



FINAL
Exercise Report
OYSTER CREEK
GENERATING STATION

Licensee: AmerGen

Exercise Date: September 18, 2007 – Plume Phase
November 7, 2007 – Remedial Exercise

Report Date: April 30, 2008

FEDERAL EMERGENCY MANAGEMENT AGENCY
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I. EXECUTIVE SUMMARY

On September 18, 2007 an exercise was conducted in the 10-Mile Plume Exposure Pathway, Emergency Planning Zone (EPZ) around the Oyster Creek Generating Station by the Federal Emergency Management Agency, 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 (RERPs) and procedures.

The most recent full-scale plume pathway exercise at this site was conducted on September 12, 2006. The qualifying emergency preparedness exercise was conducted on March 16, 1982.

FEMA wishes to acknowledge the efforts of the many individuals in the State of 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.

The State and local organizations, except where noted in this report, demonstrated knowledge of their emergency response plans and procedures and adequately implemented them. Two prior Areas Requiring Corrective Action were successfully addressed and there are no unresolved prior Areas Requiring Corrective Action. There was one Deficiency and five new Areas Requiring Corrective Action (ARCA) identified as a result of this exercise. Two ARCAs were successfully re-demonstrated during Remedial Exercises, leaving a total of three ARCAs.

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 government 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 the RERP and associated 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 their RERPs for the OCNGS to FEMA Region II on June 16, 1983. FEMA granted formal approval of the RERPs, under 44 CFR 350, on April 30, 1990. The qualifying emergency preparedness exercise was conducted on March 16, 1982.

A REP Plume Phase exercise was conducted on September 18, 2007 allowed 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 Oyster Creek Generating Station. 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 FEMA Region II RAC Chairperson, and approved by the Regional Administrator.

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 (hereafter referred to as NUREG-0654);
- FEMA Interim REP Program Manual, August 2002.

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, a listing of all participating jurisdictions and functional entities, which were evaluated, and a tabular presentation of the time of actual occurrence of key exercise events and activities.

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 September 18, 2007 exercise to test the offsite emergency response capabilities in the area surrounding the Oyster Creek Generating Station. This section of the exercise report includes a description of the Plume Pathway EPZ. A listing of all participating jurisdictions and functional entities, which were evaluated, and a tabular presentation of the time of actual occurrence of key exercise events and activities are included in this report.

A. Plume Emergency Planning Zone Description

The Oyster Creek Generating Station site is located on a 1,416-acre plot in both Lacey and Ocean Townships in a broad lowland and tidal marsh area of New Jersey and is flanked on the east by Barnegat Bay. Barnegat Bay is a shallow, narrow body of water, having an average depth of five feet and a maximum width of four miles.

Overland access to the site is provided by US Route 9, which bisects the site into an eastern or bay section of 661 acres and a western section of 755 acres. US Route 9 is one quarter mile east of the facility and passes over the coolant intake and discharge canals, which flow into Barnegat Bay two miles away. The administration building is located adjacent to the site directly west on a plot of land referred to as the Forked River Site.

B. Exercise Participants

The following agencies, organizations, and units of government participated in the Oyster Creek Generating Station exercise on September 18, 2007.

FEDERAL AGENCIES

Federal Emergency Management Agency
US Nuclear Regulatory Commission

STATE of NEW JERSEY

New Jersey Bureau of Environmental Radiation
New Jersey State Bureau of Nuclear Engineering
New Jersey Bureau of Public Utilities
New Jersey Bureau of Radiological Health
New Jersey Department of Environmental Protection (NJDEP)
New Jersey Dept. of Military and Veteran Affairs
New Jersey District Attorney's Office
NJDEP Bureau of Communications and Support Services
New Jersey State Department of Health and Senior Services
New Jersey State Office of Homeland Security & Preparedness

New Jersey State Office of Emergency Management
New Jersey State Police (OEM) – Controller
NJ Department of Agriculture
NJ Department of Environmental Protection
NJ Department of Human Services
NJ Department of Transportation
NJ State Attorney General’s Office
NJ State Information Technology Bureau
NJ State Police
NJ State Transit Police

OCEAN COUNTY

Ocean County Air Support Squadron
Ocean County Board of Chosen Freeholders
Ocean County Dept. of Health
Ocean County Emergency Medical Services
Ocean County Engineering Department
Ocean County Fire Department
Ocean County Highway Department
Ocean County Office of Education
Ocean County Office of Emergency Management
Ocean County Office of Human Services
Ocean County Office of Public Information
Ocean County Prosecutor’s Office
Ocean County Resource Management
Ocean County Road Department
Ocean County Sheriff’s Department
Ocean County Social Services Department
Ocean County Superintendent of Schools
Ocean County Transportation Department
Ocean County Vehicle Services
Ocean County Veterinary Services
Oyster Creek Generating Station

RISK JURISDICTIONS

Barnegat Light Borough

Barnegat Light Borough Administrator
Barnegat Light Borough mayor
Barnegat Light Fire Department
Barnegat Light First Aid and Rescue Services

Barnegat Light First Aid Squad

Beachwood Borough

Beachwood Borough Fire Department

Beachwood Borough First Aid Squad

Beachwood Borough Office of Emergency Management

Beachwood Borough Police Department

Beachwood Borough Public Works Department

Ship Bottom

18 Mile Association (Fire and First Aid)

Ship Bottom Fire Company

Ship Bottom OEM

Ship Bottom Police Department

Harvey Cedars

Borough of Harvey Cedars, Clerk

Borough of Harvey Cedars, Commissioners

Harvey Cedars Department of Public Works

Harvey Cedars Office of Emergency Management

Harvey Cedars Police Department

High Point Volunteer Fire Company

Lacey Township

Lacey Township Chief of Police

Lacey Township Emergency Management Coordinator (EMC)

Lacey Township Emergency Medical Services (EMS)

Lacey Township Emergency Operations Center Representative

Lacey Township Police Department - Dispatch

Lacey Township Police Department – Patrol Division

Lacey Township Police Department – Security

Lacey Township Radiological Officer (RO)

Lanoka Harbor Fire Department

Lanoka Harbor Fire Department Decontamination Manager

Long Beach Township

Long Beach Dept. of Public Works

Long Beach EMS

Long Beach Fire Services

Long Beach Island Board of Education

Long Beach Mayor's Office

Long Beach Police
Long Beach Township Police

Surf City

Surf City Borough EMS
Surf City Borough Fire Department
Surf City Borough Office of Emergency Management
Surf City Borough Police Department

Berkeley Township

Bayville Fire Company
Bayville First Aid Squad Inc.
Berkeley Township Animal Control
Berkeley Township Office of Emergency Management
Berkeley Township Police Dept.
Berkeley Township Public Works
Holiday City at Berkeley First Aid Squad Inc.
Holiday Heights First Aid Squad
Manitou Park Volunteer Fire Company
Pinewood Pioneer Forest Firefighters/HazMat Team
Silver Ridge First Aid Squad

PRIVATE/VOLUNTEER ORGANIZATIONS

American Red Cross
Citizens Emergency Response Team
H.E.L.P. Organization (Help in Emergency of Livestock & Pets)
Radio Amateur Civilian Emergency Services (RACES)
Salvation Army
WRAT operator and staff

C. Exercise Timeline

Table 1, on the following page, presents the time at which key events and activities occurred during the Oyster Creek Generating Station exercise on September 18, 2007. Also included are times that notifications were made to the participating jurisdictions/functional entities.

TABLE 1 – TIMELINE SEPTEMBER 18, 2007 – OYSTER CREEK GENERATING STATION

Emergency Classification Level or Event	Time Utility Declared	Time That Notification Was Received or Action Was Taken							
		NJ State EOC	BNE-EOF	BNE-FCP	Joint Information Center	EAS STATION @WRAT	Ocean County EOC	Barnegat Light Borough EOC	
Alert	1538		-	1648	(1600)	-	1551	1718	
Site Area Emergency	1744	1753	1744	1748	1750	-	1807	1821	
General Emergency	1900	1909	1900	1910	1906	-	1930	1937	
Simulated Rad. Release Started	1747	1748	1747	1747	1750	-	1808	1826	
Simulated Rad. Release Terminated	N/A	N/A	N/A	N/A	N/A	-	N/A	N/A	
Facility Declared Operational		1615	1721	1726	1706	-	1653	1638	
Governor's Declaration of State of Emergency		1800	1807		1815	-	1809	1800	
Exercise Terminated		2138	2147	2154	2152	-	2142	2100	
Early Precautionary Actions:		1647	-	-	1844	-	1709 / 1932	-	
1 st Precautionary Action Decision Shelter: (No Protective Actions) Evacuate: (No Protective Actions)		1830	1940	2010	-	-	1958	-	
1 st Precautionary Siren Activation		1838	-	-	1844	1838	1838	1958	
1 st Precautionary EAS Message Broadcast		1843	-	-	1844	1843	1843	1958	
1 st Protective Action Decision: Shelter: 5, 6, 9, 10, 12, 13, 14, 15, 16 Evacuate: 1, 2, 3, 4, 7, 8, 11, 17		1940	1940	-	1946	-	-	-	
2 nd Siren Activation		1948	-	-	1946	1948	1948	-	
2 nd EAS Message		1953	-	-	1946	1953	1953	-	
KI Administration Decision:		1940	1950	1910	1946	1953	1953	1937	

LEGEND: S – Support Jurisdiction D – Decision Making Jurisdiction A – Activating Jurisdiction N/A – Not Applicable

