FEDERAL EMERGENCY MANAGEMENT AGENCY
Region II
Jacob K. Javits Federal Building
26 Federal Plaza, Room 1337
New York, New York 10278-0002

January 29, 2001

Mr. Hubert J. Miller, Regional Administrator
U.S. Nuclear Regulatory Commission
NRC Region I
475 Allendale Road
King of Prussia, PA 19406-1415

Dear Mr. Miller:

Enclosed is a copy of the final exercise report for the October 5, 1999, Partial Plume Exposure Pathway exercise of the offsite radiological emergency response plans specific to the Oyster Creek Nuclear Power Station. The State of New Jersey participated in this exercise, as well as Ocean County of New Jersey. The final exercise report was prepared by the Federal Emergency Management Agency (FEMA) Region II staff. FEMA Region II staff will forward a copy of this report to the State of New Jersey.

No Deficiencies and no Area's Requiring Corrective Action (ARCA) were observed during the October 5, 1999, exercise.

Based on the results of the October 5, 1999, exercise it has been determined that the offsite radiological emergency response plans for the State of New Jersey, and the affected local jurisdictions, specific to the Oyster Creek Nuclear Power Station Site, can be implemented and are adequate to provide reasonable assurance that appropriate measures can be taken offsite to protect the health and safety of the public in the event of a radiological emergency at the site.

If there are any questions, please contact Robert F. Reynolds, FEMA Region II Regional Assistance Committee Chair, at (212) 225-7204.

Sincerely,

Joseph Picciano
Acting Regional Director

Ccs: Vanessa E. Quinn, FEMA Headquarters
Patricia C. Tenorio, FEMA Headquarters
Kathy Halvey Gibson, NRC Headquarters
Robert J. Bores, NRC Region I

Enclosure

Final Exercise Report

OYSTER CREEK NUCLEAR GENERATING STATION

Licensee: GENERAL PUBLIC UTILITIES

Exercise Date: October 5, 1999

Report Date: December 29, 2000

FEDERAL EMERGENCY MANAGEMENT AGENCY
REGION II
26 Federal Plaza
New York, New York 10278

TABLE OF CONTENTS

List of Appendices

List of Tables

I. EXECUTIVE SUMMARY

On October 5, 1999, an exercise was conducted in the 10-mile Plume Exposure Pathway Emergency Planning Zone (EPZ) around the Oyster Creek Nuclear Generating Station by the Federal Emergency Management Agency (FEMA), Region II. The purpose of the exercise was to assess the level of State and local preparedness in responding to a radiological emergency. This exercise was held in accordance with FEMA's policies and guidance concerning the exercise of State and local radiological emergency response plans (RERP) and procedures.

A full-scale exercise was scheduled and planned for demonstration but participation in the exercise was limited due to the effects of Tropical Storm Floyd. The full complement of State, County and Municipal resources were not available to support the exercise and participate in scenario play as required.

On September 28, 1999 the State requested that FEMA postpone evaluation of the State EOC, Emergency News Center, Ocean County EOC and five Municipal EOCs (Barnegat Light, Harvey Cedars, Long Beach Township, Ship Bottom, Surf City) due to continuing disaster response and recovery operations for Tropical Storm Floyd (FEMA 1295 DR NJ). FEMA and the State agreed on September 29, 1999 to proceed with a modified exercise.

On March 3, 2000 the State requested that FEMA grant a one-time exemption from demonstration for all objectives that were scheduled to be included in the biennial exercise, but were not demonstrated on October 5, 1999. FEMA approved this request on June 26, 2000. Copies of the State request and approval from FEMA Headquarters are included in Appendix 5 of this report.

The most recent exercise at this site was conducted on October 22, 1997. The qualifying emergency preparedness exercise was conducted on March 16, 1982.

FEMA wishes to acknowledge the efforts of the many individuals in New Jersey and Ocean County who participated in this exercise.

Protecting the public health and safety is the full-time job of some of the exercise participants and an additional assigned responsibility for others. Still others have willingly sought this responsibility by volunteering to provide vital emergency services to their communities. Cooperation and teamwork of all the participants were evident during this exercise.

This report contains the final evaluation of the biennial exercise and the evaluation of the following out-of-sequence activities:

EV-2 School Interviews on July 12 and 13, 1999 at:

Elizabeth Edwards Elementary School, Barnegat Township,
Cecil Collins Elementary School, Barnegat Township,
Lillian Dunfee Elementary School, Barnegat Township,
Russel O. Brackman Middle School, Barnegat Township,
Fredric A. Priff Elementary School, Ocean Township (Watertown),
Southern Regional High School, Manahawkin,
Southern Regional Middle School, Manahawkin,
Forked River Elementary School, Lacey Township,
Lanoka Harbor Elementary School, Lacey Township,
Cedar Creek Elementary School, Lacey Township,
Lacey High School, Lacey Township,
Lacey Middle School, Lacey Township;

School Evacuation on July 13, 1999 at Lacey Middle School;

General Population Evacuation: Transportation Dependent on July 21, 1999 at Lakehurst Naval Air Warfare Center;

Congregate Care Center on July 21, 1999 at Tuckerton Elementary School;

Reception Center on August 9, 1999 at Manchester High School;

Hearing Impaired on August 10, 1999 in Ocean Gate;

Route Alerting on August 10, 1999 in Beachwood;

Mobility Impaired on August 10, 1999 in Pine Beach;

Emergency Worker Decontamination Center on September 27, 1999 at Surf City Volunteer Fire Company;

Access Control on September 28, 1999 at NJ State Police, Marine Law Enforcement Bureau, Forked River Station.

MS-1 Drill on September 28, 1999 at Lacey First Aid Squad & Community Memorial Hospital.

The State and local organizations, except where noted in this report, demonstrated knowledge of their emergency response plans and procedures and adequately implemented them. There were no Deficiencies or Areas Requiring Corrective Action (ARCA) identified as a result of this exercise; and two unresolved ARCAs from prior exercises.

II. INTRODUCTION

On December 7, 1979, the President directed FEMA to assume the lead responsibility for all offsite nuclear planning and response. FEMA's activities are conducted pursuant to 44 Code of Federal Regulations (CFR) Parts 350, 351 and 352. These regulations are a key element in the Radiological Emergency Preparedness (REP) Program that was established following the Three Mile Island Nuclear Station accident in March 1979.

FEMA Rule 44 CFR 350 establishes the policies and procedures for FEMA's initial and continued approval of State and local governments' radiological emergency planning and preparedness for commercial nuclear power plants. This approval is contingent, in part, on State and local governments' participation in joint exercises with licensees.

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

- Taking the lead in offsite emergency planning and in the review and evaluation of RERPs and procedures developed by State and local governments;

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

- Responding to requests by the U.S. Nuclear Regulatory Commission (NRC) pursuant to the Memorandum of Understanding between the NRC and FEMA dated June 17, 1993 (Federal Register, Vol. 58, No. 176, September 14, 1993); and

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

    - U.S. Department of Commerce,
    - U.S. Nuclear Regulatory Commission,
    - U.S. Environmental Protection Agency,
    - U.S. Department of Energy,
    - U.S. Department of Health and Human Services,
    - U.S. Department of Transportation,
    - U.S. Department of Agriculture,
    - U.S. Department of the Interior, and
    - U.S. Food and Drug Administration.

Representatives of these agencies serve on the FEMA Region II Regional Assistance Committee (RAC) which is chaired by FEMA.

The State of New Jersey formally submitted the RERPs for the OCNGS to FEMA Region II on June 16, 1983. Formal approval of the RERP, under CFR 350, by FEMA was on April 30, 1990.

The most recent exercise at this site was conducted on October 22, 1997. The qualifying emergency preparedness exercise was conducted on March 16, 1982.

A REP exercise was conducted on October 5, 1999 by FEMA Region II to assess the capabilities of State and local emergency preparedness organizations in implementing their RERPs and procedures to protect the public health and safety during a radiological emergency involving the OCNGS. The purpose of this exercise report is to present the exercise results and findings on the performance of the offsite response organizations (ORO) during a simulated radiological emergency.

The findings presented in this report are based on the evaluations of the Federal evaluator team, with final determinations made by the FEMA Region II Regional Assistance Committee (RAC) Chairperson, and approved by the Regional Director.

The criteria utilized in the FEMA evaluation process are contained in :

- NUREG-0654/FEMA-REP-1, Rev. 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," November 1980;

- FEMA-REP-14, "Radiological Emergency Preparedness Exercise Manual," September 1991; and

- FEMA-REP-15, "Radiological Emergency Preparedness Exercise Evaluation Methodology," September 1991.

Section III of this report, entitled "Exercise Overview," presents basic information and data relevant to the exercise. This section of the report contains a description of the plume pathway EPZ and a listing of all participating jurisdictions and functional entities which were evaluated.

Section IV of this report, entitled "Exercise Evaluation and Results," presents detailed information on the demonstration of applicable exercise objectives at each jurisdiction or functional entity evaluated in a jurisdiction-based, issues-only format. This section also contains: (1) descriptions of all Deficiencies and ARCAs assessed during this exercise, recommended corrective actions, and the State and local governments' schedule of corrective actions for each identified exercise issue and (2) descriptions of unresolved ARCAs assessed during previous exercises and the status of the OROs' efforts to resolve them.

III. EXERCISE OVERVIEW

Contained in this section are data and basic information relevant to the October 5, 1999, exercise to test the offsite emergency response capabilities in the area surrounding the OCNGS. This section of the exercise report includes a description of the plume pathway EPZ and a listing of all participating jurisdictions and functional entities which were evaluated.

A. Plume Emergency Planning Zone Description

The OCNGS, located on a 1,416 acre plot in both Lacey and Ocean Townships, Ocean County, New Jersey, was operated by the General Public Utilities (GPU) Nuclear Corporation on the day of the exercise and is now owned and operated by AmerGen (as of August 8, 2000). The facility is approximately 9 1/2 miles south of Dover Township, New Jersey, 38 miles north of Atlantic City, New Jersey, and 55 miles east of Philadelphia, Pennsylvania.

The permanent population of the 10-mile EPZ (1990 census) is 99,220, which combined with a seasonal influx of 63,731 results in a total peak population of 162,951. Continuing suburban and commercial expansion of the area will increase both the population and amount of land used for residential and commercial purposes. It is anticipated that the population of this area will increase by approximately 27% in the next twenty years. The majority of the summer seasonal increase is in the Barnegat Bay and Ocean waterfront areas. The northern edge of the OCNGS ten mile EPZ extends approximately one mile into Dover Township. The township's northern border is approximately four and one half miles from Highway 37.

B. Exercise Participants

The following agencies, organizations, and units of government participated in the OCNGS exercise on October 5, 1999 and related Out-of-Sequence demonstrations.

FEDERAL AGENCIES

Nuclear Regulatory Commission
Environmental Protection Agency
Lakehurst Naval Air Warfare Center
United States Coast Guard

STATE OF NEW JERSEY

New Jersey Office of Emergency Management
New Jersey Bureau of Nuclear Engineering
New Jersey Transit
New Jersey State Police

OCEAN COUNTY

Ocean County Sheriff's Department
Ocean County Field Team
Ocean County Transportation Department
Ocean County Bureau of Emergency Management
Township of Lacey School District
Township of Manchester School District
Borough of Tuckerton School District
Township of Barnegat School District
Township of Ocean School District
Southern Regional School District

RISK JURISDICTIONS

Borough of Beachwood
Borough of Ocean Gate
Borough of Pine Beach

PRIVATE/VOLUNTEER ORGANIZATIONS

Manchester Volunteer Fire Department
Manchester Volunteer First Aid Squad
Ridgeway Volunteer Fire Department

Beachwood Volunteer First Aid Squad
American Red Cross
Radio Amateur Civil Emergency Services (RACES)
Surf City Volunteer Fire Company
Lacy Volunteer First Aid Squad
Community Memorial Hospital

IV. EXERCISE EVALUATION AND RESULTS

Contained in this section are the results and findings of the evaluation of all jurisdictions and functional entities which participated in the October 5, 1999 exercise to test the offsite emergency response capabilities of State and local governments in the 10-mile EPZ surrounding the OCNGS.

Each jurisdiction and functional entity was evaluated on the basis of its demonstration of criteria delineated in exercise objectives contained in FEMA-REP-14, REP Exercise Manual, September 1991. Detailed information on the exercise objectives and the extent-of-play agreement used in this exercise are found in Appendix 3 of this report.

A. Summary Results of Exercise Evaluation - Table 1

The matrix presented in Table 1, on the following page(s), presents the status of all exercise objectives from FEMA-REP-14 which were scheduled for demonstration during this exercise by all participating jurisdictions and functional entities. Exercise objectives are listed by number and the demonstration status of those objectives is indicated by the use of the following letters:

M - Met (No Deficiency or ARCAs assessed and no unresolved ARCAs from prior exercises)

D - Deficiency assessed

A - ARCA(s) assessed or unresolved ARCA(s) from prior exercise(s)

N - Not Demonstrated (Reason explained in Subsection B)

Table 1. Summary Results of Exercise Evaluation
October 5, 1999 – Oyster Creek Nuclear Generating Station

JURISDICTION/FUNCITONAL ENTITY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
STATE OF NEW JERSEY																																	
Dose Assessment (BNE-EOF)	M	M	M	M			M							M																			
Field Team Coordination (BNE-FCP)	M	M	M	M	M	M		M						M																			
State Field Monitoring Teams				M	M	M		M						M																			
Emergency Operations Center *	M	M	M	M					A	M	M		M	M																			
OCEAN COUNTY																																	
County Field Monitoring Team				M	M	M		M						M																			
Emergency Worker Decon Center		M		M	M																	M										
Reception Center		M		M	M													M														
Congregate Care Center		M		M	M														M													
General Population Evacuation				M	M										M																	
Hearing Impaired															M																	
Mobility Impaired															M																	
Route Alerting										M																						
School Evacuation				M	M											M																
School Interviews (EV-2 Checklist)																M																
Traffic/Access Control				M	M												M															
Medical Drill																				M	M											
Risk Municipalities:																																	
Barnegat Light	M	M	M	M	M																												
Harvey Cedars	M	M	M	M	M																												
Long Beach	M	M	M	M	M																												
Ship Bottom*	M	M	A	M	M																												
Surf City	M	M	M	M	M																												

Legend:

M = Met (No Deficiency or ARCA(s) assessed and no unresolved prior ARCA(s))
A = ARCA(s) assessed and/or unresolved prior ARCA(s)
D = Deficiency(ies) assessed
Blank = Not scheduled for demonstration
(* indicates unresolved prior ARCA)

B. Status of Jurisdictions Evaluated

This subsection provides information on the evaluation of each participating jurisdiction and functional entity, in a jurisdiction-based, issues only format. Presented below is a definition of the terms used in this subsection relative to objective demonstration status.

