectives were fully met.

**RC SE Objective 1 - MET** - The staff of the Peter Brega Bus Company in Rockland County were aware of the notifications and actions to be taken at various ECLs. The owner, the dispatcher, the Transportation Liaison and the two participating drivers knew the current ECL. The current ECLs were called in to the bus company dispatcher by the REOC. Due to the bus runs being demonstrated out of sequence, the dispatcher received the Alert notification at 0915 and the Site Area Emergency at 1050.

**RC SE Objective 6 - MET** - The Rockland County Transportation Liaison at the Haverstraw Bus Garage issued the bus drivers appropriate dosimetry, properly charged with instructions. The Liaison's briefing of the driver included exposure procedures and requirements (notify dispatcher if dosimeter reaches 1 R and wait for instructions). The drivers were familiar with the instruments. The dosimeters were zeroed prior to the driver's dispatch 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. The drivers also knew that if readings 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 Haverstraw bus driver received an exercise inject that a dosimeter had a high reading. The driver located a public telephone on the route, kept his bus in view, and called the dispatcher to report the 1 1/2 R reading, his current location and to obtain further instructions. The dispatcher relayed the Liaison's instructions to proceed and report any further developments, as per the procedures in the plan. Upon completion of his run, the driver simulated releasing the students, monitoring and decontamination of the bus.

**RC SE Objective 19 - MET** - The evacuation of schools was discussed with the Transportation Liaison and the bus driver at the Peter Brega Bus Company Garage. If a school evacuation was ordered by the REOC, drivers would be called in, assigned routes, briefed and dispatched.

The Liaison provided the route assignments, maps and typewritten directions for the drivers to follow. The Liaison reviewed the routes with the dispatcher and drivers. Activities and resources would be coordinated with the REOC. Drivers could receive changes to instructions or report problems over 2-way radio to the bus company dispatcher.

#### DEFICIENCIES

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

#### AREAS REQUIRING CORRECTIVE ACTIONS

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

#### AREAS RECOMMENDED FOR IMPROVEMENT

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

#### 2.6.2.4 General Population Evacuation Bus Runs

Three objectives were demonstrated during the Rockland County demonstration of general population evacuation bus runs. All three objectives were met.

**RC GP Objective 1 - MET** - The personnel at the Peter Brega Bus Company were aware of the various ECLs. The current ECLs were conveyed to the bus company dispatcher by the REOC. They knew that evacuation could be ordered at or above the Alert ECL.

**RC GP Objective 6 - MET** - At the Peter Brega Bus Company, the Transportation Liaison from the REOC issued appropriate dosimetry and route packets for each evacuation route with maps and instructions to the drivers. Two drivers were present and both were issued two direct reading dosimeters (0-5 R and 0-200 R), TLDs, instructions and Individual Radiation Exposure Records. The instruments were charged and initial readings recorded. The drivers both knew that they should radio the dispatcher if 1 R was exceeded and to leave the area they were in if 3 R was exceeded. The driver also knew that he should close the windows of the bus, read his dosimeters every 15 to 30 minutes, and maintain contact with the dispatcher. An actual accident caused traffic stoppage ahead of the bus and resulted in the driver talking with the dispatcher by radio. These actions exemplified that issues identified in the previous exercise have been corrected.

A previous ARCA (RC-3), incurred in the March 22, 1988 exercise, has been corrected and verified.

RC GP Objective 18 - MET - The Peter Brega Bus Company demonstrated the ability to evacuate the general population by dispatching two buses and drivers. The drivers used the route packages received from the Transportation Liaison. The drivers demonstrated knowledge of the area when it became necessary to take an alternate route to the first pick-up point. This resulted from an actual accident blocking the usual approach to the route. The drivers' routes ended at the designated reception centers.

## DEFICIENCIES

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

## AREAS REQUIRING CORRECTIVE ACTIONS

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

## AREAS RECOMMENDED FOR IMPROVEMENT

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

### 2.6.2.5 Reception Center

Five objectives were demonstrated at the Rockland County Pearl River High School Reception Center. All five objectives were met.

RC RC Objective 1 - MET - The Reception Center staff were notified of the Site Area Emergency and General Emergency ECLs by the REOC. The message was received by the Reception Center's Manager. She, in turn, immediately notified the staff of the new ECL.

RC RC Objective 4 - MET - The ability to communicate with all appropriate locations and organizations was demonstrated. This was accomplished through the use of a cellular telephone and backed up by three commercial telephone lines. No problem occurred when the cellular telephone was used to contact the REOC or when the REOC used it to contact the Reception Center staff. The problem noted in the previous exercise, in relation to only pay telephone being available for use by the Reception Center staff, has been corrected through the use of the cellular telephone and three commercial telephone lines.

A previous ARCA (RC-2), incurred at the March 22, 1988 exercise, has been corrected and verified.



RC RC Objective 5 - MET - The adequacy of facilities, equipment and other materials to support emergency operations was demonstrated during the exercise. The area used for registration was one half of a large gymnasium which had ample lighting, ventilation and restrooms. The tables were brought in by the Department of Social Services and the chairs were borrowed from the school. There were ample signs available to direct the evacuees to the proper area.

Access to the facility was not controlled by uniformed police officers during this exercise. However, there was control of ingress and egress by the monitoring team and the Reception Center Manager and staff. The police were being used in a real emergency at one of the schools during the demonstration. There was a large County map available and a map of the 10 mile EPZ was posted in the Reception Center.

RC RC Objective 6 - MET - The monitors at the Reception Center demonstrated the capability to continuously monitor and control emergency worker exposure. They were well trained on what equipment was necessary and how to charge and zero the direct reading dosimeters (0-500 mR and 0-200 R). The required Individual Radiation Exposure Record Cards were available and issued to each individual.

RC RC Objective 21 - MET - The Reception Center staff demonstrated the procedures, equipment and personnel for registration, radiological monitoring and decontamination of evacuees. The personnel for the Reception Center and the monitoring team arrived at the Pearl River High School at 1100. Both units proceeded to set up for their respective operations. Tables were brought in from a trailer which was stationed outside the gymnasium and chairs were borrowed from the school. The Reception Center was operational by 1135 and the Reception Center's Manager notified the REOC. The Department of Social Services had 15 people available to process evacuees. Within this group was one registered nurse and each staff member was a qualified social worker, so any members of the groups would be able to counsel an evacuee if that type of assistance was required. A Red Cross representative was available for coordination of the Reception Center with the Congregate Care Center. The staff were very knowledgeable of their respective duties and adequately processed the evacuees.

The monitoring team was activated by 1255 hours. It took them longer to set up because of the complex nature of the monitoring and decontamination areas. They also had the outside area to set up which included a traffic flow pattern for incoming and outgoing cars and the area where cars would be parked. Parking was set up for both clean and contaminated cars which was away from the decontamination and monitoring areas.

The evacuees would enter the monitoring area through a side door from the parking lot, proceed down a hall, which was covered with herculite, and be monitored. The emergency workers monitored the evacuees at a rate which would meet the 20% requirement. The contaminated people would be directed to the shower area to be decontaminated. Contaminated persons would receive paper coveralls after being showered and then they would be checked again and if clean they would receive a clean sticker and proceed to the registration area in the Reception Center. All of the necessary step off pads were in place and the staff were very knowledgeable of the reason for and use of the step-off pads, contaminated waste barrels, etc.

The one monitor who was directed to suit up did so in a very professional manner. This was accomplished properly.

It should be noted that they walked the evaluator through the process of monitoring a vehicle and the decontamination process for vehicles. The staff were very knowledgeable of the procedures to be used.

A previous ARCA (RC-1), incurred in the March 22, 1988 exercise, has been corrected and verified.

#### DEFICIENCIES

No Deficiencies were observed for the Rockland County Reception Center.

#### AREAS REQUIRING CORRECTIVE ACTIONS

No ARCAs 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

Five objectives were to be demonstrated at the Rockland County PMC. All five objectives were met.

RC PMC Objective 1 - MET - The PMC Manager was notified of the Alert at 0830 by the REOC. The facility was activated at this time and was declared operational at 1000.

RC PMC Objective 4 - MET - The primary communications link to the REOC was by commercial telephone. However, the State Police radio network was available, in addition to the State Department of Transportation radio network. The telephone was used as the primary communications system and the radios were available for back up. No delays in communications were experienced.

RC PMC Objective 5 - MET - The setup of the facility was effective for receiving, monitoring and processing emergency workers. Supplies on hand were sufficient for the anticipated numbers of emergency workers and additional supplies could be obtained locally. Shower facilities were provided for those personnel who required decontamination. Clean, disposable coveralls were available for those whose clothing was contaminated. Waste receptacles were available to contaminated items. "Clean" passes were available for the workers determined to be free of contamination.

Vehicles were monitored as they entered the facility. If clean, they were parked in an area marked "clean". If contaminated, they were decontaminated by the Nyack Fire Department or placed in a "contaminated" parking area until they could be processed.

RC PMC Objective 6 - MET - Each worker was issued a TLD and two direct reading dosimeters (0-5 R and 0-200 R). The TLDs had an expiration date of October 20, 1991. The dosimeters were zeroed and recorded on forms for each individual as they were issued. Personnel were instructed to read the dosimeters at 30 minute intervals. Emergency workers reviewed the 1 and 3 R limits and 0.1 mR/hr decontamination limit and the requirement to contact the REOC if dosimeter readings were approaching the limits. They were aware that the REOC was to give them instructions. The PMC Manager provided good leadership in this area.

RC PMC Objective 25 - MET - This PMC is located at the State Department of Transportation Maintenance Garage in West Nyack. The buildings and grounds are ideally suited for a PMC. There is ample space for parking, both clean and contaminated vehicles, with the vehicle decontamination site located nearby. The building's size and layout allowed personnel to be monitored and decontaminated with ease. The monitors used both CDV 700s and Ludlem E-14s with a pancake probe to determine the radiological condition of emergency workers. Monitors were aware of the 0.1 mR/hr trigger point for personnel decontamination. All equipment had been recently calibrated.

If an emergency worker could not be decontaminated, the Public Health nurse was available to get him to a locally contracted hospital for further care.

#### DEFICIENCIES

No Deficiencies were observed for the Rockland County PMC.

#### AREAS REQUIRING CORRECTIVE ACTIONS

No ARCA's were observed for the Rockland County PMC.

#### AREAS RECOMMENDED FOR IMPROVEMENT

No ARFIs were observed for the Rockland County PMC.