Emergency Classification Level or Event		Time Utility Declared	Time That Notification Was Received or Action Was Taken						
			Beachwood Borough EOC	Ship Bottom EOC	Harvey Cedars EOC	Lacey Township EOC	Long Beach Township EOC	Surf City EOC	Berkeley Township EOC
Alert		-	1611	1657	1620	1600	1602	1604	1605
Site Area Emergency		-	1820	1816	1814	1817	1817	1814	1817
General Emergency		-	1934	1930	1933	1935	1934	1932	1936
Simulated Rad. Release Started		-	1820	1831	1814	1830	1830	1829	1817
Simulated Rad. Release Terminated		-	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Facility Declared Operational			1639	1755	1645	1635	1650	1635	1648
Governor's Declaration of State of Emergency			1850	1905	1839	1915	1913	1850	1851
Exercise Terminated			2140	2122	2145	2140	2139	2139	2149
Early Precautionary Actions:			1751 - Parks 1914 - Boats	-	-	-	-	-	-
1 st Protective Action Decision Shelter: Evacuate:			2000	1954	1953	1958	1955	1951	1953
1 st Protective Action Siren Activation			2000	1943	1948	1958	1948	N/A	1943
1 st Protective Action EAS Message Broadcast			2000	1953	1953	1958	1953	N/A	1953
2 nd Protective Action Decision: Shelter: Evac:			N/A	N/A	N/A	N/A	N/A	N/A	N/A
2 nd Protective Action Siren Activation			N/A	N/A	N/A	N/A	N/A	N/A	N/A
2 nd Protective Action EAS Message			N/A	N/A	N/A	N/A	N/A	N/A	N/A
KI Administration Decision:			1937	1930	1933	1935	1955	132	-

LEGEND: S – Support Jurisdiction D – Decision Making Jurisdiction A – Activating Jurisdiction N/A – Not Applicable

Table 2

	NJ State EOC	Ocean County EOC	NJ BNE-EOF
Early Precautionary Actions: Cancel after-school Activities	1810	1810	N/A
Clear County Parks	N/A	1709	N/A
Clear State Parks	1704	N/A	N/A
Clear Waterways	1647	1709	N/A
Put Farm Animals on Stored Feed and Shelter Them	1735	N/A	1735

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 September 18, 2007, Plume Pathway Exercise to test the offsite emergency response capabilities of State and local governments in the 10-Mile EPZ surrounding the Oyster Creek Generating Station.

Each jurisdiction and functional entity was evaluated on the basis of its demonstration of criteria delineated in exercise evaluation areas contained in the FEMA Interim REP Program Manual, August 2002. Detailed information on the exercise criteria 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 2

The matrix presented in Table 2, on the following page(s), presents the status of all exercise evaluation areas and criteria that 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)

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 was 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 that were resolved in this exercise and the corrective actions demonstrated.
- **Prior ARCAs - Unresolved** - Descriptions of ARCAs assessed during prior exercises that 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 that are discussed in this report.

- A **Deficiency** is defined 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 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.
- **Evaluation Criterion Number** – An alphanumeric corresponding to the evaluation criteria in the FEMA Interim REP Program Manual (e.g., 1.a.1).
- **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.

PLUME PHASE ACTIVITIES AND OUT OF SEQUENCE DEMONSTRATIONS

1. STATE OF NEW JERSEY

1.1 State Emergency Operations Center

- a. **MET:** Evaluation Criteria 1.c.1; 1.d.1; 2.a.1; 2.b.1; 2.b.2; 2.c.1; 5.a.1
- b. **DEFICIENCY:** NONE
- c. **AREAS REQUIRING CORRECTIVE ACTION:** ONE

Issue Number: 43-07-5.b.1-A-01

Condition: The Special News Broadcast prepared to accompany EAS message number 2, did not contain all of the information necessary to provide the public with instructions on implementing the Protective Action Decisions. Specifically, the message did not include information for pets, schools, and special populations.

Possible Cause: Either the information was not included in a pre-scripted message or, the author failed to include all emergency information.

Reference: NUREG-0654 E.5, 7;

Effect: Evacuees would not know what to do with their pets; to bring them, leave them home, or take them to a Reception Center. Schools may have after school activities taking place and be unaware of what actions they should take during an evacuation. Special Populations would lack instructions and direction on what to do during an evacuation.

Recommendation: Review pre-scripted messages to include all information required under 5.b.1 for special news broadcasts and train personnel who author special news broadcasts on what information is required to be included.

Schedule of Corrective Actions: At the 2009 Full Scale Federal Evaluated Exercise.

During the November 7, 2007 Remedial Exercise, all EAS Messages, Press Releases, and Special News Bulletins issued by the State of New Jersey failed to contain information and instructions for the caring of pets for people evacuating the affected areas. Therefore this ARCA will remain unresolved and is scheduled to be corrected at the 2009 REP Full Scale Federally Evaluated Plume Phase Exercise.

- d. **NOT DEMONSTRATED: NONE**
- e. **PRIOR ARCAs - RESOLVED: NONE**
- f. **PRIOR ARCAs - UNRESOLVED: NONE**

1.2 Emergency Operations Facility

- a. **MET: Evaluation Criteria:** 1.a.1; 1.b.1; 1.c.1; 1.d.1; 1.e.1; 2.a.1; 2.b.1; 2.b.2; 4.a.2
- 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 Forward Command Post

- a. **MET: Evaluation Criteria:** 1.a.1; 1.c.1; 1.d.1; 1.e.1; 3.a.1; 3.b.1; 4.a.2
- b. **DEFICIENCY: NONE**
- c. **AREAS REQUIRING CORRECTIVE ACTION: NONE**
- d. **NOT DEMONSTRATED: NONE**
- e. **PRIOR ARCAs - RESOLVED: NONE**
- f. **PRIOR ARCAs - UNRESOLVED: NONE**

1.4 State Radiological Field Monitoring Teams

- a. **MET: Evaluation Criteria:** 1.d.1; 3.a.1; 4.a.1; 4.a.3
- b. **DEFICIENCY: NONE**
- c. **AREAS REQUIRING CORRECTIVE ACTION: NONE**
- d. **NOT DEMONSTRATED: NONE**

e. **PRIOR ARCAs - RESOLVED: One**

Issue Number: 43-06-3.b.1-A-01

Condition: During the pre-deployment briefing at the FCP, the three field monitoring teams were told not to take KI unless specifically authorized by the FCP. State SOP-405; Emergency Worker Exposure Control contains a Standing Order from the State Dept. of Health and Senior Services (DHSS) (section 6.5) in which emergency workers such as the vanguard teams, are directed to self-administer one tablet of KI prior to entering the plume or affected sectors. The field team briefing appears to be in direct conflict with this order.

Possible Cause: DEP not aware of the DHSS Standing Order.

Reference: NUREG-0654 J.10.f

Effect: Teams were not aware of the directive to take KI on entering the plume or affected sectors.

Recommendation: DEP should be made aware of the DHSS Standing Order and brief teams with the proper information. In addition the Emergency Worker Radiological Exposure Record card should be consistent with the DHSS Standing Order.

Corrective Action Demonstrated: During the initial briefing, the three FMT Leads were reminded of the change in SOP-302 (Off-Site Radiological Field Monitoring and Sampling) with respect to KI as a result of SOP-409 in which the DHSS authorizes KI ingestion upon declaration of a General Emergency ECL during a radiological emergency. The posted Radiation Protection Guidelines at the FCP also reflected this change.

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

1.5 **Joint Information Center**

a. **MET:** Evaluation Criteria: 1.a.1; 1.b.1; 1.c.1; 1.d.1; 1.e.1

b. **DEFICIENCY:** NONE

c. **AREAS REQUIRING CORRECTIVE ACTION:** ONE

Issue Number: 43-07-5.b.1-A-02

Condition: The Extent-of-Play agreement stated that: “the State OEM will prepare a press release for a simulated trend for release at a press conference”, however this did not occur.

Possible Cause: The exercise was terminated before a press release, correcting a simulated trend/false rumor, was received by the Joint Information Center (JIC), from the State Emergency Operations Center/Office of Emergency Management.

Reference: NUREG - G.4.c.

Effect: False and/or misleading information would continue to be given to the public, resulting in actions potentially being taken by the public, which could adversely affect public health and safety.

Recommendation: The State Emergency Operations Center/Office of Emergency Management should demonstrate the capability to provide the JIC with a press release, which corrects an identified trend of false or misleading information, for distribution to the news media.

Schedule of Corrective Actions: At the November 7, 2007 Remedial Exercise.

Corrective Action Demonstrated: This ARCA for the Joint Information Center (JIC) was successfully re-demonstrated during the November 7, 2007 Remedial Exercise. New Jersey State PIO officials working at the JIC provided information via news briefings and press releases on trends of false or misleading information for distribution to news media outlets.

At the 1245 hrs news briefing, the New Jersey State Spokesperson addressed a false trend identified by the New Jersey State Office of Emergency Management (NJOEM) due to the number of calls received over the Public Inquiry Hotline regarding whether or not State Parks were closed. During this briefing, the State Spokesperson stated that NJOEM had closed all bays and rivers in the affected area and closed the following State Parks: Island Beach, Barnegat Light, Double Trouble, Forked River State Marina, Manahawkin Wildlife Area, Edwin B. Forsyth National Wildlife Refuge, Greenwood Forest Wildlife Area, and Sedge Island Wildlife Area.

- d. **NOT DEMONSTRATED:** NONE
- e. **PRIOR ARCAs - RESOLVED:** NONE
- f. **PRIOR ARCAs - UNRESOLVED:** NONE

1.6 Emergency Alert System Radio Station

- a. MET: Evaluation Criteria: 1.d.1
- b. DEFICIENCY: ONE

Issue Number: 43-07-5.b.1-D-01

Condition: Broadcast of protective action implementation to the public was not timely. Forty (40) minutes elapsed between broadcast of the second EAS message and the associated Special News Release. The EAS message stated that listeners should stay tuned for detailed information for the public on carrying out protective action decisions, including geographic descriptions of the affected Emergency Response Planning Areas (ERPAs), Reception Centers and evacuation routes to take to the Reception Centers. Additionally, the Extent-of-Play agreement indicates that the EAS Special News Releases were to be provided to the primary EAS Station, as well as the Joint Information Center (JIC).