- **Met** - Listing of the demonstrated exercise objectives under which no Deficiencies or ARCAs were assessed during this exercise and under which no ARCAs assessed during prior exercises remain unresolved.

- **Deficiency** - Listing of the demonstrated exercise objectives under which one or more Deficiencies were assessed during this exercise. Included is a description of each Deficiency and recommended corrective actions.

- **Area Requiring Corrective Actions** - Listing of the demonstrated exercise objectives under which one or more ARCAs were assessed during the current exercise or ARCAs assessed during prior exercises remain unresolved. Included is a description of the ARCAs assessed during this exercise and the recommended corrective action to be demonstrated before or during the next biennial exercise.

- **Not Demonstrated** - Listing of the exercise objectives which were not demonstrated as scheduled during this exercise and the reason they were not demonstrated.

- **Prior ARCAs - Resolved** - Descriptions of ARCAs assessed during previous exercises which were resolved in this exercise and the corrective actions demonstrated.

- **Prior ARCAs - Unresolved** - Descriptions of ARCAs assessed during prior exercises which were not resolved in this exercise. Included is the reason the ARCA remains unresolved and recommended corrective actions to be demonstrated before or during the next biennial exercise.

The following are definitions of the two types of exercise issues which are discussed in this report.

- A **Deficiency** is defined in FEMA-REP-14 as "...an observed or identified inadequacy of organizational performance in an exercise that could cause a finding that offsite emergency preparedness is not adequate to provide reasonable assurance that appropriate protective measures can be taken in the event of a

radiological emergency to protect the health and safety of the public living in the vicinity of a nuclear power plant."

- An **ARCA** is defined in FEMA-REP-14 as "...an observed or identified inadequacy of organizational performance in an exercise that is not considered, by itself, to adversely impact public health and safety."

FEMA has developed a standardized system for numbering exercise issues (Deficiencies and ARCAs). This system is used to achieve consistency in numbering exercise issues among FEMA Regions and site-specific exercise reports within each Region. It is also used to expedite tracking of exercise issues on a nationwide basis.

The identifying number for Deficiencies and ARCAs includes the following elements, with each element separated by a hyphen (-).

- **Plant Site Identifier** - A two-digit number corresponding to the Utility Billable Plant Site Codes.

- **Exercise Year** - The last two digits of the year the exercise was conducted.

- **Objective Number** - A two-digit number corresponding to the objective numbers in FEMA-REP-14.

- **Issue Classification Identifier** - (D = Deficiency, A = ARCA). Only Deficiencies and ARCAs are included in exercise reports.

- **Exercise Issue Identification Number** - A separate two (or three) digit indexing number assigned to each issue identified in the exercise.

1. STATE OF NEW JERSEY

1.1 STATE EMERGENCY OPERATIONS CENTER

a. **MET:** Objectives 1, 2, 3, 4, 10, 11, 13, & 14 (*One-time exercise exemption*)

b. **DEFICIENCY:** NONE

c. **AREAS REQUIREING CORRECTIVE ACTION:** NONE

d. **NOT DEMONSTRATED:** NONE

e. **PRIOR ARCAs - RESOLVED:** NONE

f. **PRIOR ARCAs - UNRESOLVED:**

Issue: 43-95-09-A-01

Description: EAS #4, advising residents in ERPAs 1, 2, 3, 4, 5, 6, 7, 8, 9, and 11 owning livestock to bring them indoors and place them on stored feed was issued approximately two hours after EAS #3 recommended the evacuation of residents in ERPAs 1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 18, and 19. This precautionary advisory could result in delays or confusion in protecting the residents since they were previously advised to evacuate the ERPAs (NUREG-0654, J.9).

Reason ARCA Unresolved: Objective 9 was not demonstrated due to ongoing disaster response and recovery operations for Tropical Storm Floyd.

Recommendation: New Jersey State EOC staff (both in the Command and PIO Rooms) must be more diligent during the Decision Making process and during the procedure to disseminate a Press Release to residents and farmers. Staff should take additional training on disseminating information in a timely manner and on transmitting any precautionary message in the sequence. There is a new procedure in place for the notification of farmers, which calls for notifying them via telephone by the Agricultural Representative in lieu of a Press Release. Obtaining proper documentation (i.e. – call-lists, telephone

logs, identifying the times notifications were initiated) would resolve this ARCA.

Schedule of Corrective Actions: This ARCA will be addressed during the next biennial exercise scheduled for the week of October 15, 2001.

1.2 STATE OF NEW JERSEY - BUREAU OF NUCLEAR ENGINEERING

1.2.1 Dose Assessment (Bureau of Nuclear Engineering - Emergency Operations Facility)

a. **MET:** Objectives 1, 2, 3, 4, 7, & 14

b. **DEFICIENCY:** NONE

c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE

d. **NOT DEMONSTRATED:** NONE

e. **PRIOR ARCAs - RESOLVED:** NONE

f. **PRIOR ARCAs - UNRESOLVED:** NONE

1.2.2 Field Team Coordination (Bureau of Nuclear Engineering - Forward Command Post)

a. **MET:** Objectives 1, 2, 3, 4, 5, 6, 8 & 14

b. **DEFICIENCY:** NONE

c. **AREAS REQUIRING CORRECTIVE ACTIONS:** NONE

d. **NOT DEMONSTRATED:** NONE

e. **PRIOR ARCAs RESOLVED:** NONE

f. **PRIOR ARCAs UNRESOLVED:** NONE

1.2.3 State Radiological Field Monitoring Team

a. **MET:** Objectives 4, 5, 6, 8 & 14

b. **DEFICIENCY:** NONE

c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE

d. **NOT DEMONSTRATED:** NONE

e. **PRIOR ARCAs - RESOLVED:** NONE

f. **PRIOR ARCAs - UNRESOLVED:** NONE

1.3 Emergency News Center

a. **MET:** 1, 2, 4, 11 and 12 (*One-time exercise exemption*)

b. **DEFICIENCY:** NONE

c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE

d. **NOT DEMONSTRATED:** NONE

e. **PRIOR ARCAs- RESOLVED:** NONE

f. **PRIOR ARCAs- UNRESOLVED:** NONE

2. RISK JURISDICTIONS

2.1 OCEAN COUNTY

2.1.1 Ocean County Emergency Operations Center

a. **MET:** 1, 2, 3, 4, 5, 10 & 14 (*One-time exercise exemption*)

b. **DEFICIENCY:** NONE

c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE

d. **NOT DEMONSTRATED:** NONE

e. **PRIOR ARCAs – RESOLVED:** NONE

f. **PRIOR ARCAs – UNRESOLVED:** NONE

2.1.2 County Radiological Field Monitoring Team

a. **MET:** Objectives 4, 5, 6, 8, & 14

b. **DEFICIENCY:** NONE

c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE

d. **NOT DEMONSTRATED:** NONE

e. **PRIOR ARCAs - RESOLVED:** NONE

f. **PRIOR ARCAs - UNRESOLVED:** NONE

2.1.3 Emergency Worker Decontamination Center

[Surf City Volunteer Fire Company, September 27, 1999]

a. **MET:** Objectives 2, 4, 5, & 22

b. **DEFICIENCY:** NONE

c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE

d. **NOT DEMONSTRATED:** NONE

e. **PRIOR ARCAs - RESOLVED:** NONE

f. **PRIOR ARCAs - UNRESOLVED:** NONE

2.1.4 Reception Center

[Manchester High School, August 9, 1999]

a. **MET:** Objectives 2, 4, 5 & 18

b. **DEFICIENCY:** NONE

c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE

d. **NOT DEMONSTRATED:** NONE

e. **PRIOR ARCAs - RESOLVED:** NONE

f. **PRIOR ARCAs - UNRESOLVED:** NONE

2.1.5 Congregate Care Center

[Tuckerton Elementary School, July 21, 1999]

a. **MET:** Objectives 2, 4, 5 & 19

b. **DEFICIENCY:** NONE

c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE

d. **NOT DEMONSTRATED:** NONE

e. **PRIOR ARCAs - RESOLVED:** NONE

f. **PRIOR ARCAs - UNRESOLVED:** NONE

2.1.6 General Population Evacuation

[Lakehurst Naval Air Warfare Center, July 21, 1999]

a. **MET:** Objectives 4, 5, & 15

b. **DEFICIENCY:** NONE

c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE

d. **NOT DEMONSTRATED:** NONE

e. **PRIOR ARCAs - RESOLVED:** NONE

f. **PRIOR ARCAs - UNRESOLVED:** NONE

2.1.7 Hearing Impaired

[Ocean Gate, August 10, 1999]

a. **MET:** Objective 15

b. **DEFICIENCY:** NONE

c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE

d. **NOT DEMONSTRATED:** NONE

e. **PRIOR ARCAs - RESOLVED:** NONE

f. **PRIOR ARCAs - UNRESOLVED:** NONE

2.1.8 Mobility Impaired

[Pine Beach, August 10, 1999]

a. **MET:** Objective 15

b. **DEFICIENCY:** NONE

c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE

d. **NOT DEMONSTRATED:** NONE

e. **PRIOR ARCAs - RESOLVED:** NONE

f. **PRIOR ARCAs - UNRESOLVED:** NONE

2.1.9 Route Alerting

[Beachwood, August 10, 1999]

a. **MET:** Objective 10

b. **DEFICIENCY:** NONE

c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE

d. **NOT DEMONSTRATED:** NONE

e. **PRIOR ARCAs - RESOLVED:** NONE

f. **PRIOR ARCAs - UNRESOLVED:** NONE

2.1.10 School Evacuation

[Lacey Middle School, July 13, 1999]

a. **MET:** Objectives 4, 5, & 16

b. **DEFICIENCY:** NONE

c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE

d. **NOT DEMONSTRATED:** NONE

e. **PRIOR ARCAs - RESOLVED:** NONE

f. **PRIOR ARCAs - UNRESOLVED:** NONE

2.1.11 School Interviews – (July 12 and 13, 1999)

[Elizabeth Edwards Elementary School, Cecil Collins Elementary School, Lillian Dunfee Elementary School, Russel O. Brackman Middle School, Fredric A. Priff Elementary School, Southern Regional High School, Southern Regional Middle School, Forked River Elementary School, Lanoka Harbor Elementary School, Cedar Creek Elementary School, Lacey High School, Lacey Middle School]

a. **MET:** Objective 16 & EV-2 QUESTIONNAIRE

b. **DEFICIENCY:** NONE

c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE

d. **NOT DEMONSTRATED:** NONE

e. **PRIOR ARCAs - RESOLVED:** NONE

f. **PRIOR ARCAs - UNRESOLVED:** NONE

2.1.12 Traffic/Access Control Point

[Forked River MLEB Station, September 28, 1999]

a. **MET:** Objectives 4, 5, & 17

b. **DEFICIENCY:** NONE

c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE

d. **NOT DEMONSTRATED:** NONE

e. **PRIOR ARCAs - RESOLVED:** NONE

f. **PRIOR ARCAs - UNRESOLVED:** NONE

2.1.13 Medical Drill

[Lacey FAS & Community Memorial Hospital, September 28, 1999]

a. **MET:** Objectives 20 & 21

b. **DEFICIENCY:** NONE

c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE

d. **NOT DEMONSTRATED:** NONE

e. **PRIOR ARCAs - RESOLVED:** NONE

f. **PRIOR ARCAs - UNRESOLVED:** NONE

2.2 OCEAN COUNTY RISK MUNICIPALITIES

2.2.1 Borough of Barnegat Light

a. **MET:** Objectives 1, 2, 3, 4, & 5 (*One-time exercise exemption*)

b. **DEFICIENCY:** NONE

c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE

d. **NOT DEMONSTRATED:** NONE

e. **PRIOR ARCAs- RESOLVED:** NONE

f. **PRIOR ARCAs- UNRESOLVED:** NONE

2.2.2 Borough of Harvey Cedars

a. **MET:** Objectives 1, 2, 3, 4, & 5 (*One-time exercise exemption*)

b. **DEFICIENCY:** NONE

c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE

d. **NOT DEMONSTRATED:** NONE

e. **PRIOR ARCAs- RESOLVED:** NONE

f. **PRIOR ARCAs- UNRESOLVED:** NONE

2.2.3 Long Beach Township

a. **MET:** Objectives 1, 2, 3, 4, & 5 (*One-time exercise exemption*)

b. **DEFICIENCY:** NONE

c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE

d. **NOT DEMONSTRATED:** NONE

e. **PRIOR ARCAs- RESOLVED:** NONE

f. **PRIOR ARCAs- UNRESOLVED:** NONE

2.2.4 Borough of Ship Bottom

a. MET: Objectives 1, 2, 4, & 5 (*One-time exercise exemption*)

b. **DEFICIENCY:** NONE

c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE

d. **NOT DEMONSTRATED:** NONE

e. **PRIOR ARCAs- RESOLVED:** NONE

f. **PRIOR ARCAs- UNRESOLVED:**

Issue: 43-97-03-A-01

Description: The Ship Bottom Emergency Management Coordinator stated that he never received (by phone, radio, or follow-up facsimile) any notification of the PAD made at 2053. However, the Ship Bottom EMC never contacted the OCEOC to inquire about the status of the emergency even though he had been advised about the General Emergency.

Reason ARCA Unresolved: Objective 3 was not demonstrated due to ongoing disaster response and recovery operations for Tropical Storm Floyd.

Recommendation: The Ship Bottom Emergency Management Coordinator should assume a leadership role at the facility, and be pro-active contacting Ocean County EOC staff when he receives Emergency Classification Levels from the County.

Schedule of Corrective Actions: This ARCA will be addressed during the next biennial exercise scheduled for the week of October 15, 2001.

2.2.5 Borough of Surf City

a. **MET:** Objectives 1, 2, 3, 4, & 5 (*One-time exercise exemption*)

b. **DEFICIENCY:** NONE

c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE

d. **NOT DEMONSTRATED:** NONE

e. **PRIOR ARCAs – RESOLVED:** NONE

f. **PRIOR ARCAs- UNRESOLVED:** NONE

APPENDIX 1

ACRONYMS AND ABBREVIATIONS

The following is a list of the acronyms and abbreviations which were used in this report.