#### 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 19 - MET - Interviews were conducted at five schools in Rockland County to evaluate the degree of preparedness for each school. Listed below are the names of the schools, school district, and towns which were interviewed:

1. Valley Cottage Elementary School  
Nyack School District  
Valley Cottage, New York
2. Congers Elementary School  
Clarkstown Central School District  
Congers, New York
3. North Rockland High School  
North Rockland Central School District  
Thiells, New York
4. Pomona Junior High School  
East Ramapo School District  
Pomona, New York
5. YMCA Children's Center  
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 protective action decisions regarding the closing of schools through the EBS messages. The authorities, interviewed at each of the schools in Rockland County, were knowledgeable of 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.

A previous ARCA (RC-4), incurred in the March 22, 1988, exercise, has been corrected and was verified.

## **DEFICIENCIES**

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

## **AREAS REQUIRING CORRECTIVE ACTION**

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

## **AREAS RECOMMENDED FOR IMPROVEMENT**

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

## 2.7 WESTCHESTER COUNTY, NEW YORK

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

Sixteen objectives were demonstrated by the WEOC during this exercise. All sixteen objectives were met.

**WEOC Objective 1 - MET** - The Warning Point received notification of the Unusual Event from the Indian Point Control Room Operator at 0718 on the RECS line. The Desk Officer used the proper forms to document the message. The Desk Officer followed his procedures for an Unusual Event and notified the County Executive immediately.

All ECLs after the Unusual Event were received at the WEOC. These ECLs were received promptly from the EOF and were prominently displayed. County staff were aware of the meaning of the ECLs and immediately conducted a technical review session to determine the impact on plant and offsite safety.

Below is the notification sequence at the WEOC:

ECL	Time Declared	Time Notified
Unusual Event	0711	0718
Alert	0817	0826
Site Area Emergency	1034	1037
General Emergency	1218	1223

**WEOC Objective 2 - MET** - The mobilization of emergency personnel took place at the Warning Point upon receipt of the declaration of the Unusual Event at 0718. The Desk Officer used the proper forms to document the messages from the Control Room. The County Executive was notified immediately by the Desk Officer and he instructed the Desk Officer to contact personnel on the call-out lists. Up-to-date call-out lists were used to notify and mobilize the appropriate staff. Notification of emergency response personnel was made via telephone and pagers. These calls were made from 0725 to 0826. If a person was not reached on the first attempt, repeat calls were made until the person was contacted. The lists have been reviewed, corrected and updated, where necessary, thereby correcting the previous ARCA 5, originally incurred in the June 4, 1986 exercise.

The WEOC staff were notified and the facility was staffed and operational at 0832. Procedure 1, page I-2 and I-3, states that the County can partially or fully activate the WEOC if conditions warrant it. At this time, the Warning Point was relieved of responsibility but continued to monitor communications.

**WEOC Objective 3 - MET** - The County Executive was clearly in command of the WEOC. The County Executive utilized his staff effectively in decision making. Message handling was adequate and timely. Message logs of all communications were kept. Periodic briefings in the Operations Room kept all staff informed of the ongoing events.

Coordination with the State and other Counties was effectively accomplished via the executive hotline.

**WEOC Objective 4 - MET** - There were two RECS lines available as well as one executive hotline with conferencing capability. There were 60 commercial telephones equipped with "Busy Circular Hunt Single Lines" which passes the call on to the next telephone when the one called is busy. There were also many radio systems available to communicate with County Agencies, field teams and other County facilities. All primary systems had adequate back-up systems. Three facsimile machines were also available and were used to transmit documents to the EOF, JNC, other Counties, Albany and Poughkeepsie, New York. The person responsible for the communications operation was conscientious, knowledgeable and kept the equipment operational. The primary communications systems were able to handle the flow of communications without any undue delays.

A previous ARCA (WC-4), incurred in previous exercises, has been corrected and verified.

**WEOC Objective 5 - MET** - The WEOC successfully demonstrated the adequacy of facilities, equipment, displays and other materials used to support emergency operations.

Access to the WEOC was controlled by a security guard and each person entering or leaving was required to sign in or out. There were adequate rooms for Command and Control, Operations, Communications and Dose Assessment. Kitchen facilities were available within the facility, as well as restrooms. Backup power was available, if necessary, by an automatic diesel generator.

Status boards were present and maintained in the appropriate locations. These boards were conscientiously up-dated. The appropriate maps, charts and display boards were present including plume EPZ, evacuation routes, ERPA population, reception centers, congregate care centers, and monitoring points. The status briefings were timely and informative.

**WEOC Objective 6 - MET** - The appropriate WEOC staff were aware of their role in analyzing any messages from field workers with exposures of 1 R or higher.

**WEOC Objective 7 - MET** - The Field Monitoring Team promptly transmitted their field readings to the WEOC.

**WEOC Objective 9 - MET** - The Field Monitoring Team communicated with the Dose Assessment Team at the WEOC in order for arrangements to be made to establish a pick-up point for the air sample filter to be sent to. Once the samples are collected at the pick-up point, they would be transported to the State laboratory in Albany, New York. The actual transportation to the pick-up point and to Albany was simulated.

**WEOC Objective 10 - MET** - All aspects of plume dose projection were effectively demonstrated. Dose projections were made by use of hand calculations. No backup method of calculating the dose projections was available and is not required by the Westchester Plan.

An Apple 2E computer program would have been available, but it was out of date and not on line. Previously prepared isopleths were used to project the plume path according to wind speed, direction and stability class. Calculations made in the WEOC were compared with those being independently performed by the Utility and the State. Plant status information was received officially over the RECS line, but the Dose Assessment Team had a telephone link with the EOF and thereby received plant status and release information several minutes prior to receiving it by the RECS line. Dose projections based on plant release information were compared with those made after field monitoring data began being received. They compared well. Projected plume location was defined, plotted and displayed in the main staff room from the Alert ECL on. Projected wind shifts were considered in the determination of PARs and one ERPA was evacuated based on projected doses, in case the wind shift did actually occur. Field teams were effectively used to define the edge and centerline of the plume.

A previous ARCA (WC-1), incurred in the March 22, 1988 exercise, has been corrected and verified.

**WEOC Objective 11 - MET** - Plume protective action decision making was well done. Preplanned PARs were implemented per County procedures. All County parks were closed at the Alert, the Peekskill Water Department was advised to make arrangements to switch water sources, and the Hudson River ERPAs (42, 43, 44 and 45) were closed. School children at two schools districts close to Indian Point, were relocated to a Reception Center. Upon declaration of the Site Area Emergency, the Utility recommended sheltering of the entire 2-mile radius and 2 to 5 miles downwind. The WEOC, on the basis of projected potential doses, made the decision to evacuate ERPAs 1 and 3 and to shelter ERPAs 2, 4, 7, 8 and 9. After the General Emergency was declared, and before any radioactive release began, ERPA 7 was ordered to evacuate because of traffic control considerations (only one road out, through the potential plume). PADs took into account projected doses based on a potential (forecast) wind shift. After the radioactive release began, the remainder of the 5 mile radius ERPAs were sheltered and ERPA 4 was evacuated. Dose projections were recalculated when the wind speed and stability class changed late in the afternoon. Protective action decisions were made within a reasonable time and were made only after appropriate consultation with the other three affected Counties and the State.

**WEOC Objective 12 - MET** - The EBS message, evaluated for this objective, were prepared for dissemination within 15 minutes of the decision to air the messages. At 1058, the Westchester County Executive and the other three County Executives concurred on appropriate action and determined that an EBS message was necessary. The PIO Staff at the JNC coordinated with their appropriate WEOC liaisons to develop the EBS message. At 1110, the sirens in the four counties were appropriately activated. At 1113, the completed message, recommending the evacuation of ERPAs 1 and 3 and the sheltering of ERPAs 2, 4, 7, 8 and 9 was aired. The airing of the message was simulated to have occurred from WABC radio station. Telephone calls to individuals and institutions were also simulated. These included Metro North, Federal Aviation Association, U.S. Coast Guard (USCG), CAP, schools, special facilities and a waste disposal plant.

**WEOC Objective 13 - MET** - Information contained in the EBS messages was timely and accurate.



Per the plan and previous agreement, detailed school information was not included in the Westchester County EBS messages. Information for EBS messages came from the EOF and County accident assessment personnel on PARs. Decisions were made by the County Executive after consultation with the State and other Counties. Westchester County took the lead in initiating EBS messages as the County Executives instructed the JNC PIO to prepare and disseminate messages.

The first EBS message ordered the parks and the Hudson River to close and for the schools to respond according to their plans. Messages 2 and 3 ordered the sheltering of ERPAs 2, 4, 7, 8, and 9 and the evacuation of ERPAs 1 and 3. Message 4 ordered the evacuation of ERPA 7. In Message 5 the WEOC sheltered ERPAs 5, 6, 47, 48 and 49. Message 7 ordered the evacuation of ERPA 4.

Two sirens (85 and 312) failed at the first sounding. The WEOC staff took the appropriate actions by simulating the dispatch of police vehicles to alert the public in the affected areas.

**WEOC Objective 16 - MET** - Discussion took place in the Command Room before any release of airborne radioactivity occurred pertaining to the availability, distribution capabilities and supplies of KI. After the radioactive release began, dose assessment staff obtained the results of a containment air sample which showed the ratio of radioiodine to noble gas, gross activity to be very low and the release was filtered. This information was related to the Command Room. At 1500, the County Executive made the decision, based on projected and actual dose to the thyroid, not to issue the directive to emergency workers and institutionalized populations to ingest KI. This action was later supported by low dose rates calculated from field samples.

**WEOC Objective 18 - MET** - The WEOC is responsible for overseeing the management and direction of the evacuation of the Westchester County portion of the EPZ population. Several County agencies worked together to ensure all special populations were able to shelter or evacuate, if necessary. The Westchester County Department of Transportation is responsible for the transportation of the transient dependent general public and ambulatory institutionalized persons. The Department of Emergency 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.

The agencies responsible for the sheltering and evacuation of these special populations referred to the lists of special populations. Telephones and tone alert radios were used to contact the affected individuals. The agencies also determined the resources which would be required to assist these special populations (i.e., number of ambulances, ambulettes and buses).

**WEOC Objective 19 - MET** - At the EOC, school evacuation was demonstrated adequately. At 1014, the decision was made to evacuate schools in Hendrick Hudson and Lakeland School Districts and shelter schools in Peekskill. This decision was transmitted to the superintendents of these school districts. A news release called for the evacuation of these two school districts.

In accordance with their plans, specifics details were not included in the EBS messages, but rather a news release. The County Department of Transportation ensured that a sufficient number of buses was available for the evacuation. The County Executive was provided with periodic updates on the progress of the evacuation.