The sequence of events began at 1953 hrs when the EAS station operator simulated broadcasting EAS message #2 over the EAS system. He repeated the message every 15 minutes thereafter. At 2007 hrs, a fax was retrieved from the NJ SEOC that was a duplicate of the EAS message #2, not the Special News Release that was expected. Two phone calls to the NJ SEOC were made by the controller. The controller was told at first that the duplicate fax had been sent because the radio station had previously experienced difficulties with one of the two fax machines at the station. Subsequently, the controller was told that the station would not get the Special News Release; it would be disseminated from the JIC despite the statement in EAS message #2 that listeners should expect additional detailed information on actions they should take to be broadcast from the station over the EAS.

At 2027 hrs, a “heads-up” ring-down phone call was received by the station from the NJ SEOC to check the fax machine. They had sent a copy of the Special News Release related to EAS #2 containing protective action implementation instructions for the public. At 2033 hrs, forty minutes after the initial broadcast of EAS message #2, as well as two subsequent repetitions of the EAS message, the operator read EAS message #2 a fourth time and then read the six page Special News Release. This does not constitute timely notification of the public.

Possible Cause: Confusion in the State Emergency Operations Center (SEOC) as to how Special News Releases containing vital information for the public are to be coordinated and disseminated.

Reference: NUREG-0654 E.5, 7; G.3.a, G.4.c; NJ RERP Standard Operating Procedure (SOP) 601, VII.5 (pg. 6 of 33).

Effect: The Special News Release to EAS message #2, which indicated that the public should stay tuned for important protective action information, did not get broadcast until 40 minutes after the first dissemination of the EAS message #2. Therefore the public was not notified of vital protective actions including information on how to shelter-in-place, prepare to evacuate and if evacuating, where to go in a timely manner, thus potentially endangering the health and safety of the public.

The Special News Release repeated information from the EAS message on which ERPAs to evacuate (1, 2, 3, 4, 7, 8, 11 and 17) and which ERPAs should shelter-in-place (5, 6, 9, 10, 11, 12, 13, 14, 15 and 16). Not only were geographical descriptions of the ERPAs given, but also the locations of the Reception Centers and the appropriate evacuation routes to take to get to them. Persons without vehicles were instructed to either travel with neighbors or go to the bus stops designated in the Public Information Brochure for public transportation. Additional information on the possible length of time that the public might be evacuating was given along with a list of items to take with them, including medical items, identification cards and licenses, clothing and bedding, etc. Instructions for those who should shelter-in-place included closing doors and windows, turning off air intakes (e.g. air conditioners), and preparing for possible evacuation recommendations.

Recommendation: Public Information personnel in the NJ SEOC should be trained to have the Special News Release developed and ready for dissemination immediately following the EAS message. They should also be trained to send the Special News Releases to the EAS station immediately following provision of the EAS message to the station. The NJ Radiological Emergency Response Plan and SOP 601 should be revised accordingly, and provided to the EAS station as well as to the State Public Information personnel.

Schedule of Corrective Actions: At the November 7, 2007, Remedial Exercise.

Remedial Action Demonstrated: The resolution of this Deficiency was successfully conducted during the November 7, 2007 Remedial Exercise.

The information contained in the Special News Broadcast that followed the 2nd EAS activation was broadcast (simulated) by the Radio Station Operator over the EAS System in a timely manner.

At 1235 hrs the Radio Station Operator received a call over the dedicated telephone line from the New Jersey State EOC Liaison that EAS Broadcast Message #2 was being sent by fax to the Radio Station and to activate the EAS System at 1248 hrs and read the message and repeat the message every 15 minutes until instructed otherwise by NJOEM. The State Liaison also informed the Station

Operator that a follow on Special News Broadcast (SNB) would also be faxed to him shortly. At 1236 hrs the Station Operator received EAS Message #2 and confirmed receipt with the EOC Liaison over the dedicated phone line. At 1248 hrs the Station Operator activated (simulated) the EAS System and read the EAS Message. At 1252 hrs the State EOC Liaison called the Station to inform the Operator that the SNB was being faxed to the station. At 1256 hrs the Station Operator confirmed with the State EOC Liaison that he received all 7 pages of the SNB. At this point the State EOC Liaison instructed the Station Operator to read the EAS Message again and then the follow on SNB and to repeat every 15 minutes until further notice.

The SNB contained information on Special Care Facilities Evacuations, the relocation of Special Needs Individuals, Park and Waterway closings, evacuated and shelter-in-place ERPAs, geographical descriptions of affected ERPAs, directions to Reception Centers, and information for transportation dependent populations.

The State has provided a copy of the Emergency Alert System Plan for the State of New Jersey along with separate EAS System activation instructions to the Radio Station that the Radio Operator referred to frequently during the Remedial Exercise.

c. AREAS REQUIRING CORRECTIVE ACTION: ONE

Issue Number: 43-07-5.a.1-A-03

Condition: The Station Operator at the primary EAS Station WRAT, failed to simulate broadcasting the EAS message #1 over the EAS system. He only simulated interrupting normal programming to broadcast the message to his listening audience.

Possible Causes:

1. The Operator was not given specific enough instruction from the SEOC, or the information was incomplete. The operator indicated that he was not told to use the encoder. The SEOC might have assumed that if it was an EAS message, it would be understood to be an EAS broadcast and more specific instruction was not necessary. Subsequently, the relief operator was given specific instruction in preparing for the broadcast of EAS message #2 later in the exercise.
2. The operator might have been confused between operating the EAS system in the different modes of operation; test, manual, or the State taking control with their encoder. The evaluator reviewed the written material available to the operators. It assumed that an EAS broadcast would be initiated by the

State, and did not give instruction on how to manually initiate an EAS broadcast.

Reference: 10 CFR 50 App. E.IV.D and NUREG-0654 E.5, 6, 7.

Effect: The effect was that by not using the EAS encoder signal, several other monitoring stations in the WRAT EAS region were not alerted to monitor the WRAT broadcast and record or transcribe the EAS message, and broadcast it to their listeners. The result is that only a small portion of the radio listeners in that region would have received the message.

Recommendation: The EAS encoder system is something that is seldom used in the manual mode of operation for actual events. It is used in a test mode for testing weekly and monthly. Radio station operators should be periodically trained on how to broadcast an EAS message if called upon to do so, and their instructions should be revised to state how to accomplish that. In addition the State Standard Operating Procedure (SOP) 606, the Emergency Alert System (EAS) Procedure, should be available to the station for reference and training and used during events and exercises.

Schedule of Corrective Actions: At the November 7, 2007 Remedial Exercise.

Corrective Action Demonstrated: During the November 7, 2007 Remedial Exercise, the Radio Station Operator demonstrated the ability to properly activate and operate the EAS Encoder System Signal to ensure that the entire affected radio listening audience would receive coverage. The State of New Jersey has provided the Radio Station a copy of the Emergency Alert System Plan for the State of New Jersey as well as a set of EAS Activation Instructions that the Radio Station Operator utilized throughout the Remedial Exercise. These two instructions contain the same information that is included in State SOP 606.

- 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:** Evaluation Criteria: 1.a.1; 1.d.1; 1.e.1; 2.a.1; 3.a.1; 3.b.1; 3.c.1; 3.c.2; 3.d.1; 3.d.2; 5.a.1
- b. **DEFICIENCY:** NONE
- c. **AREAS REQUIRING CORRECTIVE ACTION: ONE**

Issue Number: 43-07-1.c.1-A-04

Condition: Ocean County did not fax the notice of the first alert and notification EAS message sequence to some of the risk municipalities after they were notified and received this message from NJOEM.

Possible Cause: Inattention to detail.

Reference: NUREG-0654 E-1

Effect: Risk municipalities are placed at a greater risk due to the lack of clear and timely information concerning plant conditions and actions in progress taken by the State and County.

Recommendation: The Ocean County OEM should develop a procedure to assure communications are being transmitted to and received by the risk municipalities in a timely manner. This procedure should be incorporated into the County RERP.

Schedule of Corrective Actions: At the 2009, REP Full Scale Federally Graded Plume Phase Exercise.