ACP	*Access Control Point*
ANL	*Argonne National Laboratory*
ARCA	*Area Requiring Corrective Action*
BNE	*Bureau of Nuclear Engineering*
CCC	*Congregate Care Center*
CEDE	*Committed Effective Dose Equivalent*
CFR	*Code of Federal Regulations*
cpm	*Counts Per Minute*
DOC	*U.S. Department of Commerce*
DOE	*U.S. Department of Energy*
DOI	*U.S. Department of the Interior*
DOT	*U.S. Department of Transportation*
DRD	*Direct Reading Dosimeter*
EBS	*Emergency Broadcast System*
ECL	*Emergency Classification Level*
EEM	*Exercise Evaluation Methodology*
EOC	*Emergency Operations Center*
EOF	*Emergency Operations Facility*
EMC	*Emergency Management Coordinator*
ENC	*Emergency News Center*
EPA	*U.S. Environmental Protection Agency*
EPZ	*Emergency Planning Zone*
ERPA	*Emergency Response Planning Area*
FAS	*First Aid Squad*
FCP	*Forward Command Post*
FDA	*U.S. Food and Drug Administration*
FEMA	*Federal Emergency Management Agency*
FR	*Federal Register*
GE	*General Emergency*

HHS	*U.S. Department of Health and Human Services*
HQ	*Headquarters*
KI	*Potassium Iodide*
KLT	*K.L. Travis and Associates*
MLEB	*Marine Law Enforcement Bureau, New Jersey State Police*
NJOEM	*New Jersey Office of Emergency Management*
NRC	*U.S. Nuclear Regulatory Commission*
NUREG-0654	*NUREG-0654/FEMA-REP-1, Rev. 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," November 1980*
OCEOC	*Ocean County Emergency Operations Center*
OCFA	*Ocean County Field Activities*
OCM	*Ocean County Municipalities*
OCNGS	*Oyster Creek Nuclear Generating Station*
OEM	*Office of Emergency Management*
ORO	*Offsite Response Organization*
PAD	*Protective Action Decision*
PAG	*Protective Action Guide*
PAR	*Protective Action Recommendation*
PIO	*Public Information Officer*
R	*Roentgen*
RAC	*Regional Assistance Committee*
RC	*Reception Center*
REM	*Roentgen Equivalent Man*
REP	*Radiological Emergency Preparedness*
RERP	*Radiological Emergency Response Plan*
R/h	*Roentgen(s) per hour*
SAE	*Site Area Emergency*
SEOC	*State Emergency Operations Center*
SOP	*Standard Operating Procedure*
TEDE	*Total Effective Dose Equivalent*
TCP	*Traffic Control Point*

TL	*Team Leader*
TLD	*Thermoluminescent Dosimeter*
USCG	*U.S. Coast Guard*
USDA	*U.S. Department of Agriculture*

APPENDIX 2

EXERCISE EVALUATORS AND TEAM LEADERS

The following is a list of the personnel who evaluated the Oyster Creek Nuclear Generating Station exercise on October 5, 1999. Evaluator Team Leaders are indicated by the letters "(TL)" after their names. The organization which each evaluator represents is indicated by the following abbreviations:

FEMA - Federal Emergency Management Agency
NRC - U.S. Nuclear Regulatory Commission
EPA - U.S. Environmental Protection Agency
ANL - Argonne National Laboratory
KLT - K.L. Travis and Associates

EVALUATION SITE	EVALUATOR	ORGANIZATION
Exercise Oversight	R. Reynolds	FEMA
STATE OF NEW JERSEY		
SEOC	R. Acerno (Team Leader)	FEMA
	B. Hasemann (Observer)	FEMA
BNE-EOF	B. Bores	NRC
	R. Grundstrum	KLT
BNE-FCP	J. Staroba	ANL
Field Monitoring Team	B. Gasper	ANL
OCEAN COUNTY		
Field Monitoring Team	J. Eng	EPA
OUT-OF SEQUENCE EVALUATIONS		
School Interviews		
Elizabeth Edwards Elementary School	R. Acerno	FEMA
Cecil Collins Elementary School	R. Acerno	FEMA
Lillian Dunfee Elementary School	R. Acerno	FEMA
Russel O. Brackman Middle School	R. Acerno	FEMA
Southern Regional High School	R. Acerno	FEMA
Souther Regional Middle School	R. Acerno	FEMA

EVALUATION SITE	EVALUATOR	ORGANIZATION
Forked River Elementary School	R. Acerno	FEMA
(School Interviews Continued)		
Lanoka Harbor Elementary School	R. Acerno	FEMA
Cedar Creek Elementary School	R. Acerno	FEMA
Lacey High School	R. Acerno	FEMA
Lacey Middle School	R. Acerno	FEMA
School Bus Run	R. Acerno	FEMA
Access Control Point (ACP)	R. Acerno	FEMA
Emergency Worker Decon Center	R. Acerno	FEMA
Hearing Impaired	B. Mason, B. Hasemann	FEMA
Mobility Impaired	B. Mason, B. Hasemann	FEMA
Reception Center (RC)	B. Mason, B. Hasemann	FEMA
Route Alerting	B. Mason, B. Hasemann	FEMA
Transportation Dependent – Gen. Pop.	D. Tang, B. Mason	FEMA
Congregate Care Center (CCC)	D. Tang, B. Mason	FEMA
MS-1 Medical Drill	T. Carroll	ANL

APPENDIX 3

EXERCISE OBJECTIVES AND EXTENT-OF-PLAY AGREEMENT

This appendix lists the exercise objectives which were scheduled for demonstration in the OCNGS exercise on October 5, 1999 and the extent-of-play agreement approved by FEMA Region II on September 17, 1999.

On September 28, 1999 the State requested that FEMA postpone evaluation of the State EOC, Emergency News Center, Ocean County EOC and five Municipal EOCs (Barnegat Light, Harvey Cedars, Long Beach Township, Ship Bottom, Surf City) due to continuing disaster response and recovery operations for Tropical Storm Floyd (FEMA 1295 DR NJ). FEMA and the State agreed on September 29, 1999 to proceed with a modified exercise.

The exercise objectives, contained in FEMA-REP-14, "Radiological Emergency Preparedness Exercise Manual," September 1991, represent a functional translation of the planning standards and evaluation criteria of NUREG-0654/FEMA-REP-1, Rev. 1, "Criteria for the Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," November 1980.

Because the exercise objectives are intended for use at all nuclear power plant sites, and because of variations among offsite plans and procedures, an extent-of-play agreement is prepared by the State and approved by FEMA to provide evaluators with guidance on expected actual demonstration of the objectives.

A. Exercise Objectives

Listed below are the specific radiological emergency preparedness objectives scheduled for demonstration during this exercise.

OBJECTIVE 1: MOBILIZATION OF EMERGENCY PERSONNEL

Demonstrate the capability to alert and fully mobilize personnel for both emergency facilities and field operations. Demonstrate the capability to activate and staff emergency facilities for emergency operations.

OBJECTIVE 2: FACILITIES - EQUIPMENT, DISPLAYS, AND WORK ENVIRONMENT

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

OBJECTIVE 3: DIRECTION AND CONTROL

Demonstrate the capability to direct and control emergency operations.

OBJECTIVE 4: COMMUNICATIONS

Demonstrate the capability to communicate with all appropriate emergency personnel at facilities and in the field.

OBJECTIVE 5: EMERGENCY WORKER EXPOSURE CONTROL

Demonstrate the capability to continuously monitor and control radiation exposure to emergency workers.

OBJECTIVE 6: FIELD RADIOLOGICAL MONITORING - AMBIENT RADIATION MONITORING

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

OBJECTIVE 7: PLUME DOSE PROJECTION

Demonstrate the capability to develop dose projections and protective action recommendations regarding evacuation and sheltering.

OBJECTIVE 8: FIELD RADIOLOGICAL MONITORING - AIRBORNE RADIOIODINE AND PARTICULATE ACTIVITY MONITORING

Demonstrate the appropriate use of equipment and procedures for the measurement of airborne radioiodine concentrations as low as 10^{-7} (0.0000001) microcuries per cubic centimeter in the presence of noble gases and obtain samples of particulate activity in the airborne plume.

OBJECTIVE 9: PLUME PROTECTIVE ACTION DECISION MAKING

Demonstrate the capability to make timely and appropriate protective action decisions.

OBJECTIVE 10: ALERT AND NOTIFICATION

Demonstrate the capability to promptly alert and notify the public within the 10-mile plume pathway emergency planning zone and disseminate instructional messages to the public on the basis of decisions by appropriate State or local officials.

OBJECTIVE 11: PUBLIC INSTRUCTIONS AND EMERGENCY INFORMATION

Demonstrate the capability to coordinate the formulation and dissemination of accurate information and instructions to the public.

OBJECTIVE 12: EMERGENCY INFORMATION - MEDIA

Demonstrate the capability to coordinate the development and dissemination of clear, accurate, and timely information to the news media.

OBJECTIVE 13: EMERGENCY INFORMATION - RUMOR CONTROL

Demonstrate the capability to establish and operate rumor control in a coordinated and timely manner.

OBJECTIVE 14: IMPLEMENTATION OF PROTECTIVE ACTIONS - USE OF POTASSIUM IODIDE FOR EMERGENCY WORKERS, INSTITUTIONALIZED INDIVIDUALS, AND THE GENERAL PUBLIC

Demonstrate the capability and resources to implement potassium iodide protective actions for emergency workers, institutionalized individuals, and, if the State plan specifies, the general public.

OBJECTIVE 15: IMPLEMENTATION OF PROTECTIVE ACTIONS - SPECIAL POPULATIONS

Demonstrate the capability and resources necessary to implement appropriate protective actions for special populations.

OBJECTIVE 16: IMPLEMENTATION OF PROTECTIVE ACTIONS - SCHOOLS

Demonstrate the capability and resources necessary to implement protective actions for school children within the plume pathway emergency planning zone.

OBJECTIVE 17: TRAFFIC AND ACCESS CONTROL

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

OBJECTIVE 18: RECEPTION CENTER - MONITORING, DECONTAMINATION AND REGISTRATION

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

OBJECTIVE 19: CONGREGATE CARE

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

OBJECTIVE 20: MEDICAL SERVICES - TRANSPORTATION

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

OBJECTIVE 21: MEDICAL SERVICES - FACILITIES

Demonstrate the adequacy of equipment, procedures, supplies, and personnel of medical facilities responsible for treatment of contaminated, injured, or exposed individuals.

OBJECTIVE 22: EMERGENCY WORKERS, EQUIPMENT, AND VEHICLES - MONITORING AND DECONTAMINATION

Demonstrate the adequacy of procedures for the monitoring and decontamination of emergency workers, equipment, and vehicles.

B. Extent-of-Play Agreement

The extent-of-play agreement on the following pages was submitted by the State of New Jersey, and was approved by FEMA Region II on September 17, 1999, in preparation for the exercise on October 5, 1999. The extent-of-play agreement includes any significant modification or change in the level of demonstration of each exercise objective listed in Subsection A of this appendix.

This extent-of-play agreement was developed for demonstration during a full scale exercise and does not accurately reflect the modifications made to conduct the limited exercise. FEMA and the State agreed on September 29, 1999 to postpone evaluation of the State EOC, Emergency News Center, Ocean County EOC and five Municipal EOCs (Barnegat Light, Harvey Cedars, Long Beach Township, Ship Bottom, Surf City) due to continuing disaster response and recovery operations for Tropical Storm Floyd (FEMA 1295 DR NJ).

OBJECTIVE 1: MOBILIZATION OF EMERGENCY PERSONNEL

NJ OEM and BNE radiological emergency response personnel live in various areas of the State Select elements of both organizations will respond 30 minutes following the ALERT declaration. Some NJ BNE will be present at work locations prior to the commencement of the exercise due to out of sequence demonstrations.

LOCATIONS OBSERVED: STATE EOC, BNE-EOF, BNE-FCP, ENC, OCEOC, and OCMEOC'S (at the five observed sites)

DATE: October 5, 1999

OBJECTIVE 2. FACILITIES-EQUIPMENT, DISPLAYS AND WORK ENVIRONMENT

Generators provide backup power at municipal EOCs within the 10-mile EPZ. The ENC has a generator to provide backup power. Radiological monitoring points and population by evacuation area will not be displayed on maps at the county or municipal EOCs as accident assessment, by State statute, is a State responsibility. An automated information system "EMITS' will be used as an event log/status board at the State EOC and ENC. Ingestion Pathway 50-mile EPZ agricultural information is on file at the State EOC. An LED sign system will be used to advise and update State EOC Staff of the Emergency Classification Level.

LOCATIONS OBSERVED: STATE EOC, OCEOC, OCMEOCs, ENC, EOF and BNE-FCP (at the five observed sites)

DATE: October 5, 1999

OBJECTIVE 3: DIRECTION AND CONTROL

The EMC at the Ship Bottom EOC will be aware of Emergency Classification Levels and Protective Action Decisions in a timely manner.

LOCATIONS OBSERVED: STATE EOC, OCEOC, OCMEOCs (at the five observed sites) EOC, and BNE-FCP.

ARCA: SBOEM 43-97-03-A-1

DATE: October 5, 1999

OBJECTIVE 5: EMERGENCY WORKER EXPOSURE CONTROL

One emergency worker exposure control kit will be utilized in each municipal EOC. No TLDs will be distributed during this exercise, but their location and recording methodology will be explained to the evaluator. County and municipal coordinators will show the evaluator an SOP regarding TLD distribution and record keeping. EMCs who distribute more than the minimum requirement of emergency worker kits will not be penalized.

"Maximum authorized mission exposure limits" may be referred to as "mission dose," "dose limit," or "turn back value." The New Jersey limit is 1.25 R. This is applicable to all demonstrations involving Objective 5. Direct-reading dosimeters (DRDs) in the emergency worker exposure control kits contain 0-20 R and 0-200 mR dosimeters. Inspection dates (including leak test information) for this instrumentation is on file at the NJOEM Radiation Laboratory and will be visually inspected and evaluated by FEMA staff prior to the exercise. KI will not be distributed. It is stored at the State OEM and at the County OEM until an actual incident. Please note that the Dover Township EOC is well beyond the EPZ and is not subject to exposure control procedures.

LOCATIONS OBSERVED: OCEOC, OCMEOC's (at the five observed sites), BNE-FCP, & SFA.

DATE: October 5, 1999

OBJECTIVE 6: FIELD RADIOLOGICAL MONITORING – AIRBORNE RADIOIODINE AND PARTICULATE ACTIVITY MONITORING

The state will utilize two field monitoring teams while the county will utilize one field monitoring team.

Field team instrument check-out and sampling of airborne radioiodine and particulates will be demonstrated during the afternoon of October 5, 1999, this will be out-of-sequence with the exercise at the BNE-FCP in Berkeley Township.

In accordance with NJ SOF-302, during the field demonstration, gamma exposure rates will be measured utilizing a Ludlum Model 3 secured onto the BNE emergency response vehicle. All teams will simulate the use of respirators if directed during the exercise. Suiting in anti-contamination clothing will be simulated. The County FMT will use a check source borrowed from the State BNE.