There was significant discussion on the need and strategy required to evacuate the Peekskill schools. However, the decision was made to have them shelter in place.

**WEOC Objective 20 - MET** - The WEOC staff properly responded to exercise injects which required the establishment of TCPs and the demonstration of field response. Additional actions were taken throughout the exercise

Water traffic on the Hudson River was shut down by the Coast Guard at 0930. This was broadcasted (simulated) to the public at 1032 in EBS Message 1. The WEOC called for USCG cutters to patrol the areas around the Tappan Zee Bridge in the south and Newburgh, New York in the north.

The news release issued at 1138, called for the suspension of Metro North Railroad and Amtrack services on the Hudson Line north of Tarrytown to south of Garrison.

In addition, impediments to traffic were also handled effectively and efficiently with rerouting around the area. An actual traffic accident was also handled through the WEOC.

At 0837, the WEOC asked for the NYSP to provide a helicopter for traffic observation. At 0940, the Westchester Police Department placed the CAP on standby to assist in traffic observation.

## **DEFICIENCIES**

No Deficiencies were observed for the WEOC.

## **AREAS REQUIRING CORRECTIVE ACTIONS**

No ARCA's were observed for the WEOC.

## **AREAS RECOMMENDED FOR IMPROVEMENT**

No ARFIs were observed for the WEOC.

## 2.7.2 Westchester County Field Activities

In Westchester County, various field activities were demonstrated. These included field monitoring, traffic control, school evacuation bus runs, general population bus runs, one reception center, one congregate care center and one personnel monitoring center. The evaluation of these activities follows.

### 2.7.2.1 Field Monitoring Team

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

**WC FM Objective 1 - MET** - The field monitoring team was notified of the Unusual Event at 0755, after which they proceeded to the garage of the Health Department to begin their assignment. Throughout the exercise, the team maintained contact with the WEOC, whereby, they received updates on ECLs. The actions taken by the team were appropriate to the ECLs.

**WC FM Objective 2 - MET** - Westchester County activated, at the Alert ECL, and deployed one Field Monitoring Team to collect samples and take the necessary air measurements. Upon notification of the Alert at 0905, the team made battery and calibration checks on all instruments, zeroed dosimeters and took first readings of their dosimeters. The team then proceeded to their emergency vehicle (a van), did radio checks with the WEOC, read the dosimeters once more and deployed from the Health Department at 0950.

**WC FM Objective 4 - MET** - Communications between the field monitoring team and the WEOC was established before the team's deployment and was maintained throughout the entire exercise. A radio operator with RACES equipment was with the team. The field team used primary communications with the WEOC on the initial call and then used the RACES as back-up for the rest of the exercise. This was provided for in the extent-of-play agreement. There were no interruptions or problems in communicating to the WEOC.

**WC FM Objective 6 - MET** - The Field Monitoring Team was able to continuously monitor and control emergency worker exposure. The field monitoring team members were supplied with the required dosimetry equipment (0-200 mR, 0-5 R and 0-200 R direct reading dosimeters and a TLD). The Field Monitoring Team and the RACES operator checked and recorded dosimeter readings every half hour during the Alert phase and every 15 minutes during the Site Area and General Emergencies. The team also checked the dosimeters upon entry into, during and exit from the plume. The team was aware of their maximum allowable dose and knew who to contact upon reaching that level. The team members were familiar with the location of their decontamination centers.

A previous ARCA (WC-2), incurred in the March 22, 1988 exercise, has been corrected and verified.

**WC FM Objective 7 - MET** - Team members displayed full knowledge on the use of all equipment.

Measurements were taken at waist level and 3 inches above the ground with open and closed windows. The team arrived at the assigned locations promptly. Maps were utilized to determine the locations and to find plume direction according to the meteorological data provided. All measurements were recorded in a log book. The team was continuously monitoring inside and outside the vehicle while traversing the plume. Background readings were taken in several locations where radiation was not expected to be, as well as outside the expected plume. Readings were transmitted through the RACES operator, who accompanied the Field Monitoring Team to the WEOC.

At the notification of a Site Area Emergency, all equipment was sealed in plastic bags. This was done to prevent the contamination of the instruments.

WC FM Objective 8 - MET - Using proper flow rate and sample duration, air samples were taken following approved County procedures. Samples were read before they were put in envelopes to be sent to the laboratory. All instrumentation was within calibration dates. The vehicle's battery produced the power to operate the air sampler (pump). All air sample media rates were transmitted to the WEOC promptly via radio. Samples were taken out of the plume to a low background area before they were counted.

WC FM Objective 9 - MET - Team members were notified by the WEOC that an official from the Westchester County Highway Patrol would rendezvous with the team. At this time, the intersection of the Bear Mountain Parkway and Route 6 was determined to be a safe pick-up point with close proximity to both the Field Monitoring Team and an available officer.

WC FM Objective 16 - MET - The Field Monitoring Team was fully prepared and aware of the administration of KI. Team members received a sufficient amount of KI at the time they were assigned their dosimetry. There were enough tablets for all team members and the RACES operator. The KI was within the expiration date (December 1993). While in the field, an order for the administration of KI was not made, so the ingestion of KI was not simulated. The team members were aware of who the authorizing official for this administration was.

## DEFICIENCIES

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

## AREAS REQUIRING CORRECTIVE ACTIONS

No ARCAs 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

Three objectives were demonstrated at the two Westchester County TCPs. All three objectives were met.

WC TCP Objective 1 - MET - The NYSP demonstrated the ability to understand the ECL information and act promptly to activate the TCPs.

WC TCP Objective 6 - MET - The officers were issued one 0-5 R and one 0-200 R direct reading dosimeters. Both officers had TLD badges. The officers also knew the procedure for ingestion of KI if instructed to do so by their supervisors. Officers had the KI with them. Both officers were knowledgeable concerning the procedures related to their assignment. The Police Officers knew that 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 20 - MET - The TCP officers to 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.

The ability to control access from the Jans Peek Bridge and the intersection of Furnace Dock Road and Maple Avenue was met. The State Police Command Post provided all instructions to the officers. The officers were given a packet with information concerning ECLs, Congregate Care Centers, Reception Centers, ERPAs and other TCPs. The TCP Officers were also familiar with the evacuation routes and TCP procedures.

#### DEFICIENCIES

No Deficiencies were observed for the Westchester County TCPs.

#### AREAS REQUIRING CORRECTIVE ACTIONS

No ARCAs 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

Three objectives were demonstrated at the school evacuation bus runs in Westchester County. Two objectives were met and one was partially met.

WC SE Objective 1 - MET - The dispatcher and his supervisor were notified by the WEOC that an Alert had been declared at Indian Point. Personnel were aware of the ECLs and their responsibilities as the levels increased in severity. Because of the time constraints of the bus company, school evacuations were conducted out-of-sequence and began prior to declaration of the Site Area Emergency. The dispatcher was in contact with the WEOC and was advised of the ECLs as they changed. The objective was demonstrated by the staff at the bus company.

WC SE Objective 6 - PARTIALLY MET - The drivers were issued a TLD and 0-5 R and a 0-200 R direct reading dosimeters. 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 were aware of proper procedures and the allowable dose limit for the assignment. Although there was no order to ingest KI in this exercise, it was available with instructions. The drivers knew why KI was available and whose authorization was required for its use.

An exercise message was injected at 1350 advising the driver that his dosimeter was reading 1 1/2 R and that his high range dosimeter had been dropped and was off-scale. The driver took the correct action and immediately tried to radio his dispatcher. However, due to the distance from a repeater, the first driver could not understand the instructions from his dispatcher. By this time, the driver had arrived at the reception center and used the telephone to call the dispatcher. The dispatcher ordered the driver to leave the area and return to the bus depot. On the return trip, the dispatcher radioed the driver to take the bus to the Westchester County PMC for decontamination. Following this procedure (simulated), the bus returned to the depot. (See ARCA 1 for the WC SE).

WC SE Objective 19 - MET - The evacuation of school children from the EPZ to School Reception Centers outside the EPZ was successfully demonstrated by the County Transportation Officer and Liberty Bus Lines.

Following instructions from the WEOC, a bus was dispatched at 1056 to evacuate the Ossining High School students to the Dobbs Ferry High School. The driver was knowledgeable about the area and knew the route well. The maps provided were accurate and complete. During the run to the Ossining High School, the bus radio failed and the driver could not contact his dispatcher. The failure required that the driver use a telephone to keep the dispatcher advised of progress. The dispatcher, recognizing the loss of radio contact with the bus, radioed a field supervisor in the area who met the bus at the high school and radioed its status to the company and relayed instructions to the driver. Following this exchange, the simulated evacuation was completed to the Dobbs Ferry High School.

For the second observed run, the Liberty Lines Bus Company provided a bus and driver to evacuate students from the Yorktown High School in the EPZ to the Fox Lane Middle School outside of the EPZ. The bus was dispatched at 1240 and arrived at Yorktown High School at 1331. Maps provided were accurate and easy to read. In addition, the driver knew the area and local conditions, making the run much easier. Students were loaded (simulated) and taken to the School Reception Center.

At this point, due to the simulated contamination, the bus was ordered back to the depot. On the return trip at 1430, the bus was directed to the Westchester Decontamination Center for decontamination (simulated).

## DEFICIENCY

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

## AREAS REQUIRING CORRECTIVE ACTIONS

1. **Description:** Bus Driver # 1 had a simulated reading on his dosimeter of 1.5 R. He telephoned 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 WEOC, who should have instructed the dispatcher on the proper actions. (NUREG-0654, K.3.a and K.3.b)

**Recommendation:** The dispatcher should be instructed to obtain direction from the WEOC when exposure levels of 1 R or greater are reached on any of the bus routes.

## AREAS RECOMMENDED FOR IMPROVEMENT

1. **Description:** During the run to the Ossining High School, the bus radio failed and the driver could not contact his dispatcher.

**Recommendation:** The radios in the buses used for school evacuation should be tested prior to leaving the bus garage.

### 2.7.2.4 General Population Evacuation Bus Runs

Three objectives were to be demonstrated during the general population evacuation bus runs. All three objectives were partially met.

WC GP Objective 1 - PARTIALLY MET - At 0754, the NYSP notified via telephone, the School Superintendent of the Unusual Event at the Indian Point Power Plant. The School Superintendent then notified other emergency staff including the School Bus Dispatcher. At 0910, a call was received by the dispatcher from the WEOC informing him of a change in the ECL to an Alert level. The dispatcher immediately called the bus garage, located at Lake Street, and place several buses on standby. The dispatcher was not aware of any change in the above Alert ECL during the remaining part of the exercise. When questioned, the dispatcher revealed that he thought that there were only three emergency classifications.