- d. **NOT DEMONSTRATED:** NONE
- e. **PRIOR ARCAs - RESOLVED:** NONE
- f. **PRIOR ARCAs - UNRESOLVED:** NONE

2.1.2 Ocean County Radiological Field Monitoring Team

- a. **MET:** Evaluation Criteria: 1.d.1; 3.a.1; 3.b.1; 4.a.1; 4.a.3

- b. **DEFICIENCY: NONE**
- c. **AREAS REQUIRING CORRECTIVE ACTION: NONE**
- d. **NOT DEMONSTRATED: NONE**
- e. **PRIOR ARCAs - RESOLVED: NONE**
- e. **PRIOR ARCAs - RESOLVED: NONE**
- f. **PRIOR ARCAs - UNRESOLVED: NONE**

2.1.3 Ocean County Emergency Worker Decontamination Center (Stafford Volunteer Fire Department – 10/26/2006)

- a. **MET: Evaluation Criteria: 3.a.1; 6.a.1; 6.b.1**
- 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 Ocean County Reception Center (Christa McAuliffe Middle School - 7/25/2007; Lakewood High School - 7/31/2007)

- a. **MET: Evaluation Criteria: 3.a.1; 6.a.1; 6.b.1**
- b. **DEFICIENCY: NONE**
- c. **AREAS REQUIRING CORRECTIVE ACTION:**
- d. **NOT DEMONSTRATED: NONE**
- e. **PRIOR ARCAs - RESOLVED: NONE**
- f. **PRIOR ARCAs - UNRESOLVED: NONE**

2.1.5 General Population Evacuation – Transportation Dependent (NJ Transit – 7/27/2006; 8/21/2007)

- a. **MET: Evaluation Criteria: 3.c.1**
- 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 Special Population - Hearing Impaired (Exercise Day September 18, 2007)

- a. **MET: Evaluation Criteria: 3.c.1**
- 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 Special Population - Mobility Impaired (Exercise Day Surf City – 9/18/2007)

- a. **MET: Evaluation Criteria: 3.c.1**
- 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 School Evacuation (Lacy Twp School District – 8/23/2006; Central Regional School District – 8/17/2007)

- a. **MET: Evaluation Criteria:** 3.c.2
- 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 School Interviews (31 Schools – 8/16-17/2007; 8/22-23/2006)

- a. **MET: Evaluation Criteria:** 3.c.2
- b. **DEFICIENCY:** NONE
- c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE
- d. **NOT DEMONSTRATED:** NONE
- e. **PRIOR ARCAs - RESOLVED:** NONE
- f. **PRIOR ARCAs - UNRESOLVED:** NONE
- d. **PRIOR ARCAs - RESOLVED:** NONE

2.1.10 Traffic and Access Control Points (Lacy Twp – 9/8/2006; Ocean Twp – 8/28/07; Ocean County – 8/21/07; Barnegat Bay Inlet waterway access – 9/18/2006, and 8/27/2007)

- a. **MET: Evaluation Criteria:**
- 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 Medical Drill (Toms River Community Medical Center – 12/15/2006)

a. MET: Evaluation Criteria: 3.a.1; 6.d.1

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 RISK MUNICIPALITIES

2.2.1 Barnegat Township Emergency Operations Center

- a. **MET: Evaluation Criteria:** 1.a.1; 1.c.1; 1.d.1; 1.e.1; 3.a.1; 3.b.1; 3.c.1; 3.c.2; 3.d.1; 3.d.2
- 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 Beachwood Borough

- a. **MET: Evaluation Criteria:** 1.a.1; 1.d.1; 1.e.1; 3.a.1; 3.b.1; 3.c.1; 3.c.2; 3.d.1; 3.d.2
- b. **DEFICIENCY:** NONE
- a. **AREAS REQUIRING CORRECTIVE ACTION:** ONE

Issue Number: 43-07-1.c.1-A-05

Condition: The Beachwood Borough Radiological Officer (RO) and the Emergency Management Coordinator (EMC) did not take action to obtain KI from Ocean County OEM and make it available for Beachwood Borough Emergency Workers, should they voluntarily ingest Potassium Iodide (KI) after the Emergency Classification Level (ECL) was raised to General Emergency (GE).

Possible Cause: The RO and the Beachwood Borough EMC were not aware of the recently issued State of New Jersey directive outlined in Standard Operating Procedure (SOP) 409, which states that "Ingestion of KI is authorized by the New Jersey State Commissioner of the Department of Health and Senior Services (NJDHSS) upon the declaration of a General Emergency during a radiological emergency.

Reference: SOP-409: NJDHSS Authorization for the Ingestion of Potassium Iodide (KI) During Radiological Emergencies Involving Radioactive Iodine – Revision 1, June 2007.

Effect: Emergency workers did not have KI available for ingestion and could experience a radioactive iodine uptake.

Recommendation: Provide training regarding the State directive in SOP-409, which allows for the voluntary ingestion of KI at the GE ECL without further direction from the State or county.

Schedule of Corrective Actions: At the 2009, REP Full Scale Federally Graded Plume Phase Exercise.

- d. **NOT DEMONSTRATED: NONE**
- e. **PRIOR ARCAs - RESOLVED: NONE**
- f. **PRIOR ARCAs - UNRESOLVED: NONE**

2.2.3 Ship Bottom

- a. **MET: Evaluation Criteria:** 1.a.1; 1.c.1; 1.d.1; 1.e.1; 3.a.1; 3.c.1; 3.c.2; 3.d.1; 3.d.2
- 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 Harvey Cedars

- a. **MET: Evaluation Criteria:** 1.a.1; 1.c.1; 1.d.1; 1.e.1; 3.a.1; 3.c.1; 3.c.2; 3.d.1; 3.d.2
- b. **DEFICIENCY: NONE**
- c. **AREAS REQUIRING CORRECTIVE ACTION: NONE**
- d. **NOT DEMONSTRATED: NONE**
- e. **PRIOR ARCAs - RESOLVED: NONE**

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

2.2.5 Lacey Township

a. **MET: Evaluation Criteria:** 1.a.1; 1.c.1; 1.d.1; 1.e.1; 3.a.1; 3.c.1; 3.c.2; 3.d.1; 3.d.2

b. **DEFICIENCY: NONE**

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

d. **NOT DEMONSTRATED: NONE**

e. **PRIOR ARCAs - RESOLVED: ONE**

Issue Number: 43-06-3.a.1-A-02

Condition: Radiological briefings were incomplete. Instructions on the use of new digital dosimeters was not clear, complete information regarding exposure limits was not discussed, contradictions for the use of potassium iodide were not discussed and fact sheets were not distributed, and instructions for the proper return of dosimetry equipment was not mentioned.

Possible Cause: The Radiological Officer (RO) relied on the annual training of Emergency Workers (EWs) for an understanding of dosimetry and did not feel that a complete briefing was necessary at the time of distribution of equipment.

Reference: NUREG-0654 K.3.a, b; K.4

Effect: EWs may not have been able to properly read exposures received and may have received more exposure than allowable. Female EWs who are pregnant or EWs with iodine allergies could have been adversely affected by the ingestion of KI, and EWs with thyroid conditions may have taken KI unnecessarily.

Dosimetry equipment may not have been returned to the appropriate authority and individuals' exposures not properly recorded, leading to overexposure by EWs.

Recommendation: A briefing checklist should be developed and used for all radiological briefings to assure that complete information is received. Additionally, complete information on the purpose of KI and contraindications should be given to all EWs when KI is distributed.

Corrective Action Demonstrated: The actions of the Radiological Officer and staff were sufficient to correct the ARCA. The RO gave a detailed and clear briefing which covered all the key information in SOP 405. Those who were briefed were quizzed and replied with correct answers concerning their responsibilities.

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

2.2.6 Long Beach Township

- a. **MET:** Evaluation Criteria: 1.a.1; 1.c.1; 1.d.1; 1.e.1; 3.a.1; 3.c.1; 3.c.2; 3.d.1; 3.d.2; 5.a.3
- b. **DEFICIENCY: NONE**
- c. **AREAS REQUIRING CORRECTIVE ACTION: NONE**
- d. **NOT DEMONSTRATED: NONE**
- e. **PRIOR ARCAs - RESOLVED: NONE**
- f. **PRIOR ARCAs - UNRESOLVED: NONE**

2.2.7 Surf City

- a. **MET:** Evaluation Criteria: 1.a.1; 1.c.1; 1.d.1; 1.e.1; 3.a.1; 3.c.1; 3.c.2; 3.d.1; 3.d.2
- b. **DEFICIENCY: NONE**
- c. **AREAS REQUIRING CORRECTIVE ACTION: NONE**
- d. **NOT DEMONSTRATED: NONE**
- e. **PRIOR ARCAs - RESOLVED: NONE**
- f. **PRIOR ARCAs - UNRESOLVED: NONE**

2.2.8 Berkeley Township

- a. **MET:** Evaluation Criteria: 1.a.1; 1.c.1; 1.d.1; 1.e.1; 3.a.1; 3.c.1; 3.c.2; 3.d.1; 3.d.2

- 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.

AOG	Augmented Off-Gas
ARCA	Area Requiring Corrective Action
ARM	Area Radiation Monitors
ATWS	Anticipated Transient Without Scram
A&N	Alert and Notification
CFM	Cubic Feet per Minute
CFR	Code of Federal Regulations
CHRRMS	Containment High Range Radiation Monitoring System
DHS	U.S. Department of Homeland Security
DOT	U.S. Department of Transportation
DRD	Direct-Reading Dosimeter
EAS	Emergency Alert System
EBS	Emergency Broadcast System
ECL	Emergency Classification Level
EOC	Emergency Operations Center
EOF	Emergency Operations Facility
EMC	Emergency Management Coordinator
EMITS	Emergency Management Information Tracking System
EMRV	Electro-Motive Relief Valve
ENC	Emergency News Center
EPA	U.S. Environmental Protection Agency
EPR	Electronic Pressure Regulator
EPZ	Emergency Planning Zone
ERF	Emergency Response Facility
ERO	Emergency Response Organization
ERPA	Emergency Response Planning Area
FCP	Forward Command Post
FEMA	Federal Emergency Management Agency
FMT	Field Monitoring Team
GE	General Emergency
ICF	ICF International, Inc.
JIC	Joint Information Center

KI	Potassium Iodide
LED	Light Emitting Diode
mR	milliRoentgen(s)
MS	Medical Services
MSIV	Mainstream Isolation Valves
NAWC	Lakehurst Naval Air Warfare Center
NJ	New Jersey
NJBNE	New Jersey Bureau of Nuclear Engineering
NJDEP	New Jersey Department of Environmental Protection
NJDHSS	New Jersey Department of Health and Senior Services
NJOEM	New Jersey Office of Emergency Management
NRC	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
OCMEOCs	Ocean County Municipality Emergency Operations Centers
OCNGS	Oyster Creek Nuclear Generating Station
OCOEM	Ocean County Office of Emergency Management
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
REP	Radiological Emergency Preparedness
RERP	Radiological Emergency Response Plan
R/hr	Roentgen(s) per hour
RO	Radiological Officer
SAE	Site Area Emergency
SBOEM	Ship Bottom Office of Emergency Management
SEOC	State Emergency Operations Center
SFA	State Field Activities
SGTS	Standby Gas Treatment System
SM	Shift Manger