LOCATION: OBSERVED: BNE-FCP

OBJECTIVE 7: PLUME DOSE PROJECTION

Demonstrate the capability to develop dose projections and protective action recommendations regarding evacuation and sheltering.

LOCATION OBSERVED: EOF

DATE: October 5, 1999

OBJECTIVE 8: FIELD RADIOLOGICAL MONITORING – AIRBORNE RADIOIODINE AND PARTICULATE ACTIVITY MONITORING

The state will utilize two field monitoring teams while the county will utilize one field monitoring team.

Field team instrument check-out and sampling of airborne radioiodine and particulates will be demonstrated during the afternoon of October 5, 1999, this will be out-of-sequence with the exercise at the BNE-FCP in Berkeley Township.

In accordance with NJ SOF-302, during the field demonstration, gamma exposure rates will be measured utilizing a Ludlum Model 3 secured onto the BNE emergency response vehicle. All teams will simulate the use of respirators if directed during the exercise. Suiting in anti-contamination clothing will be simulated. The County FMT will use a check source borrowed from the State BNE.

LOCATION: OBSERVED: BNE-FCP

DATE: October 5, 1999

OBJECTIVE 9: PLUME PROTECTIVE ACTION DECISION-MAKING

Independent Protective Action Recommendations (PAR) are made at the EOF by NJBNE staff and utility staff. The Protective Action Decisions (PAD) are made by the Governor or Governor's Authorized Representative at the NJ State EOC. Please refer to NJ SOF-305 and NJ SOP-901, which outline this process. Instructions to farmers will not conflict with the Governors PAD.

LOCATION OBSERVED: STATE EOC

ARCA: 43-95-09-A-1

DATE: October 5, 1999

OBJECTIVE 14: IMPLEMENTATION OF PROTECTIVE ACTIONS – USEOF KI FOR EMERGENCY WORKERS, INSTITUTIONALIZED INDIVIDUALS, AND THE GENERAL PUBLIC

New Jersey's RERP Plan does not include KI distribution to the general public. There will be a discussion on the need to take KI, although, levels of radioiodine need not exceed the Protective Action Guides (PAG).

LOCATION OBSERVED: STATE EOC, BNE-EOF, BNE-FCP, OCEOC.

DATE: October 5, 1999

OBJECTIVE 15: IMPLEMENTATION OF PROTECTIVE ACTIONS – SPECIAL POPULATIONS [MOBILITY IMPAIRED]

Evacuation of mobility impaired persons will be demonstrated out-of-sequence with the exercise at Pine Beach Borough. The list of mobility impaired persons will be provided to the FEMA evaluator.

DATE: August 10, 1999

TRANSIT DEPENDENT BUS RUN: Evacuation of transit-dependent persons will take place out-of-sequence. One NJ Transit bus with a State Police escort will demonstrate transit-dependent evacuation. The demonstration will initiate at the Lakehurst Naval Air Warfare Center (NAWC). The Island Heights Borough route will be demonstrated as per SOP 209.

DATE: July 21, 1999

HEARING IMPAIRED NOTIFICATION: Hearing Impaired Notification will be demonstrated out of sequence by Ocean Gate Borough. A copy of the list of hearing impaired persons will be provided to the FEMA evaluator.

DATE: August 10, 1999

OBJECTIVE 16: IMPLEMENTATION OF PROTECTIVE ACTIONS – SCHOOLS

School Superintendent/Principal interviews will take place, out-of-sequence with the exercise, at the following locations:

Elizabeth Edwards Elementary School, Barnegat Twp.
Cecil Collins Elementary School, Barnegat Twp.
Lillian Dunfee Elementary School, Barnegat Twp.
Russel O. Brackman Middle School, Barnegat Twp.
Fredric A. Priff Elementary School, Ocean Twp. (Watertown)
Southern Regional High School, Manahawkin
Southern Regional Middle School, Manahawkin
Forked River Elementary School, Lacey Twp.
Lanoka Harbor Elementary School, Lacey Twp.
Cedar Creek Elementary School, Lacey Twp.
Lacey High School, Lacey Twp.
Lacey Middle School, Lacey Twp. (Bus Run initiated here)

DATE: July 12-13, 1999

A school bus evacuation route demonstration will take place, out-of-sequence with the exercise, from the Lacey Middle School.

DATE: July 13, 1999

OBJECTIVE 17: ACCESS CONTROL

An Access Control Post (at Barnegat Inlet will be demonstrated by the NJ State Police Troop F) out-of-sequence with the exercise.

DATE: September 28, 1999

OBJECTIVE 18: RECEPTION CENTER MONITORING, DECONTAMINATION, AND REGISTRATION

The facilities will be setup prior to the arrival of the FEMA evaluator. A portal monitor will be used for monitoring. At least two vehicles will be monitored and decontaminated.

The average monitoring time used for people is ninety seconds. Plastic sheeting will be available, but will not be spread on the floor. Action level for the presence of contamination is 1,000 cpm above background.

LOCATION OBSERVED: Manchester Township High School

DATE: August 9, 1999

OBJECTIVE 19: CONGREGATE CARE

A Congregate Care Center will be demonstrated out-of-sequence with the exercise. The capacity of the facility will be posed.

LOCATION OBSERVED: Tuckerton School, Tuckerton Borough

DATE: July 21, 1999

OBJECTIVE 20: MEDICAL SERVICES- TRANSPORTATION

Demonstrate the adequacy of vehicles, equipment, procedures, and personnel for transporting contaminated, injured, or exposed individuals.This demonstration will take place out-of-sequence with the exercise.

LOCATIONS OBSERVED: Lacey First Aid Squad

DATE: September 28, 1999

OBJECTIVE 21: MEDICAL SERVICES – FACILITIES

Demonstrate the adequacy of the equipment, procedures, supplies, and personnel of medical facilities responsible for treatment of contaminated, injured, or exposed individuals.This demonstration will take place out-of-sequence with the exercise.

LOCATIONS OBSERVED: Community Memorial Hospital of Ocean County

DATE: September 28, 1999

OBJECTIVE 22: EMERGENCY WORKERS, EQUIPMENT, AND VEHICLES MONITORING AND DECONTAMINATION

The facility's setup will be observed by FEMA. Plastic sheeting will be available, but will not be spread on the floor. Action level for the presence of contamination is 1,000 cpm above background. This demonstration will take place out-of-sequence with the exercise.

LOCATION OBSERVED: Surf City Emergency Worker Decontamination Center

DATE: September 27, 1999

APPENDIX 4

EXERCISE SCENARIO SYNOPSIS

I.A. SUMMARY

I.A.2. NARRATIVE SUMMARY

The operating crew will be given a turnover and allowed to perform their panel walk-down and take and initial set of logs prior to the 16:30 Exercise activity start time on October 5, 1999.

The initial conditions are as follows:

Reactor at 50% power after operating at 100% for 215 days.

Torus/Drywell De-inerting is in progress in preparation for a Drywell entry to investigate increased drywell unidentified leakage.

ESW System I is Out of Service for cleaning of both 1-1 and 1-2 heat exchangers. The Top and Bottom covers are open on 1-2 heat exchangers. Containment Spray Pump "B" Breaker has been removed and is located in the Electrical Shop for preventative maintenance.

American Crane Company (ACC) will be performing the mandatory annual inspection on the Reactor Building crane during the evening shift on the Reactor Building 119' elevation in preparations for work to be performed in the spent fuel pool.

Station Services employees have been painting the Reactor Building 51' elevation in the vicinity of the RBCCW Heat Exchangers. Work was suspended for the day at the end of Day Shift.

TIP #1 has been used to perform a TIP trace and had experienced a malfunction with the drive mechanism. The TIP is still inserted in the Core. Maintenance has completed repairs and the TIP is to be withdrawn to the bottom of the vessel during the evening shift.

The scenario begins with Maintenance personnel reporting that repairs to the TIP #1 drive mechanism are completed and the Core Engineer requesting that the TIP detector to be

withdrawn to the bottom of the vessel at 16:36. The Control Room operator will successfully withdraw TIP #1 as directed at approximately 16:55.

At 17:00, the assigned crew begins working on the inspection of the Reactor Building crane. As part of this inspection, the crane is being jogged from one end of the refuel floor to the other using the remove control unit. The ACC Technician operating the crane and the Rad Con Technician supporting the Refuel Floor work are standing in Zone 2 as shown in Figure B-1 of Mini scenario B. While this activity is being performed, the second ACC Technician is evaluating its operation from the floor and its standing near the Fuel Pool.

As the crane passes over the refuel floor, the north fixed-link of the Fixed-link Support System (see Figure B-2 of Mini scenario B) falls from the crane into the spent fuel pool, lands on Rack C and damages 4 fuel bundles, releasing the gap activity. An ACC Technician is splashed by Fuel Pool Water and become contaminated. The crew observed gas bubbles rising from the bundles and the Rad Tech indicates dose rates are increasing on the 119' elevation. The Rad Tech directs the crew to exit the 119' elevation. Area radiation monitors B-9, C-5, C-9, and C-10 begin increasing and reach a value of 250 mR/hr based on 119' atmosphere concentration of 2.8 E-3 uCi/cc of Kr85.

Upon reaching the 95' elevation, the crew notified the control room of the accident. The control room staff monitors the area radiation monitors. When the Reactor Building Vent Radiation Monitors exceed 9 mR/hr, the Reactor Building ventilation is automatically secured and the Standby Gas Treatment System (SGTS) is initiated. Stack activity increases to 5.6E-5 uCi/cc (23 cps).

The Site Shift Manager (SSM) declares an **ALERT** at approximately 17:15 based on EAL K.1, "Verified mechanical damage to irradiated fuel which results in a high alarm on any of the following refuel floor ARM's: B-9, C-9, C-10."

The Station Emergency Alarm is sounded, a plant page announcement indicating the declaration of an **ALERT** and all on-shift emergency responders report to their Emergency Response Facilities (ERF's). Pager activation is initiated and the Emergency Response Organization (ERO) is activated.

The RAC responds to the control room and develops a Dose Projection based on the increased stack monitor or a contingency fuel handling accident scenario. The dose projection results are background and no EAL is exceeded based on off-shift radiological conditions.

The Control Room crew continues with the reactor shutdown. After the isolation

of Rx Bldg. Ventilation and SGTS actuation, the SSM may decide to close the DW Vent and Purge Valves (V-27-1, -2, -3, & -4) until the normal de-inerting lineup can be reestablished. When attempted, all valves will close with the exception of V-27-1, the inboard DW Vent, which may initiate as OSC repair team activity to investigate and attempt a manual closure. The manual closure attempt will be unsuccessful.

All Emergency Response Facilities are activated by 18:15.

At 18:50, Unit Sub 1B2 Feeder Breaker for 1B21 trips when 1B21B develops a fault preventing the isolation of "B" Recirc Pump and disabling Containment Spray System II. A repair crew is dispatched from the OSC to determine the cause of the trip and reclose. Unit Sub 1B2 Feeder breaker for 1B21.

At 19:10, "B" Recirc pump operation deteriorates. Vibrations increase, seals are damaged, the impeller contacts the casing. Impeller shards are injected into the reactor. The impeller penetrates the Recirc pump casing and a LOCA results. RCS level decreases to below –30' TAF. Fuel is damaged by the decrease in RCS level and mechanical damage by the shards. Containment High Range Monitors (CHRRMS) increase to 5000 R/hr.

Drywell pressure increases. Valve V-27-1 failed open by intrusion of foreign material and V-27-2 flange bolts failing result in a rupture of the ventilation duct into the Reactor Building. Reactor Building ARM's increase. Stack monitors increase indicating an elevated release.

The ED declares a **GENERAL EMERGENCY** at approximately 19:15 based on EAL S.1, "Loss of 2 of 3 fission product barriers with the potential loss of the third" or EAL A.!, "RX level less than –30" TAF for greater than 2 minutes".

The Station Emergency Alarm is sounded and a **GENERAL EMERGENCY** announced, but all activities related to a site evacuation will not be conducted.

A dose projection is developed based on a Stack High Range Monitor value of 4.5 uCi/cc, "E" stability class, and 7.5 mph winds from the SSW (202°). The TEDE projection is 2610 mRem at 1.6 miles and a CDE of 278 mRem at 5.0 miles.

Offsite iodine concentrations are above projected levels due to the 40% efficiency of the Standby Gas Treatment System Charcoal filters. The decreased efficiency is postulated to be caused by paint fumes created during the painting of the Reactor Building 51' elevation and increased humidity levels during the LOCA and subsequent failure of the Drywell ventilation duct into the Reactor Building.

A PAR of Evacuation is discussed with the New Jersey Bureau of Nuclear Engineering at the EOF and provided to the New Jersey Office of Emergency Management.

Off-site monitoring activities are expanded to confirm and define the extent of the plume.

At 19:20, upon resetting Unit Sub 1B2 Feeder breaker for 1B21, power is restored to MCC 1B21A. Valves V-37-20, V-37-21, & V-37-22 can be closed at that time isolating the RCS from the Primary Containment. The LOCA is now terminated allowing ECCS to raise reactor water level above the top of active fuel and maintained in accordance with the EOPs. Drywell pressure begins to lower along the Stack High Range Monitor. At this time, long term core cooling is assured although the Primary Containment remains breached.

Dose rates in the OSC increase to 300 mR/hr due to shine from the plume and Reactor Building. The RCC advised the RAC of the conditions. The RAC and ED confer regarding the necessity to relocate the OSC personnel. Upon determining the dose rates will not decrease significantly, the ED directs the evacuation of the OSC to the Secondary OSC (SOSC) in the rear of the TSC.

The drill will end around 22:00 or later when sufficient time has passed to demonstrate the off-site activities.

APPENDIX 5

EXERCISE EXEMPTION

State of New Jersey

CHRISTINE TODD WHITMAN
Governor

DEPARTMENT OF LAW AND PUBLIC SAFETY
DIVISION OF STATE POLICE
POST OFFICE BOX 7068
WEST TRENTON NJ 08628-0068

JOHN J. FARMER, JR.
Attorney General

COLONEL CARSON J. DUNBAR, JR.
Superintendent
TELEPHONE: (609) 882-2000

ADDRESS REPLY TO:

March 3, 2000

Ms. Lynn Canton
FEMA Region II
26 Federal Plaza
New York, NY 10278

Dear Ms. Canton:

As a result of the continuing recovery activities associated with the affects of Hurricane Floyd and the subsequent Presidential Disaster Declaration 1295, the New Jersey State Office of Emergency Management respectfully requests that FEMA grant exercise exemption for all objectives of the 1999 Oyster Creek Exercise not already successfully demonstrated or awarded exercise credit.