Specifically, the dispatcher was not familiar with the definition of Site Area Emergency and General Emergency ECLs. Also, the two bus drivers for Routes GP002 and GP025 were not familiar with the definition of any of the ECLs. The ECLs were not displayed at the garage. (See ARCA 1 for the WC GP.)

**WC GP Objective 6 - PARTIALLY MET** - Bus 47 departed the Hendrick Hudson School District garage at 1036 for the starting point of Route GP002. Upon radio failure in Bus 47 at 1044, the bus was replaced by Bus 53 at 1105. This bus was used for the remainder of the route. Each of the two drivers was provided a kit which contained one TLD, two direct reading dosimeters (0-5 R and 0-200 R), potassium iodide tablets, KI instruction sheet, exposure record card and instruction sheet on the use of dosimeters. The dosimeters were read by the driver (Bus 53) at the proper intervals.

The bus driver's response to an injected message (his low range dosimeter read 1 1/2 R and the high range dosimeter was off-scale) at 1115 was excellent. Immediately after the inject of the message, the driver contacted the dispatcher at the garage. The driver repeated the above message correctly to the dispatcher. The driver requested instructions on continuing his route. At 1116, a radio message was received from the dispatcher advising the driver to standby at a safe place for further instructions. The driver pulled the bus to the side of the road. A radio message then followed at 1117 stating that the driver should continue to proceed to the Reception Center and call back if the dosimeter reading exceeded 3 R. The driver then resumed his route to the White Plains High School Reception Center. However, the bus driver was not aware of his automatic reporting requirements (1 R and 3 R) and his dose limitation (3 R).

A previous ARCA (WC-3), incurred in the March 22, 1988 exercise, remains uncorrected and must be demonstrated at the next exercise.

On the second route, Bus 47 departed the garage at 1253, arrived at the Reception Center at 1351 and returned to the garage at 1438. The driver of the bus was provided with a kit identical to that given to the driver of Route GP002. A charger was available at the garage for the direct reading dosimeters. The dosimeters were read by the driver at the proper intervals. However, the readings were not recorded on the Individual Radiation Exposure Record. One of the two dosimeters was not zeroed and showed an initial reading of 50 R. The driver was aware of this initial reading and knew that any reading with this dosimeter had to be calculated from this initial reading. The bus driver was not aware of his automatic reporting requirements of 1 R and 3 R or the limit of 3 R for his dose limitation.

A message was injected with the driver taking no specific action. This message was not reported to the dispatcher as required by the plan for exposures of more than 1 R. When asked by the evaluator, the driver said that he would have reported the message to the supervisor only if the exposure was more than 5 R. (See ARCA 2 and 3 for the WC GP.)

**WC GP Objective 18 - PARTIALLY MET** - This demonstration was triggered by a message received at 1000 from the WEOC to the bus dispatcher of Hendrick Hudson School District Garage. The message instructed the dispatcher to run General Population Evacuation Routes GP002 and GP025.



The dispatcher departed the Administration Building for the garage. At 1015, Route GP002 was assigned to the driver with Bus 47. An information packet specific to the route was issued to the driver. The packet contained a detailed map of the route to the reception center at White Plains High School with all bus stops indicated.

The bus left the garage at 1036 and reached the first stop (start of the route) at Westchester Avenue and opposite Buchanan/Verplanck School at 1043. When the driver tried to make the first radio call to the garage at 1044, he was not successful. After attempting several times, he pulled the bus to the nearby school and called the garage, using the telephone in the school building. A return call from the dispatcher was received, informing him that a replacement bus was on the way. The replacement Bus 53 arrived at the school at 1055. A changeover of the drivers and buses was made by 1100. The bus resumed the route and arrived at the first stop at 1105, 22 minutes after the arrival of Bus 47. The eighth and final pickup took place at 1110. The bus arrived at the White Plains High School Reception Center at 1155. The bus driver demonstrated knowledge of the Route GP002 and the location of the White Plains High School Reception Center.

When the evaluator returned from evaluating the first route, Bus 47 was assigned to Route GP025. The radio had been fixed. The information packet for the route was issued to the driver. The bus departed the garage at 1253 and reached the first stop (Crugers Station Road and Battery Place) at 1258. A successful radio contact with the garage was made by the driver. After appropriately locating the next four stops the bus reached the sixth and final stop (Route 9A and Maiden Lane) at 1305. This bus reached the Ardsley Middle School Reception Center at 1351. The bus driver demonstrated his knowledge of the route and the location of the Ardsley Middle School Reception Center. When the driver tried to contact the garage from the reception center, the radio contact did not respond. Several unsuccessful attempts were made between 1352 and 1355. At 1356, he started his return trip from the Reception Center and continued trying to reach the garage via radio. A link was established between the bus and the School District Administration Building at 1358. The driver requested that the Administration Staff contact the dispatcher at the garage and get back to him with instructions on proceeding with the route. At 1359, a message was relayed by the Administration Staff to the driver to proceed back to the garage. This was an excellent demonstration by the driver. A successful radio link was tested at 1410 while on the way to the garage. The bus arrived at the garage at 1438. However, the driver did not record the dosimeter readings on the Individual Radiation Exposure Record.

#### DEFICIENCIES

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

## AREAS REQUIRING CORRECTIVE ACTIONS

1. **Description:** The bus dispatcher and the drivers at the Hendrick Hudson School District Garage in Westchester County were not familiar with the definitions of all emergency classification levels. (NUREG-0654, D.3 and D.4)

**Recommendation:** The emergency staff at the Hendrick Hudson School District Garage should be trained in the understanding and use of ECLs.

2. **Description:** The drivers of the buses were not aware of the automatic reporting requirements of 1 R and 3 R and the dose limitation of 3 R. (NUREG-0654, K.3.a and K.3.b)

**Recommendation:** The bus drivers should be given additional training in emergency worker exposure control procedures, particularly with the reporting requirements when the indicated exposure exceeds 1 R and 3 R.

3. **Description:** The driver for Route GP025 did not record the dosimeter readings on the Individual Radiation Exposure Record. (NUREG-0654, K.3.b)

**Recommendation:** The bus driver should be given additional training in emergency worker exposure control procedures, emphasizing both the recording and reporting requirements of the radiological doses by emergency workers.

## AREAS RECOMMENDED FOR IMPROVEMENT

1. **Description:** When the driver of Bus 47 tried to make the first radio call from the first stop of Route GP002 to the garage at 1044, he was not successful. Several attempts between 1044 and 1049 also failed. The driver did take the proper corrective action by using the first available pay phone.

**Recommendation:** The buses should be equipped with functional radios. Also, the drivers of the evacuation buses should test their radios before leaving the garage.

2. **Description:** One of the dosimeters with the driver of Route GP025 was not zeroed and showed an initial reading of 50 R.

**Recommendation:** All direct reading dosimeters should be zeroed before the worker begins his assignment.

3. **Description:** Radio communication between the Bus 47 (Route GP025) at the Ardsley Middle School Reception Center and the garage could not be established in spite of repeated attempts. (NUREG-0654, K.3a and K.3b)

**Recommendation:** Necessary communication equipment, such as repeaters, should be added to avoid the dead spot area at the Ardsley Middle School.

#### 2.7.2.5 Reception Center

Five objectives were demonstrated at the Westchester County Reception Center located at Fox Lane High School. All five objectives were met.

**WC RC Objective 1 - MET** - As agreed to in the extent-of-play agreement the Reception Center was demonstrated out of sequence. Though the Reception Center was demonstrated out of sequence, the Reception Center Coordinator from the County Disaster Preparedness Commission and the Decontamination Coordinator from the County Health Department were in frequent communication with the Director of Social Services and the County PMC Coordinator at the WEOC. They were aware of the ECLs at all times. A status board displayed the various ERPAs and the current ECL.

**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 touch with the WEOC. 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. Land lines were available through the Reception Center and cellular telephones were also available. A computer was available for registering evacuees. The Reception Center Coordinator and Decontamination Coordinator were informed when various ERPAs were evacuated and would be informed as to the expected arrival time of evacuees at the Reception Center. Excellent communications capability was demonstrated.

**WC RC Objective 5 - MET** - The facility was sufficient to support the Reception Center operation. The gymnasium and locker room were set up to handle the necessary registration, monitoring and decontamination activities. A status board which displayed a map of the nuclear facility and ERPAs in Westchester County was available. In an actual emergency, this area would not be set up until a General Emergency was declared.

**WC RC Objective 6 - MET** - All emergency workers were well educated on dosimetry. All dosimeters were charged and zeroed. Workers read and recorded their dosimeter readings every 15 minutes as required by procedures. All workers had a TLD and two direct reading dosimeters with ranges of 0-5 R and 0-200 R. Workers were aware of the 1 and 3 R reporting requirements.

**WC RC Objective 21 - MET** - The Reception Center was well run and set up. Signs were placed at the entrance to the Fox Lane Campus to direct traffic. Vehicles were monitored and decontaminated, if necessary, by members of the Bedford Fire Department. All monitoring equipment (CDV-700s) had been calibrated within the last year. All probes were covered in protective plastic bags. All individuals knew at what levels the vehicles would require decontamination. Ample area was available to park clean and contaminated cars.

Cars were monitored after decontamination. If a car could not be cleaned after three attempts it would be parked in an area for contaminated cars.

Once inside the high 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 would be available if a separate congregate care facility was designated. All individuals staffing the Reception Center did a thorough job and were well trained. All operations ran smoothly.

#### **DEFICIENCIES**

No Deficiencies were observed for the Westchester County Reception Center.

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

No ARCAs 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**

Three objectives were demonstrated at the Westchester County Congregate Care Center located at the Fox Lane High School. All three objectives were met.

WC CCC Objective 1 - MET - Though the Congregate Care Center was demonstrated out of sequence, the Congregate Care Center Coordinator from the County Disaster Preparedness Commission and the Decontamination Coordinator from the County Health Department were in frequent communication with the Director of Social Services at the WEOC. They were aware of the ECLs at all times. A status board displayed the various ERPAs and the current ECL.

WC CCC Objective 5 - MET - The Westchester County Congregate Care Center was demonstrated at the Fox Lane High School. The Reception Center was also demonstrated at the same location. Four RACES operators were assigned to the school, one was located in the Congregate Care Area. RACES provided reliable communication with the WEOC and to the other functions in the School. 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, cellular telephone, hand-held radios and commercial phones which can be hooked up if necessary. There is also a generator for charging the instruments. The Red Cross was able to communicate with the WEOC, Red Cross Chapter Headquarters in White Plains and local Fire Departments (for ambulances, etc). All communications functioned well with no breakdowns experienced.