SNB
SOP

Special News Broadcast
Standard Operating Procedure

TL
TLD
WRAT

Team Leader
Thermoluminescent Dosimeter
Ocean County EAS Radio Station

APPENDIX 2 EXERCISE EVALUATORS AND TEAM LEADERS

The following is a list of the personnel who evaluated the Plume Phase of the Oyster Creek Generating Station exercise on September 13, 2006 and the out of sequence drills. Evaluator Team Leaders are indicated by the letters “(TL)” after their names. The organization which each evaluator represents is indicated by the following abbreviations:

DHS	Department of Homeland Security
EPA	Environmental Protection Agency
ICF	ICF International

<u>EVALUATION SITE</u>	<u>EVALUATOR</u>	<u>ORGANIZATION</u>
Exercise Oversight	Rebecca Thomson	DHS/FEMA
STATE OF NEW JERSEY		
SEOC	Brian Hasemann, TL	DHS/FEMA
SEOC	Daryl Thomè	ICF
SEOC	Glenn Kinnear	ICF
SEOC	William Palmer	ICF (OJT)
SEOC	Mabel Santiago	DHS/FEMA
EOF	Joe Keller	ICF
Forward Command Post	Jeanette Eng	EPA
Forward Command Post	Ron Bonner	ICF (OJT)
Radiological Field Monitoring	Eric Simpson	EPA
Radiological Field Monitoring	Ron Biernacki	ICF
JIC	Henry Christiansen, TL	ICF
JIC	Sam Nelson	ICF
EAS Station	Neil Howey	ICF
OCEAN COUNTY		
EOC	Bill Cullen, TL	DHS/FEMA
EOC	Bruce Swiren	DHS/FEMA
EOC	Richard Echavarria	DHS/FEMA
EOC	Miriam Weston	DHS/FEMA
Radiological Field Monitoring	Gary Goldberg	ICF
Emergency Worker Decontamination Center*	Robert Duggleby	ICF
Emergency Worker Decontamination Center*	Paul Malool	DHS/FEMA
Reception Center*	Alan Bevan	ICF
Reception Center*	Dave Schweller	ICF
Reception Center*	William Cullen	DHS/FEMA
Reception Center*	Richard Watts	ICF
General Population Evacuation*	Brian Hasemann	DHS/FEMA
Special Population – Hearing Impaired	Robert Poole	DHS/FEMA

Special Population – Mobility Impaired	Richard Smith	ICF
Route Alerting	Don Calsyn	ICF
School Evacuation*	Brian Hasemann	DHS/FEMA
School Interviews*	Ronald Biernacki	ICF
Traffic and Access Control Point*	Brian Hasemann	DHS/FEMA
Access Control Point *	Paul Malool	DHS/FEMA
Medical Drill*	Ronald Biernacki	ICF
Medical Drill*	Brian Hasemann	DHS/FEMA

MUNICIPALITIES

Barnegat Light Borough EOC	Robert Poole, TL	DHS/FEMA
Beachwood Borough EOC	Richard Wessman	ICF
Ship Bottom EOC	Dave Petta	ICF
Harvey Cedars EOC	Sonia Eischen	ICF
Lacey Township EOC	David White	ICF
Long Beach Township EOC	Don Calsyn	ICF
Surf City EOC	Richard Smith	ICF
Berkeley Township EOC	John Flynn	ICF

* Indicates an out of sequence drill or demonstration.

APPENDIX 3

EXERCISE OBJECTIVES AND EXTENT-OF-PLAY AGREEMENT

This appendix lists the exercise objectives and the extent-of-play agreement, which were scheduled for demonstration in the Oyster Creek Generating Station exercise on September 18, 2007.

The exercise evaluation criteria, contained in the FEMA Interim REP Program Manual, August 2002, represent the application 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 to an emergency response exercise.

Because the exercise evaluation criteria 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. The following extent-of-play agreement was approved by FEMA Region II on February 13, 2003.

EXTENT - OF - PLAY GROUND RULES

OYSTER CREEK EXTENT OF PLAY GROUND RULES

REAL LIFE EMERGENCIES TAKE PRIORITY OVER EXERCISE PLAY.

- There will not be injects as elements of the scenario.
- A control cell will inject public inquiry messages at the State EOC.
- A State Controller will inject radiological data for field radiological activities (i.e. Field Monitoring Teams, Reception Centers, EWDC's).
- According to REP Program Strategic Review Initiative 1.5 and the Interim Radiological Emergency Preparedness (REP) Program Manual Section III. I: "During tabletop exercises, drills, and other demonstrations conducted out-of-sequence from an integrated exercise, if DHS and the offsite response organizations (ORO) agree, the DHS Evaluator may have the participants re-demonstrate an activity that is determined to be not satisfactorily demonstrated. Immediate correction of issues in an integrated exercise is authorized only if it would not be disruptive and interrupt the flow of the exercise and affect other Evaluation Areas."

EXTENT OF PLAY

EVALUATION AREA 1: EMERGENCY OPERATIONS MANAGEMENT

Sub-element 1.a - Mobilization

Criterion 1.a.1: OROs use effective procedures to alert, notify, and mobilize emergency personnel and activate facilities in a timely manner. (NUREG-0654, A.4, D.3, 4, E.1, 2, H.4)

EXTENT OF PLAY AGREEMENT:

BNE/EOF

The BNE will pre-position Staff in the area and will arrive at the EOF approximately 60 minutes after notification by the State OEM of an ALERT or greater ECL notification.

BNE/FCP

The BNE will pre-position Staff in the area and will arrive at the FCP approximately 60 minutes after the declaration of an ALERT or greater ECL notification.

BNE/FMT

Two (2) State and (1) county FMT will pre-demonstrate instrument checkout and field air-sampling procedures during the afternoon of September 18, 2007. The three field teams will remain in the area until FCP staff arrives and will not be required to perform a second instrument checkout.

JIC

State JIC Staff will be pre-positioned and arrive approximately 60 minutes after notification of an ALERT or greater ECL notification.

EVALUATION AREA 1: EMERGENCY OPERATIONS MANAGEMENT

Sub-element 1.b - Facilities

Criterion 1.b.1: Facilities are sufficient to support the emergency response. (NUREG-0654, H)

EXTENT OF PLAY AGREEMENT:

Baseline evaluation of the following facilities is scheduled for this exercise:

New Jersey State Emergency Operations Center
Lakewood High School Reception Center

Back-up power is available, but will not be demonstrated, for the State, Ocean County, or the municipal EOCs.

Maps and displays will vary with each facility according to the assigned mission. They may include printouts and listings.

Additional baseline facility evaluations, outside of those detailed in the Offsite Extent of Play Activities Schedule, will be conducted prior to or after the exercise as agreed by DHS, NJ OEM, NJ BNE, Ocean County OEM, and each municipal OEM.

EVALUATION AREA 1: EMERGENCY OPERATIONS MANAGEMENT

Sub-element 1.c - Direction and Control

Criterion 1.c.1: Key personnel with leadership roles for the ORO provide direction and control to that part of the overall response effort for which they are responsible. (NUREG 0654, A.1.d; A.2.a, b)

EXTENT OF PLAY AGREEMENT:

There are no modifications from the NJRERP.

EVALUATION AREA 1: EMERGENCY OPERATIONS MANAGEMENT

Sub-element 1.d - Communications Equipment

Criterion 1.d.1: At least two communications systems are available, at least one operates properly, and communication links are established and maintained with appropriate locations. Communications capabilities are managed in support of emergency operations. (NUREG-0654, F.1.2)

EXTENT OF PLAY AGREEMENT:

County/municipal EOCs

The use of RACES, County 800 MHz, or County high band radio may serve as the backup to commercial telephone will be demonstrated between the Ocean County EOC and the risk municipal EOCs.

EVALUATION AREA 1: EMERGENCY OPERATIONS MANAGEMENT

Sub-element 1.e - Equipment and Supplies to Support Operations

Criterion 1.e.1: **Equipment, maps, displays, dosimetry, potassium iodide (KI), and other supplies are sufficient to support emergency operations. (NUREG 0654, H.7, 10; J.10.a, b, e, J.11; K.3.a)**

EXTENT OF PLAY AGREEMENT:

In the NJ RERP, Accident Assessment is a State responsibility therefore; radiological monitoring points and population by evacuation area is not displayed on maps at the county or municipal EOCs. The data on evacuation times and populations from the Evacuation Times estimate Study and other sources are condensed into a single document entitled DEMSTAT's. The DEMSTAT's are used by the State to determine the affected population, ERPA's, and evacuation time estimates.

The NJ OEM Calibration Laboratory calibrates field team equipment. The State RERP Plan requires annual calibration of this equipment. Therefore, the calibration sticker for this equipment shows a calibration due date which reflects the annual calibration cycle. The instruments are considered calibrated as long as the current date is within one year of the calibration date.

No equipment (i.e. barriers, traffic cones, signs, etc.) will be deployed to the field.

Check sources for field monitoring instruments may be shared among state and county FMTs at the FCP prior to being dispatched.