Of the 22 objectives agreed upon in the extent of play letter for the 1999 Oyster Creek Exercise, 12 have been successfully demonstrated, exercise credit has been requested for 9, and one (Objective 5) remains satisfied through the granting of an exemption along with any not granted exercise credit.

The favorable consideration of this request will give closure to the 1999 Oyster Creek Exercise while being very cost effective for both FEMA Region II and the New Jersey State Office of Emergency Management. It will also alleviate a further drain on our limited personnel resources.

Your consideration in this matter is greatly appreciated. If you have any questions, please feel free to contact me at (609) 538-6051.

Sincerely,

FOR COLONEL CARSON J. DUNBAR, JR.
SUPERINTENDENT

Kevin J. Hayden, Captain
Acting Supervisor
Emergency Management Section

da
c Ms. Schifano-Milmore
Mr. Reynolds
Mr. Haseman

G:\USERS\RERP\Exer Exemption
DOC TRACK #0002624

Federal Emergency Management Agency

Washington, D.C. 20472

JUN 29 2000

MEMORANDUM FOR: Robert Reynolds
Regional Assistance Committee Chairperson
FEMA Region II

FROM: Vanessa E. Quinn, Acting Chief
Radiological Emergency Preparedness Branch

SUBJECT: Exemption for the State of New Jersey and Ocean County's Participation in the Oyster Creek Nuclear Power Station Scheduled on October 4-8, 1999

This memorandum is to confirm our decision during the June 26, 2000, conference call concerning the request to grant a one time exemption for the State of New Jersey, Ocean County, and the Ocean County Municipalities of Borough of Barnegat Light, Long Beach Township, Borough of Ship Bottom and Borough of Surf City of Ocean County from participation in the Oyster Creek Nuclear Power offsite exercise. This request was based on activities carried out in response to the September 1999 Presidential Disaster Declaration: FEMA 1295-DR-NJ Hurricane Floyd.

Our office has reviewed the justification submitted by the State of New Jersey and Ocean County, and the additional information provided during the discussions between our respective staffs. We considered several factors in granting approval of a one time only exemption for the State of New Jersey and Ocean County as follows: (1) the State completed its radiological monitoring and other field activities during a scale-down offsite exercise conducted on October 5, 1999 at the Oyster Creek Nuclear Power Station site; (2) the State also participated in the April 10-14, 2000, Salem-Hope Creek Nuclear Power Plant offsite exercise and has a good record of exercise performance; (3) Ocean County is recovering from a Federally declared disaster that occurred during the fall of 1999, which provided valuable experience related to preparedness for nuclear power plant accidents; (4) Ocean County will be participating in several other emergency preparedness exercises and emergency management activities in 2000; and (5) the State of New Jersey as well as all of the local jurisdictions will fully participate in a FEMA evaluated REP exercise in 2001 at the Oyster Creek site.

Based on the information provided and your recommendation approval is granted to the State of New Jersey, Ocean County, and the municipalities of Borough of Barnegat Light, long Beach Township, Borough of Ship Bottom, and Borough of Surf City a one-time exemption from participating in the October 5, 1999, Oyster Creek Nuclear Power Station offsite exercise.

If you have any questions concerning this approval or require additional information, please contact me, at (202) 646-3664.

Final
Narrative Summary Report

PLUME EXERCISE
OYSTER CREEK
NUCLEAR GENERATING STATION

Licensee: GENERAL PUBLIC UTILITIES

Exercise Dates: October 5, 1999

Report Date: December 29, 2000

FEDERAL EMERGENCY MANAGEMENT AGENCY
REGION II
26 Federal Plaza
New York, New York 10278

TABLE OF CONTENTS

I. EXECUTIVE SUMMARY

On October, 5, 1999, an exercise was conducted in the 10-mile Plume Exposure Pathway Emergency Planning Zone (EPZ) around the Oyster Creek Nuclear Generating Station by the Federal Emergency Management Agency (FEMA), Region II. The purpose of the exercise was to assess the level of State and local preparedness in responding to a radiological emergency. This exercise was held in accordance with FEMA's policies and guidance concerning the exercise of State and local radiological emergency response plans (RERP) and procedures.

A full-scale exercise was scheduled and planned for demonstration but due to the effects of Tropical Storm Floyd participation in the exercise was limited. The full complement of State, County and Municipal resources were not available to support the exercise and participate in scenario play as required.

On September 28, 1999 the State requested that FEMA postpone evaluation of the State EOC, Emergency News Center, Ocean County EOC and five Municipal EOCs (Barnegat Light, Harvey Cedars, Long Beach Township, Ship Bottom, Surf City) due to continuing disaster response and recovery operations for Tropical Storm Floyd (FEMA 1295 DR NJ). FEMA and the State agreed on September 29, 1999 to proceed with a modified exercise.

On March 3, 2000 the State requested that FEMA grant a one-time exemption from demonstration for all objectives that were scheduled to be included in the biennial exercise, but not demonstrated on October 5, 1999. FEMA approved this request on June 26, 2000.

This report is a composite of the written narrative evaluations submitted by the federal evaluation team and is a supplement to the Final Plume Exercise Report dated December 29, 2000, available under separate cover.

The most recent exercise at this site was conducted on October 22, 1997. The qualifying emergency preparedness exercise was conducted on March 16, 1982.

FEMA wishes to acknowledge the efforts of the many individuals in New Jersey and Ocean County who participated in this exercise.

Protecting the public health and safety is the full-time job of some of the exercise participants and an additional assigned responsibility for others. Still others have willingly sought this responsibility by volunteering to provide vital emergency services to their communities. Cooperation and teamwork of all the participants were evident during this exercise.

This report contains the final evaluation of the biennial exercise and the evaluation of the following out-of-sequence activities:

EV-2 School Interviews and Bus Run on July 12 and 13, 1999 at

1. Cecil Collins Elementary School, Barnegat Township,
2. Lillian Dunfee Elementary School, Barnegat Township,
3. Russel O. Brackman Middle School, Barnegat Township,
4. Southern Regional High School, Manahawkin,
5. Southern Regional Middle School, Manahawkin,
6. Forked River Elementary School, Lacey Township,
7. Lanoka Harbor Elementary School, Lacey Township,
8. Cedar Creek Elementary School, Lacey Township,
9. Lacey High School, Lacey Township,
10. Lacey Middle School, Lacey Township;

Transportation Dependent *– General Population* on July 21, New Jersey Transit;

Congregate Care Center on July 21, 1999 at Tuckerton Elementary School; ;

School Evacuation Bus Run on July 13, 1999 at Lacey Township School District.

Reception Center on August 9, 1999 at Manchester High School;

Hearing Impaired on August 10, at Ocean Gate;

Route Alerting on August 10, 1999 at Beachwood;

Mobility Impaired on August 10, 1999 at Pine Beach;

Emergency Worker Decontamination Center on September 27, 1999 at Surf City Volunteer Fire Company;

Access Control on September 28, 1999 at Forked River MLEB Station;

MS-1 Drill on September 28, 1999 at Lacey FAS & Community Memorial Hospital

The State and local organizations, except where noted in this report, demonstrated knowledge of their emergency response plans and procedures and adequately implemented them. There were no Deficiencies and no Areas Requiring Corrective Action (ARCA) identified as a result of this exercise.

II. EXERCISE NARRATIVE SUMMARY

1. STATE OF NEW JERSEY

1.1 Dose Assessment - Bureau of Nuclear Engineering - Emergency Operations Facility

There were six objectives to be demonstrated by the New Jersey Bureau of Nuclear Engineering (NJBNE) at the Emergency Operations Facility (EOF). Five objectives were met. Objective 7 was not met.

OBJECTIVE 1: MOBILIZATION OF EMERGENCY PERSONNEL

Demonstrate the capability to alert and fully mobilize personnel for both emergency facilities and field operations. Demonstrate the capability to activate and staff emergency facilities for emergency operations.

Objective Status: MET

The accident assessment area in the EOF for the State of New Jersey was staffed by NJ BNE personnel. NJ BNE personnel were pre-assembled at a staging area in accordance with the Extent-of-Play Agreement. NJ BNE personnel began arriving at the EOF at 1815 and were all present by 1822. They arrived approximately one hour after the declaration of the Alert Emergency Classification Level (ECL), in accordance with the agreement.

Based upon discussions with the NJ BNE EOF Lead, a duty roster is maintained for mobilization of personnel after normal working hours. The duty roster is kept up-to-date and lists a primary contact and a secondary contact for the NJ BNE. Both the primary and secondary contacts are trained as the NJ BNE Lead for the State's response in the EOF. The Lead, if the situation warrants, contacts a second person from a personnel duty roster. The second person then calls out all the other responders. To be fully staffed, seven persons are required. The EOF was staffed with the following positions: EOF Lead, Assistant Lead, Lead Dose Assessment, Assistant Dose Assessment, Communicator, Lead Engineer, and Assistant Engineer as per plan and procedures. At 1845 the New Jersey EOF facility was declared fully operational.

Issues: None

OBJECTIVE 2: FACILITIES - EQUIPMENT, DISPLAYS, AND WORK ENVIRONMENT

Demonstrate the adequacy of facilities, equipment, displays, and other materials to

support emergency operations.

Objective Status: MET

The NJ BNE occupies approximately a 15 foot by 15 foot area in the corner of the EOF. Within this area there were status boards, maps, computers, two facsimile machines, two telephones, a radio, desks and chairs. The space was adequate to support emergency operations, but it might be a little cramped for an extended operation and the noise level was a little high. There were adequate lighting, furnishings and ventilation. Equipment is maintained in a ready position. When personnel arrived, computers were turned on and communications were checked, and the facility was ready for operation. Status boards, maps, and displays were well used and were updated frequently. Plans and procedures were readily available and were used throughout the exercise.

The facility, equipment, displays and other materials on the EOF were adequate to support emergency operations and were effectively used.

Issues: None

SEOC Objective 3 – DIRECTION AND CONTROL

Demonstrate the capability to direct and control emergency operations.

Objective Status: MET

The NJ BNE EOF Lead arrived at the facility in accordance with the extent of play agreement and immediately established control over the other arriving NJ representatives and in making his arrival and position known to the licensee's response organization. He provided instructions to his staff and held briefings and discussions as necessary to accomplish the assigned functions in a professional and timely manner. Contacts were routinely made with his counterparts at the State Emergency Operations Center (SEOC) and at the Forward Command Post (FCP) to keep them aware of plant and release status, provide assessment information and thinking relative to PARs and to request information (from the FCP). The staff functioned well together at the EOF and maintained proactive interactions with utility counterparts to share data, gain perspectives and a sense of situation prognoses. The NJ staff was led through the Protective Action Recommendation (PAR) development by the EOF Lead with input from the engineering and dose assessment leads. The PARs were timely and transmitted promptly to the State EOC. Conditions were followed and reassessed as additional information became available. The assessments indicated that additional actions were not needed at the time and potassium iodine (KI) was not needed for emergency workers. One item discussed by the evaluator with the NJ EOF staff was the availability of someone of the NJ staff to cover the utility briefings during the times in which the NJ EOF Lead was tied up on priority functions which he properly continued.

Issues: None.

OBJECTIVE 4: COMMUNICATIONS

Demonstrate the capability to communicate with all appropriate emergency personnel at facilities and in the field.

Objective Status: MET

There were two telephones with each having two lines; three computers, two of which were computer-linked with other systems; an incoming facsimile machine; an outgoing facsimile machine; and a radio system available for the NJ BNE in the EOF. The telephone was the primary system used for communications between the EOF, and the SEOC and the NJ BNE FCP. The radio system was a backup. Telephones were used continuously during the exercise without any problems. A radio check was made during the activation of the facility. The radio operated properly and was maintained in an operational status during the entire exercise. Although the radio was not used during the exercise, communications between the NJ BNE FCP and the Field Monitoring Teams were monitored throughout the exercise.

Issues: None.

OBJECTIVE 7: PLUME DOSE PROJECTION

Demonstrate the capability to develop dose projections and protective action recommendations regarding evacuation and sheltering.

Objective Status: NOT MET

The Bureau of Nuclear Engineering (BNE) dose assessment personnel were proactive in seeking data and projections as needed from the utility counterparts, who also were very cooperative in this regard. BNE actively involved the engineering staff (for plant status considerations) and dose assessment information from plant releases, field monitoring and the fixed offsite monitors (CREST) in arriving at a prompt, appropriate PAR following the declaration of the General Emergency (GE). The initial PAR for evacuation 2-miles around and 10 miles downwind was transmitted to the SEOC 11 minutes after the GE (15 minutes after the GE conditions were identified). This PAR was based primarily on plant conditions. The NJ staff continued to closely monitor the radiological conditions as determined from the stack monitor, containment rad monitors, the CREST data, meteorological data and forecasts, and state and utility field monitoring teams. The engineering staff continued to follow the plant conditions, efforts to mitigate the releases and regain control of the plant. This information was effectively utilized in continually assessing the need for other or additional protective actions. The assessments by BNE were performed independently from

the utility and then reviewed and discussed with the utility. NJ determined that no additional PARs were warranted based on their assessments and also that radioiodine concentrations were sufficiently low such that KI use by field teams was not warranted. These assessments were discussed with the BNE counterparts at the SEOC in a timely manner.

The BNE dose assessor relied primarily on the utility dose projections rather than their own using the RASCAL model. The dose assessment staff effectively compensated for the lack of their own projections by closely evaluating the utility projections and comparing those projections with the field data collected by all the teams and to the CREST information. To this end effective PARs were formulated and public health and safety would have been met.

Plan Issue: The procedures for using the RASCAL model to prepare independent dose projections were ineffective.

Description: BNE had difficulty in performing dose projections and it was difficult to determine what input assumptions had been used. The configuration of the BNE dose assessment system at the EOF precluded printing input assumptions and the corresponding results from the model. Dose projections are unusable if the input assumptions are unknown. The BNE also had difficulty in converting monitor data into the format needed for the model. This data was available on the utility dose projection sheets.

Recommendation: The procedures for preparing dose projections should be reviewed and revised. The staff responsible for this function should be given additional training on the procedures for use of the RASCAL model. In addition, it is recommended that the dose assessment system be reconfigured to run on a stand-alone computer instead of a local area network, in order to facilitate printing input assumptions with dose projections.

OBJECTIVE 14: IMPLEMENTATION OF PROTECTIVE ACTIONS - USE OF POTASSIUM IODIDE FOR EMERGENCY WORKERS, INSTITUTIONALIZED INDIVIDUALS, AND THE GENERAL PUBLIC

Demonstrate the capability and resources to implement potassium iodide (KI) protective actions for emergency workers, institutionalized individuals, and, if the state plan specifies, the general public.