**WC CCC Objective 22 - MET** - The Congregate Care Center's capacity is 1456. The Congregate Care Center's Manager received notification, at 0820, from the Red Cross Chapter headquarters, through the WEOC, to open the facility. At 1100, the facility was fully staffed with 10 American Red Cross volunteers. They were told they could expect 1000 evacuees at the facility. If for some reason the shelter capacity was exceeded, the Manager would call the WEOC to have the Red Cross 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 toilet facilities, water and parking. Cots and blankets would be brought in from the Red Cross Chapter as well as from other sources. Food was readily available through the High School Cafeteria. Crisis Counseling was available through the Department of Social Services. An emergency response desk was also set up to handle any special needs. 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. Adequate security was provided for the Reception Center and Congregate Care Center by the Westchester County 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 ACTIONS**

No ARCAs 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

Five objectives were demonstrated at the Westchester County PMC located at the Valhalla Fire Training Center. All five objectives were met.

WC PMC Objective 1 - MET - The PMC demonstrated the ability to monitor, understand and use ECLs. No status board was used nor were any ECLs posted. However, the Facility Manager frequently informed all participants, both inside and outside of the facility, of these ECLs, up-to-date plant conditions and other information as he received it from the WEOC. He frequently requested additional information from the WEOC. All staff members and workers understood the ECL concept.

WC PMC Objective 4 - MET - The objective to demonstrate the ability to communicate with all appropriate locations, organizations and field personnel was met. Commercial and dedicated telephones, a fire control network radio and RACES radio were all available and used effectively. No problems were encountered. The Fire Control Communications Center was manned continuously by two fire dispatch personnel with all messages logged and taped. This facility has the latest communication systems for all emergency situations.

WC PMC Objective 5 - MET - Adequate facilities, equipment, displays and other material to support emergency operations were demonstrated by the PMC staff. This facility had all the amenities, space and back-up power needed to support 24 hour emergency operations. Entry, traffic control and outside and inside decontamination activities were controlled and performed by Fire Department personnel.

The use of a posted status board for ECLs and other conditions and maps (especially plume EPZ and evacuation routes) would have aided in providing quicker and clearer information to the staff and arriving emergency workers.

WC PMC Objective 6 - MET - The PMC demonstrated the ability to continuously monitor and control emergency worker exposure. All workers were issued a kit containing 2 direct reading dosimeters (0-5 R and 0-200 R), TLD, KI, instructions and a Radiation Exposure Card. All dosimeters were zeroed before issuance and recordkeeping began. All workers knew how frequently to read and record their dosimeter readings, the maximum permissible exposure limits and what to do in the event these limits were exceeded. All workers were very knowledgeable about the emergency worker exposure control procedures and reporting requirements and reflected this in their performance.

WC PMC Objective 25 - MET - The adequacy of facilities, equipment, supplies, procedures and personnel for decontamination activities was demonstrated. This facility had adequate outside and inside operational space. There was adequate parking for both clean and contaminated vehicles. A very functional and effective traffic flow plan, both inside and outside, was laid out, cordoned, controlled and used. A large storeroom contained a very ample supply of protective clothing, containers and implements for all functions.

Four monitoring teams suited up fully, used functioning and calibrated equipment and recorded readings for both vehicles and personnel.

Radiological trigger points were known. Monitoring procedures were followed by all teams. Plastic, paper and other contamination control supplies were issued and used.

A contaminated vehicle and person were processed during the demonstration. The contaminated spot on the vehicle was located and the vehicle was actually soaped, scrubbed, rinsed, and remonitored by a very capable fire team. The vehicle was then escorted to a clean holding area. The contaminated individual was monitored, cleaned (simulated) and processed indoors. The attention to detail and knowledge of contamination detection, confinement and control by all team members and support personnel was evident.

One operational disadvantage to the interior traffic layout was that there was only one entrance/exit to each of the shower areas and consequently clean and contaminated individuals would come close to each other and, at one point, cross-over one another.

#### DEFICIENCIES

No Deficiencies were observed for the Westchester County PMC.

#### AREAS REQUIRING CORRECTIVE ACTIONS

No ARCA's were observed for the Westchester PMC.

#### AREAS RECOMMENDED FOR IMPROVEMENT

1. **Description:** No status board was available for the posting of ECLs, maps or additional information on the emergency. This would aid in providing quicker and clear information to the staff and arriving emergency workers.

**Recommendation:** Make a status board available for the posting of ECLs, maps and additional information on the emergency.

2. **Description:** Both interior shower areas have only one entrance/exit. Thus, close contact between clean and contaminated persons may occur as individuals enter and leave the shower.

**Recommendation:** Provide one additional entrance to each area or curtain off and separate more effectively the sole corridor to each shower area and cross-over point.

#### 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 19 - 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. Listed below are the names of the schools, the school districts, and towns which were interviewed:

1. Assumption Elementary School  
Peekskill City School District  
Peekskill, New York
2. Blue Mountain Middle School  
Hendrick Hudson Central School District  
Peekskill, New York
3. BOCES of Yorktown Heights  
Yorktown Heights School District  
Yorktown Heights, New York
4. Briarcliff High School  
Briarcliff Manor Union Free School District  
Briarcliff Manor, New York
5. Croton Harmon High School  
Croton Harmon School District  
Croton on Hudson, New York
6. Lakeland Alternative High School  
Lakeland Central School District  
Shrub Oak, New York
7. Park Early Childhood Center  
Ossining Union Free School District  
Ossining, New York
8. Westorcharde Elementary School  
Chappaqua Central School District  
Chappaqua, New York
9. Yorktown Central High School  
Yorktown Heights School District  
Yorktown Heights, 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 through EBS messages. 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 of 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.

#### **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 October 25, 1990. Three Federal evaluators observed the demonstration of the two objectives, both of which were met.

**WC Medical Drill Objective 23 - MET** - The adequacy of the vehicle, equipment, procedure and personnel for the transportation of contaminated injured or exposed individuals was satisfactorily demonstrated by a knowledgeable, well trained and well equipped crew of the Empress Ambulance Service. The crew, consisting of one Paramedic and one Emergency Medical Technician responded to a call from the Westchester County PMC to transport an individual with a puncture wound and possible radiological contamination, to the hospital. The individual was satisfactorily surveyed for radiological contamination by the PMC monitor using the proper technique and survey instruments (CDV-700). The ambulance crew was provided one TLD, one 0-5 R direct reading dosimeter, protective clothing and material to drape the inside of the vehicle. They were knowledgeable in the use of the equipment as well as KI.

The crew continued the patient care initiated by the PMC staff, carefully wrapped the patient to prevent the spread of contamination and placed him in the ambulance. The hospital was notified by radio of the patient's medical status and contamination. This information was relayed in an accurate and concise manner, correcting an ARCA from the previous medical drill at this location. 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 ambulance crew was enthusiastic and exhibited skill during the drill.

**WC Medical Drill Objective 24 - 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. Upon arrival of the ambulance at the radiological emergency area prepared at the medical center, medical needs were assessed and initial monitoring performed. Patient needs and decontamination procedures were initiated with the doctor in complete control and exhibiting excellent interface with the monitor during this process. 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. Sheeting beneath the patient was removed, 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. This corrected an ARCA from the previous medical drill. Step off procedures from the treatment area were effectively directed by the Radiological Officer and nurse in the buffer zone. The medical staff was provided protective clothing, one TLD, one 0-100 mR direct reading dosimeter and one dosimeter ring. The staff of the Westchester Medical Center performed all functions enthusiastically and professionally.

The previous ARCAs (WCMD-1 and WCMD-2), incurred in the March 15, 1988 medical drill, have been corrected and verified.

#### **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.

#### **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 (DEOC)

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

**DEOC Objective 1 - MET** - Activation of the DEOC began immediately following notification and verification at 0805 of the Unusual Event declared at Indian Point. The facility was fully operational at 0915. ECLs were displayed promptly on status boards clearly visible to all members of the staff. All DEOC participants were knowledgeable in procedures consistent with the classification levels and in accordance with their emergency plan and procedures.

**DEOC Objective 2 - MET** - The call-up roster was current and staff members who were contacted reported promptly to their designated positions. The DEOC was declared operational by 0915. All functions relevant to the County emergency plan were implemented properly. The designated DEOC staff member completed telephone contact with the DEOC staff by 0840. Site Area Emergency and General Emergency contact was simulated at 1055 and 1245. Continuous staffing plans were in place and shift change simulated.

**DEOC Objective 3 - MET** - The Dutchess County Civil Defense Director was effectively in control of emergency operations at the DEOC. The Director displayed the ability to direct and coordinate functions in an outstanding manner. Briefings were conducted hourly or more frequently to update the staff on the Indian Point incident and relative functions. Message logs were maintained and messages from various sources separated so that quick references could be made. Copies of all messages were promptly provided to all DEOC staff members. Protective action decisions were coordinated (by simulation) and implemented (out of sequence) at the John Jay High School Reception and Congregate Care Centers. (See Putnam County critique for evaluation of these facilities.) A radio message was transmitted from the DEOC Social Services staff to the Reception Center Director at 1030 directing mobilization of the Reception Center. Since the Congregate Care and Reception Center operations were performed out of sequence, the DEOC Red Cross call-up was simulated. Two messages were initiated by the DEOC Red Cross Director using the RACES radio. The overall performance at the DEOC was smooth and efficient. The Dutchess County Executive was present for the entire operation and her assistant serves as the PIO. Local participation in this exercise was notable.

Putnam County facsimile transmissions were received timely and were of acceptable quality. Transmissions received from Westchester County were less prompt, but still timely.

All functions and activities implemented at the DEOC were in accordance with their emergency plan and procedures.

**DEOC Objective 4 - MET** - The DEOC demonstrated the ability to communicate with appropriate locations, organizations and field personnel.

Twenty two telephone lines were available at the DEOC and were more than sufficient for the staff present. An IBM AT personal computer was also available. Communications by County radio experienced periodic static that made message receipt unclear and in these instances the RACES network, which transmitted clearly was implemented as a back-up system.

DEOC Objective 5 - PARTIALLY MET - Facilities, equipment, displays and other materials were adequate to meet this objective at the DEOC. The accommodations for sustained operations, such as cots, restrooms, kitchen facilities and a 50 KW back-up generator, for auxiliary power, were available. Computer, word processor, copier equipment and facsimile equipment were available and demonstrated during the exercise. Messages received from SEMO Southern District were of inferior quality and in the case of EBS messages, extremely difficult to decipher. (See ARCA 1 for the DEOC.)