EVALUATION AREA 2: PROTECTIVE ACTION DECISION-MAKING

Sub-element 2.a. Emergency Worker Exposure Control

Criterion 2.a.1: OROs use a decision making process, considering relevant factors and appropriate coordination, to insure that an exposure control system, including the use of KI, is in place for emergency workers including provisions to authorize radiation exposure in excess of administrative limits or protective action guides. (NUREG-0654, J.10.e, f; K.4)

EXTENT OF PLAY AGREEMENT:

There are no modifications from the NJRERP.

EVALUATION AREA 2: PROTECTIVE ACTION DECISION-MAKING

Sub-element 2.b. Radiological Assessment and Protective Action Recommendations and Decisions for the Plume Phase of the Emergency

Criterion 2.b.1: **Appropriate protective action recommendations are based on available information on plant conditions, field monitoring data, and licensee and ORO dose projections, as well as knowledge of on-site and off-site environmental conditions. (NUREG-0654, I.8, 10, and Supplement 3)**

EXTENT OF PLAY AGREEMENT:

The back up for the electronic dose projection model at the EOF is hand calculations based on the NRC's Response Technical Manual. Hand calculations will only be demonstrated if electronic systems fail.

EVALUATION AREA 2: PROTECTIVE ACTION DECISION-MAKING

Sub-element 2.b. Radiological Assessment and Protective Action Recommendations and Decisions for the Plume Phase of the Emergency

Criterion 2.b.2: A decision-making process involving consideration of the appropriate factors and necessary coordination is used to make protective action decisions (PADs) for the general public (including the recommendation for the use of KI, if ORO policy). (NUREG-0654, J.9, 10.f, m).

EXTENT OF PLAY AGREEMENT:

There are no modifications from the NJRERP.

EVALUATION AREA 2: PROTECTIVE ACTION DECISION-MAKING

Sub-element 2.c. - Protective Action Decisions Consideration for the Protection of Special Populations

Criterion 2.c.1: Protective action decisions are made as appropriate, for special population groups. (NUREG-0654, J.9, J.10.d, e)

EXTENT OF PLAY AGREEMENT:

There are no modifications from the NJRERP

EVALUATION AREA 2: PROTECTIVE ACTION DECISION-MAKING

Sub-element 2.d - Radiological Assessment and Decision Making for the Ingestion Exposure Pathway

Criterion 2.d.1: Radiological consequences for the ingestion pathway are assessed and appropriate protective action decisions are made based on the ORO planning criteria. (NUREG-0654, J.9, J.11)

EXTENT OF PLAY AGREEMENT:

Not evaluated for this exercise.

EVALUATION AREA 2: PROTECTIVE ACTION DECISION-MAKING

Sub-element 2.e. - Radiological Assessment and Decision-Making Concerning Relocation, Re-entry, and Return

Criterion 2.e.1: Timely relocation, re-entry, and return decisions are made and coordinated as appropriate, based on assessments of the radiological conditions and criteria in the ORO_s plans and/or procedures. (NUREG-0654, I.1; J.9; M.1)

EXTENT OF PLAY AGREEMENT:

Not evaluated for this exercise.

EVALUATION AREA 3: PROTECTIVE ACTION IMPLEMENTATION

Sub-element 3.a - Implementation of Emergency Worker Exposure Control

Criterion 3.a.1: **The OROs issue appropriate dosimetry and procedures, and manage radiological exposure to emergency workers in accordance with the plans and procedures. Emergency workers periodically and at the end of each mission read their dosimeters and record the readings on the appropriate exposure record or chart. (NUREG-0654, K.3a, b)**

EXTENT OF PLAY AGREEMENT:

FMTs will not be required to dress out during the plume phase (protective clothing will be available for inspection by the evaluator). FMTs will don a single pair of gloves and following the first demonstration of contamination control verbalize successive changes. Exposure control and contamination control functions will be addressed through an interview with the field teams

One emergency worker exposure control kit will be utilized in the County EOC and in each municipal EOC. No TLD's will be distributed during this exercise, but their location and recording methodology will be explained to the evaluator. County and municipal coordinators will provide and discuss the SOP on TLD distribution and record keeping with the evaluator. 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. Direct-reading dosimeters (DRDs) in the emergency worker exposure control kits may contain electronic self-reading dosimeters or 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 DHS staff prior to the exercise. KI will not be distributed. It is stored at the State OEM, BNE-FCPs and at the County OEM's until an actual incident.

EVALUATION AREA 3: PROTECTIVE ACTION IMPLEMENTATION

Sub-element 3.b - Implementation of KI Decision

Criterion 3.b.1: KI and appropriate instructions are available should a decision to recommend use of KI be made. Appropriate record keeping of the administration of KI by emergency workers and institutionalized individuals is maintained.

EXTENT OF PLAY AGREEMENT:

There are no modifications from the NJ RERP.

EVALUATION AREA 3: PROTECTIVE ACTION IMPLEMENTATION

Sub-element 3.c - Implementation of Protective Actions for Special Populations

Criterion 3.c.1: Protective action decisions are implemented for special populations other than schools within the areas subject to protective actions. (NUREG-0654, J.10.c, d, g).

EXTENT OF PLAY AGREEMENT:

Evacuation of Transportation Dependent Population

Evacuation of Transportation Dependent Population was demonstrated out of sequence on July 27, 2006 and again on August 21, 2007.

Notification of Hearing Impaired

The notification of a hearing impaired individual will be demonstrated out of sequence, in Barnegat Light Borough on September 18, 2007.

The list of hearing impaired individuals will be available for inspection at each municipal EOC. The list will be reviewed but not retained by the federal evaluator.

There will be no actual notification of hearing impaired individuals.

Evacuation of Non- Institutionalized Mobility Impaired Individuals

The notification of non-institutionalized mobility impaired individual will be demonstrated out of sequence, in Surf City Borough on September 18, 2007.

The list of non-institutionalized mobility impaired individuals will be available for inspection at each municipal EOC. The list will be reviewed but not retained by the federal evaluator. There will be no actual notification.

EVALUATION AREA 3: PROTECTIVE ACTION IMPLEMENTATION

Sub-element 3.c - Implementation of Protective Actions for Special Populations

Criterion 3.c.2: OROs/School officials implement protective actions for schools. (NUREG-0654, J.10.c, d, g).

EVACUATION OF SCHOOL POPULATIONS

EXTENT OF PLAY AGREEMENT:

An out of Sequence demonstration of an evacuation bus route for School from the building to the host facility was conducted on August 23, 2006, and again on August 17, 2007

SCHOOL INTERVIEWS

EXTENT OF PLAY AGREEMENT:

Interviews for Ocean County were conducted by FEMA and a State Controller with school superintendents and principals on August 23 & 24, 2006 and again on August 16 & 17, 2007 at the following schools:

Lacey Township High School
Lacey Township Middle School
Lanoka Harbor Middle School
Cedar Creek Elementary School
Mill Pond School
Forked River Elementary School
Clara B. Worth Elementary School
H & M Potter Elementary School
Bayville Elementary School
Berkeley Elementary School
Pine Beach Elementary School
Toms River High School South
Washington Street Elementary School
Beachwood Elementary School

Seaside Park Elementary School
Ambassador Academy
Msgr. Donovan High School
Ocean County Vo-Tech School
Fredrick A. Priff Elementary School
Waretown Elementary School
Russell O. Brackman Middle School
Cecil Collins Elementary School
Lillian M. Dunfee Elementary School
Robert L. Horbelt Elementary School
Southern Regional High School
Southern Regional Middle School
Stafford Intermediate School
Ocean Acres Elementary School
Barnegat High School
Intermediate South
Marine Academy of Technology and Environmental Science

EVALUATION AREA 3: PROTECTIVE ACTION IMPLEMENTATION

Sub-element 3.d. - Implementation of Traffic and Access Control

Criterion 3.d.1: **Appropriate traffic and access control is established. Accurate instructions are provided to traffic and access control personnel. (NUREG-0654, J.10.g, j)**

EXTENT OF PLAY AGREEMENT:

Traffic and Access Control Points (TCP's and ACP's)

The water borne Access Control Point and a land Access Control Point was demonstrated out of sequence on September 18 & 21 (respectively), 2006 and again on August 21 & 28, 2007.

The State Police Field Operation Bureau personnel discuss how to activate ACPs in the field in mutually agreed upon locations.

The personnel from the Ocean County Sheriffs Department and the Road Department discuss how to activate TCP's in the field in mutually agreed upon locations.

The activation of a Traffic Control Point was demonstrated out of sequence on September 8, 2006 and again on August 28, 2007.

The participants demonstrate their ability to locate their assigned posts through an interview with a federal evaluator.

There no vehicles stopped at the demonstration of Access Control or Traffic Control.

EVALUATION AREA 3: PROTECTIVE ACTION IMPLEMENTATION

Sub-element 3.d. - Impediments to Evacuation

**Criterion 3.d.2: Impediments to evacuation are identified and resolved.
(NUREG-0654, J.10.k)**

EXTENT OF PLAY AGREEMENT:

Impediments to evacuation

The Ocean County Sheriffs Department and Road Department at the County EOC will discuss with the Federal evaluator how impediments to evacuation would be overcome.

EVALUATION AREA 3: PROTECTIVE ACTION IMPLEMENTATION

Sub-element 3.e - Implementation of Ingestion Pathway Decisions

Criterion 3.e.1: The ORO demonstrates the availability appropriate use of adequate information regarding water, food, supplies, milk, and agricultural production within the ingestion pathway emergency planning zone for implementation of protective actions. (NUREG-0654, J.9, 11).

EXTENT OF PLAY AGREEMENT:

Not evaluated for this exercise.