Objective Status: MET

The NJ BNE Lead in the EOF made the recommendation for the Emergency Workers not to ingest KI. The decision was made based upon very low iodine content in the release. Data concerning the plume were received from both State and Utility Field Monitoring Teams. In addition, dose projections based upon stack monitor readings indicated a low dose based upon iodine. All data indicated that there was little iodine present in the plume. Data were monitored continuously to ensure that the iodine content did not increase.

The recommendation for Emergency Workers not to ingest KI was communicated to the SEOC and to the NJ BNE FCP.

Issues: None.

1.2 Field Team Coordination - Bureau of Nuclear Engineering - Forward Command Post

There were eight objectives to be demonstrated by the BNE at the FCP. All eight objectives were met.

OBJECTIVE 1: MOBILIZATION OF EMERGENCY PERSONNEL

Demonstrate the capability to alert and fully mobilize personnel for both emergency facilities and field operations. Demonstrate the capability to activate and staff emergency facilities for emergency operations.

Objective Status: MET

Demonstrate the capability to alert and fully mobilize personnel for both emergency facilities and field operations. Demonstrate the capability to activate and staff emergency facilities for emergency operations.

The New Jersey State forward command post staff at the Miller Air Park were alerted at the Alert ECL at 1739 by radio in their state vehicles on their way to the FCP. The FCP staff and field teams were mostly prepositioned near the FCP or on their way to the FCP as per pre-exercise agreement. Some workers were notified by telephones or pagers. The FCP staff arrived at 1815 at the FCP trailer and began setting up. Full activation was completed at 1825 with a full complement of 8 staff and with all equipment in place and operating in the FCP trailer. Field teams had assembled outside the FCP trailer earlier.

Issues: None

OBJECTIVE 2: FACILITIES - EQUIPMENT, DISPLAYS, AND WORK

ENVIRONMENT

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

Objective Status: MET

The State FCP is located in a larger trailer in a secure area behind and adjacent to the Ocean County EOC at the Miller Air Park. This facility is fully equipped to perform its main function of directing and controlling radiological monitoring field teams. There was adequate space, lighting ventilation, restrooms etc. to support extended emergency operations. There also were telephones, fax machines, copiers and radios on hand. Also employed were a status board, field team control board (by teams), weather data board and various maps. All status boards were kept updated promptly as required. Copies of the plan were on hand and position check lists used. Access control to the FCP was simulated but doors were watched for this exercise. A State Trooper would be on duty in a real emergency.

Issues: None

OBJECTIVE 3: DIRECTION AND CONTROL

Demonstrate the capability to direct and control emergency operations.

Objective Status: MET

The FCP staff were very capably directed and controlled by the FCP lead. The lead issued instructions to the staff, kept the staff informed of all events and conducted timely periodic briefings. The staff were always involved in decision making and field team activities. The lead was very experienced in this role and was always in complete control.

The FCP lead conducted a good briefing for the field teams (4) before their deployment on their assignment to the field. The field teams movements were closely controlled, monitored and kept informed at all times. The EOF was kept informed by phone and by fax.

Issues: None

OBJECTIVE 4: COMMUNICATIONS

Demonstrate the capability to communicate with all appropriate emergency personnel at facilities and in the field.

Objective Status: MET

The BNE-FCP trailer has 5 commercial telephone lines, a radio system [100-Watt Department of Emergency Preparedness (DEP) system] for field team communication and 2 fax machines (in/out) on hand. Portable radio was also available. A communication van was available (but not on site) to the FCP if needed and required to report to the FCP. A computer was also utilized to display CREST data (monitor data at various fixed locations). All communication systems were employed and worked well and there were no delays or breakdowns at any time.

Issues: None

OBJECTIVE 5: EMERGENCY WORKER EXPOSURE CONTROL

Demonstrate the capability to continuously monitor and control radiation exposure to emergency workers.

Objective Status: MET

The BNE-FCP staff were issued a dosimetry kit which included 2 self-reading dosimeters (0-200 mR and 0-20 R), a thermoluminescent dosimeter (TLD), record keeping form with instructions and a bottle of KI (in date/ 01/2001). The dosimeters were zeroed upon each worker's arrival at the FCP and ID# numbers and initial readings recorded. Calibration data (all in date) for each dosimeter were at the state BNE office. The staff each read their dosimetry promptly every 30 minutes and recorded readings on their exposure record form.

The FCP staff all knew their exposure limits (posted on wall also) and what to do and whom to contact in the event these limits were or needed to be exceeded. These limits were 1.25 R without permission and up to 5 R with approval by the State Health Department. The staff's dosimetry and records would be turned into the FCP radiological officer at the end of their work assignment at the FCP. The staff was also aware of the possible need to ingest KI and possible side effects of ingestion.

The FCP personnel followed their radiological exposure control procedures in their plan at all times.

Issues: None

OBJECTIVE 6: FIELD RADIOLOGICAL MONITORING - AMBIENT RADIATION MONITORING

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

Objective Status: MET

The BNE-FCP directed and controlled field teams in an excellent manner. Radio communication with field teams (4 teams deployed) was very good throughout. The FCP kept the team informed and the team likewise kept the FCP informed at all times. The teams were tracked well as each proceeded to their destinations. Four teams conducted traversals of the plume while 3 teams conducted an actual air sample in the plume. These field data were promptly transmitted to the FCP and this data were then analyzed by the FCP and the results, after double checking by the assistant lead, were faxed to the EOF when completed.

The FCP staff did a very superior job in their control of the field teams, handling data and expediting these data and results to the EOF.

Issues: None

OBJECTIVE 8: FIELD RADIOLOGICAL MONITORING - AIRBORNE RADIOIODINE AND PARTICULATE ACTIVITY MONITORING

Demonstrate the appropriate use of equipment and procedures for the measurement of airborne radioiodine concentrations as low as 10^{-7} (0.0000001) microcuries per cubic centimeter in the presence of noble gases and obtain samples of particulate activity in the airborne plume.

Objective Status: MET

The BNE-FCP deployed the four field teams to the field after a briefing by the FCP lead at 1900. The FCP staff directed all four teams to conduct traversals at four different locations in search of the plume. Each of the four teams did conduct a traversal and 3 teams also conducted an air sample measurement in the center line of the plume they found. All data, both from the traversal and air samples were promptly reported to the FCP for calculation and processing. The field team data and finished calculations (after double checking by the assistant lead) were then relayed to the EOF by fax.

The FCP staff very ably controlled and directed the teams in their assignments to collect proper air samples and report their data and iodine calculations to the EOF promptly.

Issues: None

OBJECTIVE 14: IMPLEMENTATION OF PROTECTIVE ACTIONS - USE OF POTASSIUM IODIDE FOR EMERGENCY WORKERS, INSTITUTIONALIZED INDIVIDUALS, AND THE GENERAL PUBLIC

Demonstrate the capability and resources to implement potassium iodide protective actions for emergency workers, institutionalized individuals, and, if the State plan specifies, the general public.

Objective Status: MET

The BNE-FCP staff had KI tables (sealed bottles) on hand in the storage room in the FCP trailer. All bottles were sealed and in-date (01/2001). Instructions and record forms were also available. The staff knew the reason for their possible ingestion of KI dosage, possible side effects and reporting/recording requirements. No recommendation for KI ingestion was issued.

Issues: None

1.3 State Radiological Field Monitoring Team

There were five objectives to be demonstrated by the State Radiological Field Monitoring Team. All five objectives were met.

OBJECTIVE 4: COMMUNICATIONS

Demonstrate the capability to communicate with all appropriate emergency personnel at facilities and in the field.

Objective Status: MET

State field monitoring team, Vanguard A, used the DEP radio in their vehicle as the primary communication link with the FCP and other field monitoring teams; commercial telephones would be used as a backup. Additional radio systems including non DEP frequencies and repeater equipment provide other multiple backup links.

Communications checks between Team A and the FCP were performed prior to the team's dispatch into the field. The field team coordinator at the FCP was in constant communications with Team A during the exercise. There were no delays or breakdowns in communications; essential information was transmitted by the team and received from the FCP as necessary. Proper radio protocol and familiarity with radio equipment was demonstrated.

Issues: None.

OBJECTIVE 5: EMERGENCY WORKER EXPOSURE CONTROL

Demonstrate the capability to continuously monitor and control radiation exposure to

emergency workers.

Objective Status: MET

Vanguard A team members were each issued a TLD (issued for use on daily job) and two direct reading dosimeter (DRDs) (0-200mR and 0-20R) prior to dispatch from the FCP. Dosimeters were charged and serial numbers and initial readings recorded on the provided form "Emergency Worker Radiological Exposure Record." These forms were given to each team member who was responsible for maintaining them with current dosimeter values, date and time of reading. Team members took readings every 30 minutes; in addition, they were prompted by the FCP to take, record and transmit dosimeter values every thirty minutes.

Team members were aware of the mission dose limit of 1.25R and what procedures to implement if that dose was exceeded. They knew that additional dose could be received in increments of 5R if approved by the Commissioner of Health through the FCP. Team members were also aware that they should leave areas where exposure rates were 100mR/hr or greater and that they should not proceed into areas with values of 1R/hr or greater without permission from the FCP.

During the exercise, each team member received a dose of 68mR, indicated on their 0-200mR DRD, this value was reported to the FCP and recorded as required. Upon completion of the field assignment and return to the FCP, dosimeter equipment was checked in and the record forms submitted to FCP management for each team member.

Issues: None.

OBJECTIVE 6: FIELD RADIOLOGICAL MONITORING - AMBIENT RADIATION MONITORING

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

Objective Status: MET

As per pre-arranged agreement, an out-of-sequence demonstration was conducted to exhibit field equipment checkout and air sampling techniques. This demonstration occurred at the FCP prior to exercise start at approximately 1630.

Team A was assigned an instrumentation kit that contained all the required equipment to perform field monitoring activities. In addition to the instruments, the kit contained extra batteries, radiological check sources and dosimetry equipment (DRDs, charger, batteries, record cards). Instruments were energized, battery checks, operability and, as appropriate, sensitivities against a check source were performed on all equipment. The team is equipped with duplicate instruments

for most of their monitoring units. They were required to replace a defective unit when a Ludlum 16 failed during operability check.

All instrumentation had required calibration stickers with current dates and required recalibration times indicated. Team equipment was inventoried against a detailed checklist and availability of all supplies was verified. Respirators were issued (simulated) to each team member and documentation on the respirator program was available for inspection at the FCP.

The team was dispatched into the field following a comprehensive briefing by the field team coordinator at the FCP. The Vanguard A team leader was reminded of procedural requirements, received information on the plant conditions, met data and other exercise related details. The team was instructed to deploy to monitoring point NE2 and take ambient radiation measurements and perform a traverse to locate plume boundaries. They had no difficulty determining the route to the sampling area; the point was located and exposure rate measurements conducted. Background conditions were determined and information promptly transmitted to the FCP.

The team was instructed by the FCP to perform a traverse from the monitoring point to locate the plume boundaries and centerline. The traverse was conducted, as detailed in the SOPs, GM readings were recorded at 0.1 mile intervals and open and closed, waist and ground level readings were taken at the approximate centerline of the plume. This traverse indicated that a narrow plume existed. The team promptly relayed the data they collected to the FCP.

At 2005, the field team coordinator instructed the team to relocate to sampling point NNE10 and take ambient measurements. The team plotted a course which kept them from unnecessarily entering the plume. They arrived at NNE10 at 2045, performed radiological monitoring, reported the data to the FCP and were instructed to collect an air sample. The air sample was collected using proper techniques and the team was instructed to relocate in an area of background radiation to purge and perform a gross beta reading on the sample media. Results were communicated to the FCP and the sample cartridge and particulate filter were bagged, labeled and recorded.

At 2131, the team was directed to simulate going to the Pinewell Decontamination Center to be checked out and released.

Issues: None.

OBJECTIVE 8: FIELD RADIOLOGICAL MONITORING - AIRBORNE RADIOIODINE AND PARTICULATE ACTIVITY MONITORING

Demonstrate the appropriate use of equipment and procedures for the measurement of airborne radioiodine concentrations as low as 10^{-7} (0.0000001) microcuries per cubic centimeter in the presence of noble gases and obtain samples of particulate activity in the airborne plume.

Objective Status: MET

As stated in Objective 6, air sampling techniques were demonstrated during an out-of-sequence demonstration at the FCP and in the field at sampling point NNE10. The team had all the required equipment and instrumentation to perform the sampling activities. A RadeCo air sample pump powered by an automobile power converter was used to draw a 10 cubic foot air sample across the sample cartridge. Proper sample collection procedures were exhibited by the team members during both demonstrations

The team knew that they are required to relocate to an area of background radiation measurements to perform sample counts, labeling and bagging. They demonstrated counting of an air sample using a Ludlum 16. The sample was labeled and doubled bagged for transport and delivery to the FCP. A chain of custody form was completed for both the particulate filter and the silver zeolite sample cartridge. The team would transfer all samples to personnel at the FCP upon arrival following their field duties or to other locations as instructed.

Issues: None.

OBJECTIVE 14: IMPLEMENTATION OF PROTECTIVE ACTIONS - USE OF POTASSIUM IODIDE FOR EMERGENCY WORKERS, INSTITUTIONALIZED INDIVIDUALS, AND THE GENERAL PUBLIC

Demonstrate the capability and resources to implement potassium iodide protective actions for emergency workers, institutionalized individuals, and, if the State plan specifies, the general public.

Objective Status: MET

Vanguard Team A was issued KI tablets with their dosimetry equipment. The KI was within the expiration date of January 2001. Team members were knowledgeable in KI use, dosage and side effects. The team was never instructed to ingest KI during the exercise.

Issues: None.

OCEAN COUNTY

2.1 County Radiological Field Monitoring Team

There were five objectives to be demonstrated by the Ocean County Field Monitoring Team. All five were met.

OBJECTIVE 4: COMMUNICATIONS

Demonstrate the capability to communicate with all appropriate emergency personnel at facilities and in the field.

Objective Status: MET

The Ocean County Field Monitoring Team, Vanguard C, consisted of three members of the Ocean County Health Department. Vanguard C demonstrated its capability to communicate with the NJ BNE FCP. The Ocean County radio in the vehicle was the primary communications mode. It was verified to be in working order prior to team deployment. The backup communications mode was a dedicated telephone number at the NJ BNE FCP. Backup was not needed since the radio worked well during the exercise. There were no undue delays or breakdowns.

Issues: None

OBJECTIVE 5: EMERGENCY WORKER EXPOSURE CONTROL

Demonstrate the capability to continuously monitor and control radiation exposure to emergency workers.