#### DEFICIENCIES

No Deficiencies were observed for the DEOC.

#### AREAS REQUIRING CORRECTIVE ACTIONS

1. **Description:** Transmissions via facsimile from the Southern District SEMO officer were almost illegible. (NUREG-0654, G.3.a and H.3)

**Recommendation:** A study of this problem needs to be performed to analyze whether the transmission problem is with the SEMO facsimile machine or the DEOC machine. This problem should be corrected so that legible copies of EBS messages can be received by the DEOC.

#### AREAS RECOMMENDED FOR IMPROVEMENT

1. **Description:** Communications by County radio experienced periodic static that made message receipt unclear and in these instances the RACES network, which transmitted clearly was implemented as a back-up system.

**Recommendation:** Evaluate and correct the cause of the periodic static on the County radio frequency.

#### 2.8.2 Reception Center

Four objectives were demonstrated by the Dutchess County Reception Center. All objectives were met.

DC RC Objective 4 - MET - There were four commercial telephone lines installed in the area of the school designated for Reception Center activities. With these commercial telephone lines, the back up radio system, and RACES, the Reception Center had the ability to communicate with all appropriate locations, organizations and field personnel.

DC RC Objective 5 - MET - This Reception Center in Dutchess County was located at John Jay High School, which afforded adequate space to accommodate the number of evacuees and vehicles designated by the plan to be directed to the facility. Equipment and supplies to support the activity were deployed and used by the staff.

DC RC Objective 6 - MET - Each member of the monitoring and decontamination teams was provided one TLD, one 0-200 R dosimeter, an Individual Radiation Exposure Record, and instructions on the use of dosimetry and KI. Each dosimeter was zeroed upon distribution and the initial reading recorded. Staff were aware of the exposure limitations, as well as the procedure for incurring exposures higher than authorized. All functions were demonstrated in a manner consistent with the organization's emergency plans and procedures.

DC RC Objective 21 - MET - The County Department of Social Services is responsible for the overall coordination of the Reception Center located at John Jay High School. The County Health Department is responsible for the monitoring and decontamination of vehicles and personnel. With the assistance of volunteers, eight monitors (in excess of 1/3 requirement) were present for monitoring and decontamination, eight from Social Services for registration, four auxiliary police for security and traffic control and RACES for communications. Vehicles were monitored as they entered the parking lot, then directed to either the clean parking area or the decontamination area. The parking area afforded ample room for the segregation of clean/contaminated vehicles. With the use of a portal monitor, evacuees would have been processed at the initial monitoring station. If clean, the evacuees would have been directed to the registration table, if contaminated they would have been surveyed again by a monitor using a CDV-700 (calibrated in June 1990) to define the areas of contamination. The contaminated individuals would then be directed to the shower area for decontamination, again monitored upon leaving the shower, provided with clean clothing and then directed to the registration area. Each evacuee was provided a card indicating that they were clean so they could be registered at the Congregate Care Center. The entire process of monitoring, decontamination and registration was very well demonstrated by a knowledgeable and well trained staff. Averaging the use of the portal monitor and use of the CDV-700 monitor, the 90 second survey requirement was met. At this rate the 20% requirement would have been met. The staff of the Reception Center performed well under adverse conditions. The gym area of the school, which the plan and procedures indicated would be used for this activity, was being renovated and could not be used. An alternate area was expediently used to demonstrate a smooth flow through the entire process.

## DEFICIENCIES

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

## AREAS REQUIRING CORRECTIVE ACTION

There were no ARCAs observed at the Dutchess County Reception Center during this exercise.

## AREAS RECOMMENDED FOR IMPROVEMENT

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

### 2.8.3 Congregate Care Center

There were two objectives demonstrated by the Dutchess County Congregate Care Center. Both objectives were ~~partially~~ met.

DC CCC Objective 4 - MET - Telephone lines were available for the Congregate Care Center, but the lines were not located in the Center's working space. The Reception Center and other areas of the school had telephone lines. The location of these lines would have made it difficult for the staff to communicate. The facility was relying on radio communications to contact the Dutchess County EOC. Other functions were using this radio band, which created some interference and minor delays in communications.

DC CCC Objective 22 - MET - The combining of the Reception and Congregate Care Centers did not provide for the safety and security of the evacuees. This does not allow the Congregate Care Center to have adequate space, toilets, showers, and food facilities necessary to provide for the health and safety of the evacuees. As they demonstrated, the plan would have to deny congregate care the necessary type of space, or mix the evacuees that were being monitored with the individuals who had already been monitored.

The Red Cross was not able to demonstrate certain parts of this objective since there was inadequate space. The PEOC thought this was due to the gym being under repair and suggested simulating the activities. However, the fact that they were to share the same space as the Reception Center would make it difficult for the Congregate Care Center to operate at their full capacity. The plan calls for a combined Reception/Congregate Care Center. Under the conditions, the American Red Cross did a good job.

During the exercise, the Congregate Care Center staff were told that they were to expect 3,000 evacuees. The plan states that this shelter could accommodate only 1,917 individuals.

## DEFICIENCIES

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

## AREAS REQUIRING CORRECTIVE ACTION

There were no ARCAs observed at the Dutchess County Congregate Care Center during this exercise.

## AREAS RECOMMENDED FOR IMPROVEMENT

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

## PLANNING INADEQUACIES

1. **Description:** The backup communications system of the Red Cross was the same as that being used by the Reception Center. This caused delays and deprived them of a backup system. Without the telephones, they would have difficulty getting additional Red Cross support and medical attention for individuals in the Congregate Care Center.

**Recommendation:** The Red Cross should be able to have the use of one primary communications system and a backup for their communications with their organization and the PEOC without having to use the communications of the Reception Center.

2. **Description:** During the exercise, the Congregate Care Center staff were told that they were to expect 3,000 evacuees. The plan states that this shelter could accommodate only 1,917 individuals.

**Recommendation:** Select a shelter adequate in size to accommodate the expected number of evacuees or direct some of the evacuees to another shelter.

3. **Description:** The combining of the Reception and Congregate Care Centers did not provide for the safety and security of the evacuees. This does not allow the Congregate Care Center to have adequate space, toilets, showers, and food facilities necessary to provide for the health and safety of the evacuees. As they demonstrated, the plan would have to deny congregate care the necessary type of space, or mix the evacuees that were being monitored with the individuals who had already been monitored.

**Recommendation:** Select another facility which would allow more space for the Congregate Care Center

## **2.9 BERGEN COUNTY, NEW JERSEY**

### **2.9.1 Bergen County Emergency Operations Center (BEOC)**

Five objectives were to be demonstrated at the BEOC located in the Bergen County Museum Building at 327 East Ridgewood Avenue in Paramus, New Jersey. All five objectives were met.

**BEOC Objective 1 - MET** - The BEOC demonstrated the proper understanding and use of the ECLs. Staff notification was immediate upon receipt of the Alert notification from the REOC. Each ECL appropriate to the BEOC (Alert, Site Area Emergency and General Emergency) was received in a timely fashion after declaration by the utility. Each ECL was posted on a prominent status board. Level and time of declaration entries were made. All BEOC staff understood the respective ECL rationale. Response functions and activities based on ECL change were in accordance with the Bergen County procedures.

**BEOC Objective 2 - MET** - The BEOC successfully demonstrated the ability to notify and mobilize personnel necessary for the conduct of emergency operations at the BEOC and at the other County and State offices. All notifications, to include BEOC staff, County police and executives, State Police and Emergency Management and the American Red Cross, were completed within 29 minutes of receipt of the Alert notification. Telephone and facsimile machines were used to reach persons/offices listed on the Bergen County notification list. BEOC staff reported to the BEOC in a timely manner. The Deputy County Director declared the BEOC operational at 0910. All members were present at this time, except for the American Red Cross representative who arrived at 0930. Between the BEOC activation at 0845 and operational status at 0910, all functions and procedures were properly executed. The BEOC staff mobilization and initiation of BEOC operations was efficient.

**BEOC Objective 3 - MET** - The BEOC was under capable and positive leadership throughout the exercise. The Deputy Coordinator of the Bergen County Office of Emergency Management demonstrated the ability to direct, coordinate and control all functions and activities involving the BEOC. All staff members were knowledgeable of their responsibilities and executed their duties efficiently. Status, data and other information were passed and shared upon receipt among all staff members. Outgoing responses were similarly coordinated before their transmission. The Rockland County Emergency Plan was available and consulted during the exercise. Of particular note was the very effective manner in which the liaison at the BEOC from Rockland County was fully integrated into the BEOC staff. He was utilized to the benefit of both Counties throughout the exercise. In a similar view, the American Red Cross representative to the BEOC was made an integral part of the staff and was most instrumental in advising as to the establishment of the Congregate Care Center at Fairleigh Dickenson University.



**BEOC Objective 4 - MET** - The BEOC demonstrated the ability to communicate with all appropriate locations, organizations and field activities. No system breakdowns or interruptions were experienced. The primary means of communication was by telephone. Within the BEOC, 24 telephone lines were available for use, though only six lines were used during the exercise.

Additionally, backup mobile radio communications were demonstrated by employing both the American Red Cross and Bergen County Police networks. A facsimile machine, used to communicate with Rockland County, also functioned without difficulty. The BEOC had continuous communication lines with the New Jersey State Police Office of Emergency Management, REOC, Bergen County Executives and police, American Red Cross (Bergen and New York City Chapters) and the Congregate Care Center at Fairleigh Dickenson University. All communications were tested and operational within 24 minutes of the BEOC's activation. Within the BEOC building, other communications systems were also available. These systems included the County Emergency Services (VHF High Band), New Jersey State Police Office of Emergency Management (VHF Low Band), Bergen County Fire System and RACES.

**BEOC Objective 5 - MET** - The facilities, equipment, displays and other material necessary to support operations at the BEOC were excellent. They were appropriate in space, security and equipment. Comfort items not immediately available could be produced within minutes. The facility provided a good work environment. The BEOC contained an impressive number of wall charts, maps, television, and other audiovisual aids. Status boards with ECLs, PAGs, EPZ plume and current weather information were maintained up to date by the BEOC Operations Officer. Entry to and from the facility was controlled by using a sign in and out sheet.

#### **DEFICIENCIES**

No Deficiencies were observed for the BEOC.

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

No ARCAs were observed for the BEOC.

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

No ARFIs were observed for the BEOC.

#### **2.9.2 Congregate Care Center**

Two objectives were demonstrated at the Fairleigh Dickenson Congregate Care Center during this exercise. Both objectives were met.