EVALUATION AREA 3: PROTECTIVE ACTION IMPLEMENTATION

Sub-element 3.e - Implementation of Ingestion Pathway Decisions

Criterion 3.e.2: **Appropriate measures, strategies, and pre-printed instructional material are developed for implementing protective action decisions for contaminated water, food products, milk, and agricultural production. (NUREG-0654, J.9, 11).**

EXTENT OF PLAY AGREEMENT:

Not evaluated for this exercise.

EVALUATION AREA 3: PROTECTIVE ACTION IMPLEMENTATION

Sub-element 3.f. - Implementation of Relocation, Re-entry, and Return Decisions

Criterion 3.f.1: Decisions regarding controlled re-entry of emergency workers and relocation and return of public are coordinated with appropriate organizations and implemented. (NUREG-0654, M.1, 3)

EXTENT OF PLAY AGREEMENT:

Not evaluated for this exercise.

EVALUATION AREA 4: FIELD MEASUREMENTS AND ANALYSIS

Sub-element 4.a.1 - Plume Phase Field Measurements and Analysis

Criterion 4.a.1: The field teams are equipped to perform field measurements of direct radiation exposure (cloud and ground shine) and to sample airborne radioiodine and particulates. (NUREG-0654, H.10; I.7, 8, 9)

EXTENT OF PLAY AGREEMENT:

FMTs

Two (2) State and (1) county FMT will pre-demonstrate instrument checkout and field air-sampling procedures during the afternoon of September 18, 2007. The three field teams will remain in the area until FCP staff arrives and will not be required to perform a second instrument checkout.

EVALUATION AREA 4: FIELD MEASUREMENTS AND ANALYSIS

Sub-element 4.a. - Plume Phase Field Measurements and Analysis

Criterion 4.a.2: Field teams are managed to obtain sufficient information to help characterize the release and to control radiation exposure. (NUREG-0654, H.12; I.8, 11; J.10.a)

EXTENT OF PLAY AGREEMENT:

There are no modifications from the NJRERP.

EVALUATION AREA 4: FIELD MEASUREMENTS AND ANALYSIS

Sub-element 4.a. - Plume Phase Field Measurements and Analysis

Criterion 4.a.3: Ambient radiation measurements are made and recorded at appropriate locations, and radioiodine and particulate samples are collected. Teams will move to an appropriate low background location to determine whether any significant (as specified in the plan and/or procedures) amount of radioactivity has been collected on the sampling media. (NUREG-0654, I.9).

EXTENT OF PLAY AGREEMENT:

Two (2) state and (1) county FMT will pre-demonstrate instrument checkout and field air sampling and counting procedures during the afternoon of September 18, 2007. If the FMT is not required to perform an additional air sample and count during exercise play, the pre-demonstration will serve as the evaluation demonstration for this criterion.

Chain of Custody Forms will be completed during the exercise by FMTs. However, the transfer of samples to the laboratory will not be demonstrated. FCP and FMT leads will discuss procedure for transporting samples during the exercise.

EVALUATION AREA 4: FIELD MEASUREMENTS AND ANALYSIS

Sub-element 4.b - Post Plume Phase Field Measurements and Sampling

Criterion 4.b.1: The field teams demonstrate the capability to make appropriate measurements and to collect appropriate samples (e.g., food crops, milk, vegetation, and soil) to support adequate assessments and protective action decision-making. (NUREG-0654, I.8; J.11)

EXTENT OF PLAY AGREEMENT:

Not evaluated for this exercise.

EVALUATION AREA 4: FIELD MEASUREMENTS AND ANALYSIS

Sub-element 4.c - Laboratory Operations

Criterion 4.c.1: The laboratory is capable of performing required radiological analysis to support protective action decisions. (NUREG-0654, C.; J.11)

EXTENT OF PLAY AGREEMENT:

Not evaluated for this exercise.

EVALUATION AREA 5: EMERGENCY NOTIFICATION & PUBLIC INFORMATION

Sub-element 5.a - Activation of the Prompt Alert and Notification System

Criterion 5.a.1: Activities associated with the primary alerting and notification of the public are completed in a timely manner following the initial decision by authorized offsite emergency officials to notify the public of an emergency situation. The initial instructional message to the public must include as a minimum the elements required by current DHS REP guidance. (10 CFR Part 50, Appendix E.IV.D & NUREG-0654, E.5, 6, 7)

EXTENT OF PLAY AGREEMENT:

The initial EAS message will be initiated by the NJOEM at the State EOC with a simulated broadcast of the message using the SAGE/ENDEC encoder. The second EAS message will be faxed to WRAT-FM for simulated broadcast. There will be no actual siren sounding and no broadcasting of EAS messages. The Oyster Creek siren system was tested on the latest date with results shall be provided.

EVALUATION AREA 5: EMERGENCY NOTIFICATION & PUBLIC INFORMATION

Sub-element 5.a - Activation of the Prompt Alert and Notification System

Criterion 5.a.2: RESERVED

EVALUATION AREA 5: EMERGENCY NOTIFICATION & PUBLIC INFORMATION

Sub-element 5.a - Activation of the Prompt Alert and Notification System

Criterion 5.a.3: Activities associated with DHS approved exception areas (where applicable) are completed within 45 minutes following the initial decision by authorized offsite emergency officials to notify the public of an emergency situation. Backup alert and notification of the public is completed within 45 minutes following the detection by the ORO of a failure of the primary alert and notification system. (NUREG-0654, 3B.2.c)

EXTENT OF PLAY AGREEMENT:

Backup route alerting will be demonstrated out of sequence, in Long Beach Township, on September 18, 2007.

EVALUATION AREA 5: EMERGENCY NOTIFICATION & PUBLIC INFORMATION

Sub-element 5.b - Emergency Information and Instructions for the Public and the Media

Criterion 5.b.1: OROs provide accurate emergency information and instructions to the public and the news media in a timely manner. (NUREG-0654, E.5, 7; G.3.a, G.4.c).

EXTENT OF PLAY AGREEMENT:

Public Instruction and Emergency Information

EAS Follow-up News Releases are provided to Primary EAS Station and the media at the JIC.

Public Inquiry

The State OEM will prepare a press release for a simulated trend for release at a press conference.

EVALUATION AREA 6: SUPPORT OPERATION/FACILITIES

Sub-element 6.a - Monitoring and Decontamination of Evacuees and Emergency Workers, and Registration of Evacuees

Criterion 6.a.1: **The reception center/emergency worker facility has appropriate space, adequate resources, and trained personnel to provide monitoring, decontamination, and registration of evacuees and/or emergency workers. (NUREG-0654, J.10.h; J.12;K.5.a)**

EXTENT OF PLAY AGREEMENT:

Reception Centers were demonstrated out of sequence at Christa McAuliffe Middle School on July 25, 2006 and at Lakewood High School on July 31, 2007.

At least 1/3 of the required monitors will be present and evacuees will be monitored. Staff will be provided to act as evacuees.

Initial personnel monitoring staff will be demonstrated as tabulated below. Six staff will act as evacuees.

Two radiation monitoring staff will be present and demonstrate, one (1) for male decontamination and one (1) for female decontamination. They will process one person each.

Both vehicle monitoring posts will be staffed with a minimum of two (2) emergency workers.

Two vehicles will be demonstrated for monitoring and decontamination, one (1) clean vehicle and one (1) contaminated.

There will be only a representative (small) sample of supplies available at the facility. Decontamination techniques will be simulated.

Reception Center floors will not be covered with paper/plastic during this demonstration. However, it will be available for inspection.

Distribution of Potassium Iodide to the general public will be demonstrated by the County Department of Health.

EVALUATION AREA 6: SUPPORT OPERATION/FACILITIES

Sub-element 6.b - Monitoring and Decontamination of Emergency Worker Equipment

Criterion 6.b.1: The facility/ORO has adequate procedures and resources for the accomplishment of monitoring and decontamination of emergency worker equipment including vehicles. (NUREG-0654, K.5.b).

EXTENT OF PLAY AGREEMENT:

Two Emergency Worker Decontamination Centers (EWDC) were demonstrated out of sequence at the Ocean County Utility Authority on October 26, 2006 and at the Pinewald Pioneers Volunteer Fire Company on May 21, 2007.

Two radiation monitoring staff will be present and demonstrate, one (1) for male decontamination and one (1) for female decontamination. They will process one person each.

Both vehicle monitoring posts will be staffed with a minimum of two (2) emergency workers.

Two vehicles will be demonstrated for monitoring and decontamination, one (1) clean vehicle and one (1) contaminated.

There will be only a representative (small) sample of supplies available at the facility.

Decontamination techniques will be simulated.

EWDC floors will not be covered with paper/plastic during this demonstration. However, it will be available for inspection.

EVALUATION AREA 6: SUPPORT OPERATION/FACILITIES

Sub-element 6.c - Temporary Care of Evacuees

Criterion 6.c.1: Managers of congregate care facilities demonstrate that the centers have resources to provide services and accommodations consistent with American Red Cross planning guidelines (found in MASS CARE-Preparedness Operations ARC 3031). Managers demonstrate the procedures to assure that evacuees have been monitored for contamination and have been decontaminated as appropriate prior to entering congregate care facilities. (NUREG-0654, J.10.h, J.12)

EXTENT OF PLAY AGREEMENT:

This Evaluation Area criterion was satisfied in 2004, as an out of sequence demonstration at Brick Township Municipal High School.

EVALUATION AREA 6: SUPPORT OPERATION/FACILITIES

Sub-element 6.d - Transportation and Treatment of Contaminated Injured Individuals

Criterion 6.d.1: The facility/ORO has appropriate space, adequate resources, and trained personnel to provide transport, monitoring, decontamination, and medical services to contaminated injured individuals. (NUREG-0654, F.2; H.10; K.5a, b; L.1, 4)

EXTENT OF PLAY AGREEMENT:

A Medical Services Drill was held at the Toms River CMC on December 15, 2006.