Objective Status: MET

The Ocean County Field Monitoring Team, Vanguard C, demonstrated its ability to continuously monitor and control radiation exposure to team members. Prior to deployment, Vanguard C inventoried and zeroed direct reading dosimeters (DRDs) and obtained TLDs from the NJ BNE FCP. An exposure record was made for each team member. KI tablets were verified to be within the expiration date.

During the exercise, each team member's dosimeter was read and recorded every 30 minutes. When directed by the NJ BNE FCP to monitor a location that was later found to be 300 mR/hr, Vanguard C radioed in the results and asked for further instructions. For another sampling location, the team moved to a background area before commencing to count the air sample collected.

Dosimeters and completed exposure records were turned in at the end of the exercise. Team member dose was 13mR for the exercise.

Issues: None

OBJECTIVE 6: FIELD RADIOLOGICAL MONITORING - AMBIENT RADIATION MONITORING

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

Objective Status: MET

The Ocean County Field Monitoring Team, Vanguard C, demonstrated correct use of equipment and procedures for determining field radiation measurements. Upon arrival at the NJ BNE FCP, the team checked the inventory of its monitoring and supply kits, and verified all equipment in working order and were calibrated within the year. The team had standard operating procedures (SOPs) and detailed area maps with designated monitoring points identified. Prior to deployment, teams were briefed on protective action limits and procedures, meteorological conditions and plant status.

Vanguard C was in constant contact with the NJ BNE FCP during the entire exercise but with one exception. After being directed to go to a location (Route 9 and Serpentine Drive), Vanguard C did not report to the NJ BNE FCP that it had arrived, taken the requested measurements and air sample, and went to another location to count the sample. When radio contact was next made, NJ BNE FCP noted Vanguard C was not at the location it had been directed to. This was resolved after Van C explained to the NJ BNE FCP.

Vanguard C was instructed to proceed to NE1 and to continuously monitor and report any elevated readings. Team arrived at NE1 at 1924 and reported elevated readings of 300 mR/hr for waist and ground level, open and closed values. The NJ BNE FCP instructed the team to continue monitoring. Vanguard C was directed to N2 where it reported background readings at 1942. Team was later sent to Route 9 and Serpentine Drive to take field measurements and an air sample if beta radiation was present. Field measurements, at waist and ground level, were 160 mR/hr open and 120 mR/hr closed. Measurements were taken at 2010. Vanguard C took an air sample and proceeded to a background area for sample counting. At 2037, NJ BNE FCP directed Vanguard C to do a traversal of Route 618 to locate plume edge and centerline. Traversal was performed in accordance with SOP and readings taken every 0.2 miles. At centerline, beta/gamma measurements were taken (80 mR/hr open, 60 mR/hr closed, for waist and ground level).

All field measurement activities were conducted promptly and correctly. The field team was very familiar with the area.

Issues: None

OBJECTIVE 8: FIELD RADIOLOGICAL MONITORING - AIRBORNE RADIOIODINE AND PARTICULATE ACTIVITY MONITORING

Demonstrate the appropriate use of equipment and procedures for the measurement of airborne radioiodine concentrations as low as 10^{-7} (0.0000001) microcuries per cubic centimeter in the presence of noble gases and obtain samples of particulate activity in the airborne plume.

Objective Status: MET

The Ocean County Field Monitoring Team, Vanguard C, demonstrated appropriate use of equipment and procedures for collecting and counting air samples. A demonstration was conducted out-of-sequence prior to exercise but also demonstrated in the field later that evening.

As directed by the NJ BNE FCP, Vanguard C was to take field measurements at Route 9 and Serpentine Drive. If the field measurements indicate presence of beta radiation, the team was to take an air sample. After taking an air sample at 2020, the team moved to a background area to count the cartridge. The team followed SOP to purge, count, bag and label the air sample. The counting surface and area were verified to be low radiation before proceeding to count the sample. Results were recorded on the appropriate form and transmitted promptly to the NJ BNE FCP.

Issues: None

OBJECTIVE 14: IMPLEMENTATION OF PROTECTIVE ACTIONS - USE OF POTASSIUM IODIDE FOR EMERGENCY WORKERS, INSTITUTIONALIZED INDIVIDUALS, AND THE GENERAL PUBLIC

Demonstrate the capability and resources to implement potassium iodide protective actions for emergency workers, institutionalized individuals, and, if the State plan specifies, the general public.

Objective Status: MET

The Ocean County Field Monitoring Team, Vanguard C, demonstrated its capability to implement KI protective actions for emergency workers. Two in-date bottles of KI were available. No order for ingesting KI was given.

Issues: None

2.2 Emergency Worker Decontamination Center

The Emergency Worker Decontamination and Monitoring Center, located at the Surf City Volunteer Fire Company No. 1 in Surf City, New Jersey, was evaluated out-of-sequence on September 27, 1999. Four objectives were demonstrated and evaluated. All four were met.

OBJECTIVE 2: FACILITIES - EQUIPMENT, DISPLAYS, AND WORK ENVIRONMENT

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

Objective Status: MET

The Surf City Volunteer Fire Company No.1 Building (located on Long Beach Boulevard and 8th Street) and parking space were excellent for emergency worker monitoring and decontamination activities. Traffic flow patterns for both personnel and vehicles assured separation of clean/contaminated individuals and vehicles. Back up power was available by an emergency generator. Center personnel appropriately controlled access to the facility.

Issues: None.

OBJECTIVE 4: COMMUNICATIONS

Demonstrate the capability to communicate with all appropriate emergency personnel at facilities and in the field.

Objective Status: MET

Primary communications at the Emergency Worker Monitoring and Decontamination Center was provided by two-way radios (15 Fire Band and Low Band radios). Cellular telephones served as back up. Personnel at the Center could communicate with Ocean County EOC staff members and other fire and rescue squads.

Issues: None.

OBJECTIVE 5: EMERGENCY WORKER EXPOSURE CONTROL

Demonstrate the capability to continuously monitor and control radiation exposure to emergency workers.

Objective Status: MET

All emergency workers were knowledgeable in the use of dosimetry, the use of KI, and their exposure limits. Each dosimetry kit distributed to the staff contained one 0-20R DRD, one 0-200mR DRD, one TLD, a log for recording readings every 30 minutes, and instructions on the use of dosimetry and KI (expiration date was April 2001). All kits were distributed by name and serial number. Thirty-seven sets of dosimeters and five chargers were available at the Center. All dosimeters were calibrated in January 1999.

Issues: None.

OBJECTIVE 22: EMERGENCY WORKERS, EQUIPMENT, AND VEHICLES - MONITORING AND DECONTAMINATION

Demonstrate the adequacy of procedures for the monitoring and decontamination of emergency workers, equipment, and vehicles.

Objective Status: MET

The Surf City Volunteer Fire Company No. 1 Building and adjacent parking area afforded excellent facilities for the monitoring/decontamination of emergency workers and vehicles.

Thirty-seven volunteers of the Surf City Volunteer Company No. 1 activated the facility at 1930. All volunteers were knowledgeable and well trained in the functions of their specific stations at the Decontamination Center, as well as in the use of dosimetry and their exposure levels.

An excellent traffic flow pattern was demonstrated, with one car being monitored and decontaminated. Appropriate monitoring techniques, using the Ludlum Model 3 survey meter, were demonstrated on personnel and vehicles. Fifteen Ludlum Model 3 instruments, calibrated in January 1999, were available at the Center. A SAIC PPM 100 Portal Monitor was used at the initial monitoring station for individuals. One male and one female were processed through monitoring and decontamination. The action level was 1,000 cpm above background. Ample space and correct procedures assured separation of clean/contaminated personnel and vehicles. All appropriate equipment and procedures were available and in place to assure satisfactory monitoring and decontamination of emergency workers in accordance with the RERP.

Issues: None.

2.3 Reception Center

An out-of-sequence Reception Center drill was conducted at the Manchester High School on August 9, 1999. One objective was demonstrated and evaluated. That objective was met.

OBJECTIVE 18: RECEPTION CENTER - MONITORING, DECONTAMINATION AND REGISTRATION

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

Objective Status: MET

The reception center established at the Manchester Township High School was set up and operated cooperatively by the Manchester First Aid Squad, Manchester Fire Department and the Ridgeway Fire Department.

Signs and traffic cones directed vehicular flow to the operational lanes of the reception center's entrance. These operational lanes included the necessary personnel and equipment to provide vehicle monitoring and decontamination.

Demonstrations and detailed assessments were conducted on two vehicles, one uncontaminated and one simulating a contaminated vehicle. This detailed assessment included grills, air intake, wheel wells, tires and bumpers. Initial monitoring was demonstrated by personnel utilizing a Ludlum Model III survey instrument, while a second individual recorded the results. The uncontaminated vehicle received (simulated) a green colored "Clean Vehicle" windshield placard and was directed to a parking area reserved for uncontaminated vehicles. After simulated contamination was assessed on the second vehicle, it received a red colored "Contaminated Vehicle" windshield placard and was directed to a decontamination and re-monitoring lane.

Eleven firefighters were committed to the operation of each vehicle lane. A supervisor was available to oversee operations and provide answers or clarifications to operational staff. Contaminated vehicles which could not be readily decontaminated would be parked in a reserved area for contaminated vehicles. Staff was knowledgeable and well versed on vehicular monitoring and decontamination techniques.

Monitoring and registration of individuals was conducted in a thorough, prompt and effective manner. Utilizing portal monitors at the reception center entrance, several individual monitoring demonstrations were conducted. Monitoring was demonstrated on six simulated evacuees and completed within the 90-second average window of time.

Uncontaminated individuals were directed straight to the registration area. Contaminated individuals were directed by escorts to the left and out of the mainstream of pedestrian traffic and into the school's gymnasium. The women and men's locker facilities were utilized as decontamination areas. Contaminated evacuees were met at the entrance to the decontamination area by a monitor and a record keeper. This team completed a detailed radiological assessment of the evacuee to determine all body areas that would require decontamination. Further monitoring was done inside the decontamination areas. Contaminated clothing and possessions were removed and bagged (simulated) and appropriate decontamination procedures were simulated.

The decontamination facilities included multiple showers supported by adequate supplies and equipment. Tyvek suits and booties were readily available for evacuees whose clothes were contaminated. An established quarantine area and procedures were in place and staffed by EMS personnel. Any individual who could not be fully decontaminated would be brought to this area pending transport to a local medical facility.

In the reception area, evacuees were fully registered and logged by center staff. If needed, evacuees were given travel instructions and maps to congregate care centers. Additionally, buses were available to transport evacuees to congregate care facilities.

The staff was well trained and maintained a working knowledge of proper assessment and decontamination procedures and techniques. The floor plan of the reception center allowed for a logical flow of pedestrian traffic. Informational placards were clearly and extensively posted throughout the reception center.

Issues: None.

2.4 Congregate Care Center

An out-of-sequence Congregate Care drill was conducted at the Tuckerton High School on July 21, 1999. One objective was demonstrated and evaluated. That objective was met.

OBJECTIVE 19: CONGREGATE CARE

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

Objective Status: MET

The American Red Cross (ARC) demonstrated effective operation of the Tuckerton Elementary School Congregate Care Center. Also present were Radio Amateur Civil Emergency Services (RACES) Operators utilized to provide communications capability.

When the Congregate Care Center was opened, the shelter management received necessary information from the Ocean County Office of Emergency Management (simulated) regarding the number of expected evacuees. As a matter of routine, the shelter management would transmit information regarding shelter capacity and status of operations to the Ocean County Office of Emergency Management. The Shelter Manager had a working knowledge of shelter operations and readily knew the capacity of the Tuckerton facility which provided adequate seating space for four hundred (400) and adequate sleeping space to accommodate one hundred (100) evacuees. Additionally, the Shelter Manager also knew to notify the ARC when the shelter capacity reached fifty percent, so initiating preparations could be made to open additional centers.

With adequate provisions, the Congregate Care Center was able to accommodate disabled evacuees and children. The Center maintained adequate space for reception, registration, childcare, restrooms, food storage and meal service. Additionally, the Center maintained requisite services, resources and supplies necessary to provide mental health care to those in need. The Center was staffed with Basic Life Support and Advanced Life Support Emergency Medical Services (EMS) personnel, mental health professionals, day care/school professionals, registration clerks, security and ample support staff.

A cooperative tone and coordination amongst the organizations at the Tuckerton Congregate Care Center was well directed.

Issues: None.

2.5 General Population Evacuation

An out-of-sequence General Population Evacuation demonstration was conducted by New Jersey Transit and New Jersey State Police on July 21, 1999. There was one objective to demonstrated. That objective was met.

OBJECTIVE 15: IMPLEMENTATION OF PROTECTIVE ACTIONS - SPECIAL POPULATIONS

Demonstrate the capability and resources necessary to implement appropriate protective actions for special populations.

Objective Status: MET

The general population transportation dependent bus evacuation was demonstrated by a cooperative effort of New Jersey Transit and the New Jersey State Police in an out-of sequence exercise.

A New Jersey State Trooper in a marked State Police vehicle escorted the New Jersey Transit bus through evacuation Route 15B. The Trooper had a current evacuation route map and followed Route 15B exactly. The bus driver and trooper acquainted themselves with each other and appropriately conferred on their operational directives. Both vehicles were compatibly radio equipped to communicate with each other and command and control staff to report operational status, dosimeter reading and receive information or instructions.

The bus driver and state trooper successfully completed the bus run in a timely manner and performed their assignment in an exemplary manner.

Issues: None.

2.6 Hearing Impaired

An out-of-sequence event was conducted on August 10, 1999, in Ocean Gate Borough to demonstrate notification of hearing impaired residents. There was one objective demonstrated. That objective was met.

OBJECTIVE 15: IMPLEMENTATION OF PROTECTIVE ACTIONS - SPECIAL POPULATIONS

Demonstrate the capability and resources necessary to implement appropriate protective actions for special populations.

Objective Status: MET

Through an out-of-sequence demonstration, the ability to promptly and effectively alert and notify a hearing impaired individual within the Emergency Planning Zone in the Borough of Ocean Gate was successfully demonstrated.

The primary means of notification to hearing or visually impaired residents of Ocean Gate is route alerting. The route alerting demonstrated during this out-of-sequence exercise was executed by the Ocean Gate Police Department. Officers were able to readily raise the resident through visual means and gain access to the resident's home. The Officers maintained an excellent working knowledge of standing notification protocol and the geography of the Borough. A scripted route alert message and supplemental background information was readily available to the notification team.

Issues: None.

2.7 Mobility Impaired

An out-of-sequence event was conducted on August 10, 1999 in Pine Beach Borough to demonstrate evacuation of mobility impaired residents. There was one objective demonstrated. That objective was met.