RC CCC Objective 4 - MET - The Congregate Care Center demonstrated the ability to communicate with all appropriate locations, organizations and its support personnel. The primary means of communication was the Red Cross portable radio system, which provided direct contact with the Red Cross representative at the Bergen County EOC. Back-up communications consisted of a portable cellular telephone and four pay telephones. All communications were demonstrated without problems or delays. Additional telephones were available in the Rothman Center's office spaces, but were not needed. The Congregate Care Center Manager kept the evacuees informed by hourly briefings on the situation. However, there was no posted record of information.

RC CCC Objective 22 - MET - The Congregate Care Center, used by Rockland County residents, is located at the Rothman Center of Fairleigh Dickenson University in Hackensack, New Jersey. The staff demonstrated the adequacy of the facility, equipment and personnel for the congregate care of evacuees. The staff, all American Red Cross personnel, were alerted at 1100 by the Red Cross representative at the Bergen County EOC. By 1145, all had arrived at the facility, which was declared operational at 1230. The Congregate Care Center staff used the Red Cross manual for shelter operations. However, it does not cover matters particular to a nuclear incident.

At 1308, the Bergen County EOC advised the Congregate Care Center that 50 Rockland County evacuees were en route to the Rothman Center. To direct evacuees to the center, large Red Cross signs were posted at the entrance of the Rothman Center on the north side of the building. The signs were difficult to see when approaching the center from the west or south.

Upon arrival at approximately 1400, the simulated evacuees were correctly processed and assigned bunk space. A meal was available. All processing was completed in a timely manner. While one evacuee was being interviewed and registered, he developed chest pains. He was immediately taken by an emergency medical technician to the nursing station, where he was examined and rested until he was able to join the other evacuees. Another evacuee, a woman who had nausea and an upset stomach, was taken to the Hackensack Medical Center. Crisis counseling was available at the nursing station.

The facility was located in an athletic gymnasium, approximately 50 by 100 yards in size. It has a potential shelter capacity of 1,000, including handicapped persons. Should more than that number of evacuees be sent to this Center, the staff would request Bergen County EOC to locate another facility for them. Adequate shelter, sleeping accommodations, drinking water, parking and secure storage were available. Twenty one toilets were located. Should additional toilets be required, the Manager would use portable lavatories. Provision was made for segregation of unprocessed evacuees who may have been contaminated. The Bergen County EOC would be contacted to arrange for the unprocessed evacuees to ultimately be monitored, decontaminated, if necessary, and sheltered.

Logistically, the facility is supported by American Red Cross resources, including transportation, shelter and medical supplies and feeding. In addition to two mobile feeding units, four local vendors would supply prepared food on short notice under pre-agreed terms.

The Facility Manager maintained contact with the Red Cross representative at the Bergen County EOC to receive updates on the incident situation. Two briefings, an hour apart, were given by the manager to the evacuees, updating them on current developments.

The demonstration of the facility was terminated at 1505. The entire operation was accomplished in a highly professional manner by a well-trained staff.

#### 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.

#### AREAS RECOMMENDED FOR IMPROVEMENT

1. **Description:** The Congregate Care Center staff used the Red Cross manual for shelter operations. However, it does not cover matters particular to a nuclear incident.

**Recommendation:** It is recommended that a standard operating procedure (SOP) specific to a nuclear incident be developed to supplement the Red Cross manual, including specific reference to the Rothman Center Congregate Care Center, information on contacting the Bergen County EOC and techniques for processing requests from evacuees.

2. **Description:** The Congregate Care Center Manager kept the evacuees informed by hourly briefings on the situation. There was no posted record of information.

**Recommendation:** Enhance the information process by having a bulletin board setup upon which entries may be placed.

3. **Description:** Large Red Cross signs indicating the Congregate Care Center were posted at the entrance of the Rothman Center on the north side of the building. They were difficult to see when approaching the center from the west or south.

**Recommendation:** It is recommended that the Red Cross signs, indicating the Congregate Care Center, be posted outside the Rothman Center Building so they may be readily seen by persons approaching from the west and south.

### 3. REMOVAL OF COMPLETED ARCAs FROM PREVIOUS POST EXERCISE ASSESSMENT

The following list summarizes those ARCAs identified in the Post Exercise Assessment, for the March 22, 1988, 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 (1)

Joint News Center (1, 2, 3, and 4)

Orange County (1, 2 and 7)

Putnam County (1)

Rockland County (1, 2, 3 and 4)

Westchester County (1, 2, 4 and 5)

Dutchess County (None)

Bergen County (None)

Medical Drills (WC-1, WC-2 and PC-1)

#### 4. SUMMARY OF AREAS REQUIRING CORRECTIVE ACTION

Tables 4 through 14 of this section summarize uncorrected previous ARCAs which were addressed, at the November 14, 1990, exercise, and new ARCAs identified at the November 14, 1990, exercise.

Below are the notes used in Tables 4 through 14:

- <sup>a</sup> NUREG-0654, 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 number is from GM EX-3 (dated February 26, 1988).
- <sup>c</sup> C = Remedial action complete.  
I = Remedial action incomplete.

Table 4  
Indian Point Nuclear Power Station - November 14, 1990  
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</u>	Previous Exercises	Present Status <sup>c</sup>
				11/14/90			

No ARCAs were observed at the New York SEOC.

Table 5  
Indian Point Nuclear Power Station - November 14, 1990  
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</u>	Present Status <sup>c</sup>
				11/14/90	Previous Exercises	

No ARCAs were observed at the New York State SDEOC.



### 3. REMOVAL OF COMPLETED ARCAs FROM PREVIOUS POST EXERCISE ASSESSMENT

The following list summarizes those ARCAs identified in the Post Exercise Assessment, for the March 22, 1988, exercise which have been corrected and verified and are shown as being complete.

No.

New York SEOC (None)

New York State Southern District EOC (None)

EOF (1)

Joint News Center (1, 2, 3, and 4)

Orange County (1, 2 and 7)

Putnam County (1)

Rockland County (1, 2, 3 and 4)

Westchester County (1, 2, 4 and 5)

Dutchess County (None)

Bergen County (None)

Medical Drills (WC-1, WC-2 and PC-1)

Table 7  
Indian Point Nuclear Power Station - November 14, 1990  
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>	Exercise 11/14/90	Date Previous Exercises	Present Status <sup>c</sup>
1.	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	5	X		I
2.	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	13	X		I
3.	The rumor control number, provided to the general public in the emergency planning brochures for each County, only elicited a response from one County. Provisions should be made to have a system to handle the calls coming from the public in the event of a real emergency.	G.4.c	15	X	6/4/86	I
4.	The rumor control number is for internal emergency workers' use, yet Orange County gave it out to the public in a news release at 0848. If this number is readily available, the rumor control system would be quickly flooded with calls and become inoperable. The rumor control number should not be provided to the public and all PIOs should be aware of this policy.	G.4.c	15		3/22/88	C
5.	EBS Message 5 did not advise people in ERPA #20 to evacuate as it was supposed to. This mistake was caught and the information was included in EBS Message 6, issued 47 minutes later. The content of EBS messages needs to be reviewed and verified by the County Executive after the EBS messages have been drafted and prior to release.	G.4.b	13		3/22/88	C

Table 7 (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>	Present Status <sup>c</sup>
				11/14/90	Previous Exercises	
6.	Some school information was issued only via news releases and there was no information on EBS messages on how to obtain additional information on schools. A brief message should be included in the EBS message on how to obtain information on schools.	G.4.b	13		3/22/88	C
7.	Protective actions included in the messages were verified at the time of communication with the EOCs rather than verifying with the County Executives after the message was drafted as specified in the plan. The procedure in the plan should either be followed or this procedure should be modified to reflect actual practice.	G.4.b	13		3/22/88 6/4/86	C

Table 8  
Indian Point Nuclear Power Station - November 14, 1990  
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>	Exercise	Date	Present Status <sup>c</sup>
				11/14/90	Previous Exercises	
1.	Although the entire EOC staff reported for duty, the CAN reports indicated several persons were not contacted by the automatic call-out and there is no record of them being manually called. While these persons all responded, there is no record of how or when the County Executive or other staff were notified.	F.1.a	2	X		I
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	5, 19	X		I
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	11	X		I
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	6	X		I
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	6	X		I
6.	Only one of the four police officers manning the two TCPs knew the exposure call-in values.	K.3.a K.3.b	6	X		I

Table 8 (Continued)

No.	Areas Requiring Corrective Action	NUREG-0654 FEMA-REP-1 Rev.1 Reference <sup>a</sup>	FEMA Objective <sup>b</sup>	Exercise	Date	Present Status <sup>c</sup>
				11/14/90	Previous Exercises	
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	20	X		I
8.	Bus drivers did not know what the ECL status was nor its significance.	0.4	1	X		I
9.	The American Red Cross Disaster Specialist was misusing ECLs ("General Alert").	0.4	1	X		I
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.b K.3.a	6		3/9/83 6/4/86	I
11.	There was no communication between the Department of Transportation and the Dose Assessment staff concerning the high readings on the low range dosimeter of a general population bus driver. Training should be provided to the Department of Transportation to instruct them on conferring with the Dose Assessment staff when they receive information on an emergency worker with a dosimeter reading of 1 R or higher. One of the general population bus drivers hesitated for 10 minutes before he called his dispatcher about the high reading on his low range dosimeter. Additional training on radiation exposure procedures should be given to drivers.	K.3.a K.3.b	6	X		I

Table 8 (Continued)

No.	Areas Requiring Corrective Action	NUREG-0654 FEMA-REP-1 Rev.1 Reference <sup>a</sup>	FEMA Objective <sup>b</sup>	Exercise	Date	Present Status <sup>c</sup>
				11/14/90	Previous Exercises	
12.	ERPA 39 is jointly shared by both Rockland and Orange Counties. Confusion occurred when Orange County recommended sheltering in ERPA 39 and Rockland County ordered an evacuation.	J.9	13			
	- The boundary of ERPA 39 should be modified so that this ERPA is exclusively in either Rockland County or in Orange County, thereby giving full jurisdiction to one county.				6/4/86	C
	- In the meantime, additional coordination between counties concerning ERPA 39 should be implemented.				6/4/86	C
13.	The Orange County representatives did not demonstrate around-the-clock capability either by double staffing or by presentation of a roster. The County should demonstrate how they would maintain around-the-clock staffing either by presenting a roster or by double staffing at the next exercise.	A.2.a	2		3/22/88	C
14.	Orange County and Rockland County share ERPAs 39 and 40. The counties reached an accord that the Rockland County Executive, or designee, will make protective action decisions for the entire area in these ERPAs. In view of this accord, EBS messages advising evacuation of ERPAs 39 and 40 created the opportunity for confusion as to whether Orange County residents in these ERPAs should evacuate. The EBS messages stated that Rockland County residents in these ERPAs are advised to evacuate by the Deputy Rockland County Executive and were either silent as to Orange County or stated that Orange County residents were not required to take any action. The Orange County PIOs should be trained to ensure that EBS messages concerning ERPAs 39 and 40 that advise Rockland County residents should also advise Orange County residents. In addition, because Orange County residents respond to the advice of Orange County emergency officials, these messages should also state that Orange County emergency officials concur with the advice of the Rockland County officials.	E.7	13		3/22/88	C