OBJECTIVE 15: IMPLEMENTATION OF PROTECTIVE ACTIONS - SPECIAL POPULATIONS

Demonstrate the capability and resources necessary to implement appropriate protective actions for special populations.

Objective Status: MET

Through an out-of-sequence demonstration, the ability to promptly and effectively evacuate mobility-impaired individuals within the EPZ in the Borough of Pine Beach was successfully demonstrated.

The primary means of evacuation for a mobility-impaired resident of Pine Beach is determined by an on-scene first responder. The evacuation procedures demonstrated during this out-of-sequence exercise was executed by the Beachwood First Aid Squad and Ocean County Transport and escorted by the Pine Beach Police Department. Operational staff were well equipped and maintained an excellent working knowledge of standing evacuation protocol for the mobility impaired and the geography of the Borough.

Issues: None.

2.8 Route Alerting

An out-of-sequence Route Alerting demonstration was conducted in Beachwood Borough on August 10, 1999. There was one objective demonstrated. That objective was met.

OBJECTIVE 10: ALERT AND NOTIFICATION

Demonstrate the capability to promptly alert and notify the public within the 10-mile plume pathway emergency planning zone and disseminate instructional messages to the public on the basis of decisions by appropriate State or local officials.

Objective Status: MET

The ability to promptly alert and notify the public within the EPZ through route alerting in Beachwood Borough was successfully demonstrated in an out-of-sequence demonstration.

The back-up means of notification to the residents of Beachwood Borough for a mass evacuation concerning all types of hazards will be route altering. A scripted route alert message, color coded maps and supplemental background information was available to the notification team. The demonstration notification team included officers of the Beachwood Borough Police Department.

Issues: None.

2.9 School Evacuations

The Ocean County School Evacuation Bus Run was conducted out-of-sequence on July 13, 1999. There were three objectives demonstrated. All three objectives were met.

OBJECTIVE 4: COMMUNICATIONS

Demonstrate the capability to communicate with all appropriate emergency personnel at facilities and in the field.

Objective Status: MET

The driver for the Lacey Township School District communicated effectively with the Transportation Supervisor (located near Police Headquarters in Lacey Township) via her Motorola 2-way radio. She also had a cellular telephone as back up, which functioned properly when tested.

Issues: None.

OBJECTIVE 5: EMERGENCY WORKER EXPOSURE CONTROL

Demonstrate the capability to continuously monitor and control radiation exposure to emergency workers.

Objective Status: MET

The driver from the Lacey Township School District had her dosimetry kit which consisted of two DRDs (0-200 mR and 0-20 R), one TLD, a radiation exposure record card and instruction card. All dosimeters had been calibrated in February 1999. The dosimeters had been zeroed at the bus garage, and a dosimeter charger was available in the bus. The driver knew to read her dosimeter every 30 minutes, and record the readings. She was very aware of her exposure limit of 1.25 R. Her exposure records would be given to the Transportation

Supervisor at the School Transportation Office at the completion of the School Evacuation Bus Run. The driver had a sufficient quantity of KI (expiration date, January 2001), and knew not to ingest KI unless ordered to do so by the Transportation Supervisor.

Issues: None.

OBJECTIVE 16: IMPLEMENTATION OF PROTECTIVE ACTIONS - SCHOOLS

Demonstrate the capability and resources necessary to implement protective actions for school children within the plume pathway emergency planning zone.

Objective Status: MET

Since this was an out-of-sequence evaluation performed in conjunction with the EV-2 School Interviews, the bus was at the Lacey Township Middle School at 1100, at the conclusion of the last EV-2 School Interview. The bus driver departed the Lacey Township Middle School at 1115, and arrived at the Reception Center for School Children (Ocean County Community College) in a timely manner at 1135. She had accurate directions (a strip map) to her destination, and was able to communicate with the Transportation Supervisor without any problems. The bus driver transmitted her dosimetry reading in a timely manner to the Transportation Supervisor, and was prepared to alter her route if the original route was impeded.

Issues: None.

2.10 School Interviews

The EV-2 School Interviews for Ocean County were conducted out-of-sequence on July 12-13, 1999. There was one objective demonstrated at the ten schools. The objective was met for all ten schools.

OBJECTIVE 16: IMPLEMENTATION OF PROTECTIVE ACTIONS - SCHOOLS

Demonstrate the capability and resources necessary to implement protective actions for school children within the plume pathway emergency planning zone.

Objective Status: MET

Using the latest EV-2 Questionnaire which contained a preselected series of questions, the Federal Evaluator interviewed the Superintendents and/or Principals at ten schools in Ocean County to evaluate the degree of emergency preparedness regarding school children at each

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

1. Cecil S. Collins Elementary School
   Barnegat Blvd. North
   Barnegat Twp., New Jersey

2. Russel O. Brackman Middle School
   Barnegat Blvd. North
   Barnegat Twp., New Jersey

3. Lillian M. Dunfee Elementary School
   Barnegat Blvd.
   Barnegat Twp., New Jersey

4. Southern Regional Middle School
   75 Cedar Bridge Road
   Manahawkin, New Jersey

5. Southern Regional High School
   600 North Main Street
   Manahawkin, New Jersey

6. Cedar Creek School
   Western Blvd., P.O. Box 313
   Lanoka Harbor, New Jersey

7. Lanoka Harbor School
   Manchester Ave. P.O. Box 186
   Lanoka Harbor, New Jersey

8. Forked River School
   Lacey Road, P.O. Box 477
   Forked River, New Jersey

9. Lacey Township High School
   73 Haines Street, P.O. Box 206
   Lanoka Harbor, New Jersey

10. Lacey Township Middle School
    Denton Avenue, P.O. Box 197
    Lanoka Harbor, New Jersey

The Superintendent was the official who recommended early dismissal of school children. The buses required for evacuating the students to the Reception Center for School Children (the Ocean County College or the Richard A. Stockton State College) would be dispatched to each school from the district garages. Each official interviewed knew how many school busses were needed for the student population at their school. The parents/guardians of the school children would be notified of the closing of schools via the broadcast of EAS messages over six radio stations. School officials provided parents with the information regarding the location of the School Reception Centers through various means: Letters to the Parents/Guardians; Parent/Teacher meetings; "Pupil's Handbook for Parents;" District Calendars; Newsletters; and Pamphlets. All school officials interviewed had knowledge of the maximum time required (the Evacuation Time Estimate) for relocation of the students to the Reception Centers for School Children. The correct times given ranged from 110 minutes for the normal conditions and 132 minutes for adverse conditions for two schools; 120 minutes for normal conditions, and 144 minutes for adverse conditions for three schools; and 205 minutes for normal conditions and 245 minutes for adverse conditions for five schools.

All school officials had copies of up-to-date written evacuation procedures (Element C -

Ocean County Office of Education Emergency Response Plan) available for reference. All officials interviewed were knowledgeable of the established school emergency procedures, and were very familiar with the chain-of-command that would be followed during an evacuation.

Input from school officials to the Ocean County Emergency Response Plan was obtained through coordination with Ocean County EOC staff, and during training sessions conducted by a New Jersey Office of Emergency Management (NJOEM) staff member, with Ocean County and Utility representatives present. Also, emergency procedures were reviewed and up-dated during the Ocean County Superintendent's annual "Round Table" meeting, and at school staff/faculty meetings conducted monthly throughout the year.

Issues: None.

2.11 Traffic/Access Control Point

A New Jersey State Waterborne Access Control Point (ACP) was evaluated out-of-sequence on September 28, 1999. Three objectives were demonstrated during the New Jersey State Waterborne ACP activation. All three objectives were met.

OBJECTIVE 4: COMMUNICATIONS

Demonstrate the capability to communicate with all appropriate emergency personnel at facilities and in the field.

Objective Status: MET

The New Jersey State Police Officers from Troop F of the Marine Law Enforcement Bureau (MLEB) at the Cape Island Marina (located in Waretowne, Ocean Township, New Jersey) had an 800 MHz State Police radio as the primary system of communication. The 2-man crew also had two VHF radios in their 25 foot Cabin Boat and several cellular telephones as the backup system. This was an out-of-sequence demonstration and no communication links were established per the extent-of-play agreement, but the Officers demonstrated they could communicate effectively with their Headquarters and with the U.S. Coast Guard on Channels 16 and 22. Both communication systems were tested, and both operated properly. The Cabin Boat was equipped with both Radar and Loran (a direction locator) and with a Public Address System and bullhorn.

Issues: None.

OBJECTIVE 5: EMERGENCY WORKER EXPOSURE CONTROL

Demonstrate the capability to continuously monitor and control radiation exposure to emergency workers.

Objective Status: MET

The Supervisor briefed the Officers on radiation exposure control, and using a charger at the MLEB, zeroed the Officers DRD's before departure from the dock. The Officers departed at 0930, and arrived promptly at Waterborne ACP B-3 at 0945, to establish the Barnegat Inlet ACP to restrict water traffic. The emergency kit they carried on board contained the required DRDs (0-200mR and a 0-20R), a TLD, an exposure record card, and a charger. The dosimeters had been calibrated in February 1999. The Officers were familiar with their dosimetry, knew how to read them, and understood what the readings meant. They also knew to read their dosimeters at 30-minutes intervals, record the readings, and transmit them via radio to their supervisor at the MLEB at the Cap Island Marina. The Officers were aware that they were to contact their Supervisor if they reached the New Jersey exposure limit of 1.25R. The kit also contained unexpired KI (October 2001) in sufficient quantity, along with instructions on KI use. The Officers knew to ingest KI only on an order from their Supervisor at MLEB.

Issues: None.

OBJECTIVE 17: TRAFFIC AND ACCESS CONTROL

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

Objective Status: MET

Two New Jersey State Police Officers received instruction at 0930 to deploy to their assigned location from their Supervisor at the MLEB at the Cape Island Marina (located in Waretowne-Ocean Township, New Jersey). They arrived promptly at 0945, and established Waterborne ACP B-3 at Barnegat Inlet. The Officers performed their assignment in a very professional manner. They were in constant communication with their Supervisor at MLEB via the 800 MHz State Police radio on their boat, and had two VHF radios in their 25-foot Cabin Boat and several cellular telephones as backup. At 0945, they transmitted their dosimetry reading sot their Supervisor and confirmed that Waterborne ACP B-3 was established at Barnegat Inlet. The Officers then simulated access control of boats on Barnegat Bay. They understood their mission and were more than adequately prepared to carry it out. Their 25-foot Cabin Boat contained the necessary equipment (i.e., radios, Public Address system, bullhorns, flares, searchlights, etc.) to effectively establish the Waterborne

ACP.

Both New Jersey State Police Officers should be commended for their thorough knowledge of the methods used to establish a Waterborne ACP.

Issues: None.

2.12 Medical Drill

An out-of-sequence MS-1 Drill was conducted by the Lacey First Aid Squad and at the Community Memorial Hospital on September 28, 1999. Two objectives were demonstrated and evaluated. Both objectives were met.

OBJECTIVE 20: MEDICAL SERVICES - TRANSPORTATION

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

Objective Status: MET

The Lacey Volunteer First Aid Squad received a call from the Oyster Creek Nuclear Generating Station (OCNGS), at approximately 1318, requesting transportation for an injured and contaminated employee to the Community Medical Center in Toms River, New Jersey.

The ambulance arrived at the OCNGS at 1323. Oyster Creek personnel had administered preliminary medical care and carefully bandaged and splinted the affected limb. The patient was monitored for contamination and packaged for transportation.

The ambulance departed the plant at1340 with a radiation technician from the plant accompanying the patient. One radiation technician was sent to the Medical Center to assist hospital personnel prepare for the arrival of the patient. Patient vital signs, contamination levels and ETA were relayed to the hospital by radio from the ambulance while in route to the hospital.

An orderly transfer of the patient to the medical team was accomplished upon arrival at the Radiological Emergency Area that had been prepared by hospital personnel. An oral briefing was presented to the medical team by the ambulance crew and the radiation technician.

The ambulance and the crew were radiologically monitored by the radiation technician, found clean and released to return to normal duty.

Issues: None.

OBJECTIVE 21: MEDICAL SERVICES - FACILITIES

Demonstrate the adequacy of equipment, procedures, supplies, and personnel of medical facilities responsible for treatment of contaminated, injured, or exposed individuals.

Objective Status: MET

Community Medical Center received a telephone call from OCNGS control room at 1318 notifying them on an injured and contaminated employee. After verifying the call the hospital initiated mobilization of appropriate staff and setup of the Radiological Emergency Area (REA). The hospital was ready to receive the patient upon arrival of the ambulance at 1400. The REA was roped off and secured by hospital security personnel.

An appropriate transfer from the ambulance gurney to the decontamination table was demonstrated. Handling and decontamination of the patient was conducted in an effective and efficient manner with excellent communications between the radiation technician and the medical team.

Control of the buffer zone was well demonstrated by the nurse and the radiation technician. Step off procedures from the treatment area to the buffer zone was effectively demonstrated under the direction of the radiation technician, one in the buffer zone and one in the treatment area. Each member of the medical team was provided one 0-200mR direct reading dosimeter and one TLD. An Eberline-140 survey meter was used to perform radiological monitoring of the patient.

Issues: None.

III. APPENDIX 1

ACRONYMS AND ABBREVIATIONS

The following is a list of the acronyms and abbreviations which were used in this report.

ACP	Access Control Point
ARC	American Red Cross
ARCA	Area Requiring Corrective Action
BNE	Bureau of Nuclear Engineering
DEP	Department of Emergency Preparedness
DRD	Direct Reading Dosimeter
ECL	Emergency Classification Level
EMS	Emergency Medical Services
EOC	Emergency Operations Center
EOF	Emergency Operations Facility
EPZ	Emergency Planning Zone
FCP	Forward Command Post
FEMA	Federal Emergency Management Agency
GE	General Emergency
KI	Potassium Iodide
MHz	Mega Hertz
MLEB	Marine Law Enforcement Bureau
mR	Milli Roentgen
mR/hr	Milli Roentgen per hour
NJ	New Jersey
NJBNE	New Jersey Bureau of Nuclear Energy
NJOEM	New Jersey Office of Emergency Management
OCNGS	Oyster Creek Nuclear Generating Station
PAR	Protective Action Recommendation
R	Roentgen

RACES	Radio Amateur Communications Service
REA	Radiological Emergency Area
REP	Radiological Emergency Preparedness
RERP	Radiological Emergency Response Plan
R/h	Roentgen(s) per hour
SEOC	State Emergency Operations Center
SOP	Standard Operating Procedure
TLD	Thermoluminescent Dosimeter
VHF	Very High Frequency