Table 9  
Indian Point Nuclear Power Station - November 14, 1990  
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>	Exercise 11/14/90	Date Previous Exercises	Present Status <sup>c</sup>
1.	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	10	X		I
2.	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 PEOC 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	X		I
3.	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	X		I
4.	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	6	X		I
5.	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	19	X		I
6.	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	19	X		I

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</u>	<u>Date</u>	Present Status <sup>c</sup>
				11/14/90	Previous Exercises	
7.	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	18	X	3/22/88	I
8.	The County Executive did not verify the contents of the decided upon protective actions for Putnam County in EBS Message 5 before broadcast of the message. The procedure in the plan should be followed.	E.5, G.3.b	13		3/22/88	C



Table 10  
Indian Point Nuclear Power Station - November 14, 1990  
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>	Exercise 11/14/90	Date Previous Exercises	Present Status <sup>c</sup>
1.	There was a confusion in the REOC 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	10	X		I
2.	The intersection of Strawtown Road and Demarest Avenue, a TCP, was not included on the TCP Map used in the REOC. The map, used in the REOC should be revised to agree with County procedures.	J.10.j J.10.k	20	X		I
3.	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	X		I
4.	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	X		I
5.	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	7	X		I
6.	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	7	X		I

Table 10 (Continued)

No.	Areas Requiring Corrective Action	NUREG-0654 FEMA-REP-1 Rev.1 Reference <sup>a</sup>	FEMA Objective <sup>b</sup>	Exercise	Date	Present Status <sup>c</sup>
				11/14/90	Previous Exercises	
7.	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	X		I
8.	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	6	X		I
9.	Personnel performing radiological monitoring of evacuees at the reception center were not aware of the possible concentration of iodine isotopes in the thyroid and did not perform this monitoring properly. Training should be provided and revisions made to their procedures to include this step in the monitoring of evacuees.	J.12	21		3/22/88	C
10.	The only communication system available at the reception center consisted of one pay telephone. This arrangement is inadequate given the nature of the reception center operations. Several phone lines should be available for use by the emergency workers. A radio backup which could communicate with the county EOC, hospital/ambulance net, and bus dispatcher, would also improve capabilities.	F	4		3/22/88	C
11.	Bus drivers of general population routes were not aware of several items which could affect exposure to themselves or the passengers:  - Information on the areas along the evacuation routes which may be affected by a release were not transmitted to the driver by the dispatcher  - Reading of dosimetry every 15 minutes.  - Importance of keeping bus windows closed if radiation were encountered during a run.  Bus drivers and dispatcher should receive training in ways or reducing potential exposure from a release.	K.3.b	6		3/22/88	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>	Exercise 11/14/90	Date Previous Exercises	Present Status <sup>c</sup>
12.	The principal of the Congers Elementary School was not aware of any emergency planning provisions at the school. the locations of reception centers, evacuation procedures, evacuation time estimates and a general knowledge of emergency preparedness were not known or available. If emergency procedures are not available, they should be prepared and the officials of the Congers Elementary School should receive appropriate training in emergency preparedness.	J.9 J.10.g	19		3/22/88	C

Table 11  
Indian Point Nuclear Power Station - November 14, 1990  
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>	Exercise	Date	Present Status <sup>c</sup>
				11/14/90	Previous Exercises	
1.	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 WEOC, who should have instructed the dispatcher on the proper actions. The dispatcher should be instructed to obtain direction from the WEOC when exposure levels of 1 R or greater are reached on any of the bus routes.	K.3.a K.3.b	6	X		I
2.	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	6	X		I
3.	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	6	X	3/22/88	I
4.	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	X		I

Table 11 (Continued)

No.	Areas Requiring Corrective Action	NUREG-0654 FEMA-REP-1 Rev.1 Reference <sup>a</sup>	FEMA Objective <sup>b</sup>	Exercise	Date	Present Status <sup>c</sup>
				11/14/90	Previous Exercises	
5.	When the WEOC was informed that a sample had been taken for measurement of airborne radioiodine concentrations by the field monitoring team, they directed the team to remain at the sampling point. However, the sampling point was located within the plume, needlessly exposing team members so the field monitoring team relocated themselves to an area outside the plume boundary. Individuals responsible for decision making and the coordination of emergency activities require additional training in determining the plume EPZ in order to properly determine the location of field monitoring teams.	A.1.d A.2.a	10		3/22/88	C
6.	The RACES operator was not aware of the maximum allowable dosages or who could authorize exposure above the established limits. Additional training should be given to those RACES operators who will likely accompany the field monitoring team in support of Westchester County's operations.	K.3.a K.3.b	6		3/22/88	C
7.	Radio communications between the field team and the Westchester County EOC often were interrupted and inconsistent, apparently because of interference from other local government agencies using the same frequency. The plan or procedures, as appropriate (perhaps Attachment 14), should be revised to dedicate the radio frequency assigned to the field teams to their exclusive use during an exercise or an actual radiological emergency.	F	4		3/22/88 6/04/86	C
8.	The call lists that were used by personnel at the Westchester County Warning Point to notify the staff listed different names for some of the positions than the lists contained in Procedure 2. The entire set of call lists in the plan at the County Warning Point should be reviewed and corrected as necessary.	E.2	2		3/22/88 6/04/86	C

Table 12  
Indian Point Nuclear Power Station - November 14, 1990  
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> 11/14/90	<u>Date</u> Previous Exercises	Present Status <sup>c</sup>
1.	Transmissions via facsimile from the Southern District SEMO officer were almost illegible. A study of this problem needs to be performed to analyze whether the transmission problem is with the SEMO facsimile machine or the DEOC machine. This problem should be corrected so that legible copies of EBS messages can be received	G.3.a, H.3	5	X		I

Table 13  
Indian Point Nuclear Power Station - November 14, 1990  
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>	Present Status <sup>c</sup>
				11/14/90	Previous Exercises	

No ARCAs were observed at the BEOC.

Table 14  
Indian Point Nuclear Power Station - November 14, 1990  
Summary of Areas Requiring Corrective Action

Medical Drills

No.	Areas Requiring Corrective Action	NUREG-0654 FEMA-REP-1 Rev.1 Reference <sup>a</sup>	FEMA Objective <sup>b</sup>	Drill Date	Present Status <sup>c</sup>
Westchester County:					
1.	The sheet used under the patient during medical treatment caught and adsorbed the saline solution used for decontamination. Unless changed frequently this could contribute to possible recontamination of the patient and also give misleading and erroneous radiological readings. The emergency room staff should receive training in the proper use of bedding materials in order to limit the spread of contamination.	K.5.b	24	3/15/88	C
2.	The units of contamination transmitted to the hospital were incorrect; counts per minute were reported instead of mR/hr. Ambulance personnel should receive additional training in recording and reporting radiological information.	L.1	24	3/15/88	C
Putnam County:					
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	23	9/27/90	I
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	23	9/27/90	I
3.	Techniques demonstrated by the ambulance crew for the handling of the patient and the equipment used during treatment would have contaminated them. The ambulance crew should receive additional training in procedures to limit the spread of contamination.	K.5.b	24	12/8/87	C



## 5. SUMMARY OF PLANNING INADEQUACIES

Table 15 of this section summarizes the planning inadequacies identified in the November 14, 1990, exercise.

Table 15  
Indian Point Nuclear Power Station - November 14, 1990  
Summary of Planning Inadequacies

### Joint News Center

1. Sufficient rumor control for the general population is not available with the present plan and procedures. Plan revisions are necessary to provide adequate rumor control for the general public. The May 91 plan revision incorporates new rumor control system (plan and JNC procedures). Brochure will be revised later this year for annual distribution.

### Orange County

1. Designated and actual TCPs should be clearly described and located on maps. In addition, there are discrepancies between the TCPs identified in Table 7B in Appendix H of the Orange County plan, and the TCPs plotted on maps in the OEOC. Written descriptions (routes and intersections) and maps utilized in the OEOC should reflect the same intersections.

### Rockland County

1. The field monitoring teams were each provided with one 500 mR and one 5 R direct reading dosimeter. The 5 R direct reading dosimeter does not provide a satisfactory upper range. Revise the plan and equipment to meet the current FEMA guidance contained in FEMA REP-2.
2. The team briefing and procedure indicated a 3 R/hr exposure notification level. However, a card carried in the vehicle indicated a reporting exposure rate of 1 R/hr. One R/hr is appropriate, therefore the procedure should be revised to indicate the lower reporting level. If the County wants to retain the 3 R/hr reporting level, the card, carried by the team, should be revised.
3. The procedures now indicate that the team should leave the area, contact the REOC and request instructions if 3 R/hr is encountered. At the 3 or 1 R/hr instrument reading, whichever is stated in the final procedure, the team should immediately leave the area and then call the REOC.

Table 15 (Continued)

Dutchess County

1. The backup communications system of the Red Cross was the same as that being used by the Reception Center. This caused delays and deprived them of a backup system. Without the telephones, they would have difficulty getting additional Red Cross support and medical attention for individuals in the Congregate Care Center. The Red Cross should be able to have the use of one primary communications system and a backup for their communications with their organization and the PEOC without having to use the communications of the Reception Center.
2. During the exercise, the Congregate Care Center staff were told that they were to expect 3,000 evacuees. The plan states that this shelter could accommodate only 1,917 individuals. Select a shelter adequate in size to accommodate the expected number of evacuees or direct some of the evacuees to another shelter.
3. The combining of the Reception and Congregate Care Centers did not provide for the safety and security of the evacuees. This does not allow the Congregate Care Center to have adequate space, toilets, showers, and food facilities necessary to provide for the health and safety of the evacuees. As they demonstrated, the plan would have to deny congregate care the necessary type of space, or mix the evacuees that were being monitored with the individuals who had already been monitored. Select another facility which would allow more space for the Congregate Care Center.