**OYSTER CREEK September 18, 2007 EXERCISE
OFFSITE OUT-OF-SEQUENCE ACTIVITIES SCHEDULE**

Date

RECEPTION CENTERS

Christa McAuliffe Middle School: July 25, 2006

Lakewood High School: July 31, 2007

CONGREGATE CARE SHELTERS

Brick Township Memorial High School: August 17, 2004

EMERGENCY WORKER DECONTAMINATION

Ocean County Utilities Authority: October 26, 2006

Pinewald Volunteer Fire Company May 21, 2007

TRANSPORTATION DEPENDENT POPULATION

Ocean County July 27, 2006

Ocean County August 21, 2007

SCHOOL EVACUATION BUS RUN

Lacey Township School District August 23, 2006

Central Regional School District August 17, 2007

SCHOOL INTERVIEWS

Ocean County: August 22 & 23, 2006

Southern Regional High School
Ocean County Vo-Tech School
Toms River High School South
Fredrick A. Priff Elementary School
Russell O. Brackman Middle School
Barnegat High School
Monsignor Donovan High School
Ambassador Christian Academy
Washington Street Elementary School
Forked River Elementary School
Waretown Elementary School
Southern Regional Middle School

Ocean County: August 16 & 17, 2007

Mill Pond Elementary School
Lacey Middle School
Lanoka Harbor Middle School

Cedar Creek Elementary School
Lacey High School
Bayville Elementary School
Berkeley Elementary School
H & M Potter Elementary School
Clara B. Worth Elementary School
Beachwood Elementary School
Intermediate South
Pine Beach Elementary School
Seaside Park Elementary School
Robert L. Horbelt Elementary School
Cecil S. Collins Elementary
Lillian M. Dunfree Elementary School
Stafford Intermediate School
Ocean Acres Elementary School
Marine Academy of Technology and Environmental Science

	<u>Date</u>
ACCESS CONTROL POINTS	
Highway:	September 21, 2006 August 21, 2007
Waterway:	September 18, 2006 August 28, 2007

TRAFFIC CONTROL POINTS	
Ocean County:	September 8, 2006 August 28, 2007

MS-1 (TRANSPORTATION)
Lanoka Harbor EMS First Aid Squad: December 15, 2006

MS-1 (HOSPITAL)
Toms River Community Medical Center: December 15, 2006

HEARING IMPAIRED NOTIFICATION
Barnegat Light Borough: September 18, 2007

BACKUP ROUTE ALERTING
Long Beach Township: September 18, 2007

MOBILITY IMPAIRED
Surf City Borough: September 18, 2007

APPENDIX 4

EXERCISE SCENARIO SYNOPSIS

This appendix contains a summary of the simulated sequence of events – Exercise Scenario – that was used as the basis for invoking emergency response actions by OROs in the Oyster Creek Generating Station exercise on September 18, 2007.

OYSTER CREEK SCENARIO

Oyster Creek 2007 Biennial Exercise

2.2

BIENNIAL EXERCISE TIMELINE

SCENARIO TIME	CLOCK TIME	MAJOR EVENT
-090	14:00	Setup simulator, swap & test communications and transmittal of exercise data from the simulator to the TSC, EOF, and OSC; confirm plume tracker files are loaded for FMT use.
-030	15:00	SCR Participant Briefing
000	15:30	Commence Drill with initial conditions established; 74% Power with "A" Feedwater Pump OOS and "A" Feedwater String Isolated; "A" SGTS is out of service for maintenance to replace the motor bearing on EF-1-8; Core Spray System 1 Pump Comprehensive In-Service Test (610.4.002) is in progress at Step 6.11;
000	15:30	Unknown to the Operators, a leak has developed from a pipe crack on the suction line of the Core Spray Pump C (NZ01C) downstream of the pump suction valve, V-20-32. The drain for the NW Corner Room is insufficient and the room is filling with water from the Torus.
015	15:45	Control Room has a Torus Low Level Alarm & a report from Radwaste Operator that RB 1-7 Sump Hi Level Alarm indications and a field report from the RB NLO of flooding occurring in the NW Corner Room <u>affecting operability</u> of Core Spray System I. Water level has reached the pump motor level, ~ 18 inches above floor level; <u>NZ01C has tripped</u> as a result of the water reaching the pump motor winding. [Degraded safety system performance] [NOTE: If uncontrolled flooding is reported <u>without</u> mention of the Core Spray Pumps being degraded, then a UE declaration is possible]
025	15:55	V-20-32 fails to close; NLO dispatched to MCC 1B21A to reset tripped breaker and attempt valve closure from the breaker.
027	15:57	V-20-32 is closed electrically from MCC 1B21A. Flooding has ceased. Core Spray System 1 is inoperable. (T.S. 3.4.A.3 (7 day S/D LCO) is entered)
030	16:00	Shift Manager assumes ED function and declares ALERT based on EAL HA5.
105	17:15	ERFs fully activated. C&C transfer to TSC and EOF complete.
118	17:28	Turbine Trip occurs <u>without</u> an anticipatory Rx Scram; both Auto and Manual RPS actuations fail to work and control rods do not scram, but actuation of ARI is successful in inserting all control rods. Rx High Pressure causes EMRVs to lift and Isolation Condensers initiate; a small number of fuel rod failures resulting an rise in RCS Activity from gap activity.
120	17:30	"A" Isolation Condenser Steam line leak (~ 1%) occurs. A <u>Security Guard</u> making rounds on RB 75' Elev. observed the steam cloud emanating from piping in the overhead on the East side of the building. <u>When attempted</u> by the RO, <u>both</u> V-14-30 & V-14-31 will start to close but do not completely close (mechanically seized at 10% open). [Unisolable Primary System line break]. Reactor Building pressure remains slightly negative, below blowout panel operation.
125	17:35	A small non-routine monitored airborne radiological release begins; RB Vent Monitors will trip causing isolation of the RB Ventilation and initiation of SGTS ("B" Train) (STACK RAGEMS LR, will reach a peak value of ~4000 cps and hold there)

SCENARIO TIME	CLOCK TIME	MAJOR EVENT
135	17:45	Station Emergency Director declares SITE AREA EMERGENCY based upon EAL FS1.
195	18:45	Electrical fault occurs in the OC Switchyard that de-energizes power to Startup Transformer SB (Bank 6 OCB) and 4160V Bus B; lose power to "B" & "C" Feedwater & Condensate Pumps.
205	18:55	Unisolable LOCA from "B" Recirc Loop; RPV Level drops to < -20 " TAF before level is recovered and maintained above TAF.
210	19:00	Emergency Depressurization and Core Spray System II injection along with "A" Condensate Pump are successful in recovering core cooling and core submergence.
215	19:05	A larger elevated release begins from increased fuel failures, higher RCS activity, a continuing leak through Isolation Condenser into RB atmosphere and to the environment through SGTS and an elevated, monitored Main Stack release.
225	19:15	TSC SED declares GENERAL EMERGENCY based on EAL FG1, (Fuel Clad Loss 1.a.1, RCS Loss 2.d.2 (2.a.1) and PC Loss 3.d.1 or 3.d.3). Wind is from 020 degrees. PAR will be EVACUATE 0-5 miles full circle and 5-10 miles downwind in sectors SW, SSW, S and SHELTER the remaining portion of the EPZ. KI is recommended.
240	19:30	PAR determination made
250	19:40	Restore power to 4160V Bus B from SBO Transformer; transfer vital loads from EDG#2 to the SBO transformer and place the EDG in Standby. (This action is <u>not</u> required, but may not be directed)
255	19:45	EOF CED communicates PAR to Senior State Official
315	20:45	Change on wind direction (from 355 degrees) to include additional sector requiring a PAR Upgrade
330	21:00	CED determines the appropriate PAR Upgrade will be EVACUATE 0-5 miles full circle and 5-10 miles downwind in sectors SW, SSW, S, SSE and SHELTER the remaining portion of the EPZ. KI is recommended.
345	21:15	EOF CED communicates PAR to Senior State Official (DEP)
390	22:00	Terminate Exercise

Following shift turnover, the operations crew will continue on with the in progress scheduled testing of the Core Spray System 1 Pump Comprehensive surveillance test procedure IST 610.4.002 (currently in progress) at Step 6.11

**EXELON NUCLEAR EMERGENCY PREPAREDNESS
NARRATIVE SUMMARY
OYSTER CREEK GENERATING STATION
BIENNIAL GRADED EXERCISE
SEPTEMBER 18, 2007**

(This section provides a brief narrative of major events. For detailed information related to expected actions refer to Exercise Manual Section 2.2 "Exercise Scenario Timeline" and Section 2.8 "Scenario 64R0 - Simulator Exercise Guide" for additional details.)

Initial Conditions:

[<15:30]

Unit has been at 74% power level for the last 74 hours following the planned removal of the "A" Feedwater String from service for maintenance. Prior to that plant line-up change which occurred on Saturday September 15th, the plant was on-line at 100% power for the last 272 days.

The Main Turbine vibration alarm Q-3-b is alarming periodically. Monitoring equipment is in place and increased monitoring is ongoing. Current vibration readings are between 3 - 5 mils.

Out-Of-Service (OOS) Equipment:

"A" Standby Gas Treatment System (SGTS) is out of service for Maintenance to replace the fan motor bearing on EF-1-8. The system is expected to return to service on 09/19/07 at 13:00

Late on the afternoon of September 18, 2007, station engineering completes a preliminary evaluation of a deficiency report received from the manufacturer of the SGTS charcoal adsorber material and concludes that some of the installed SGTS charcoal adsorber material is potentially defective. Engineering determined that the SGTS charcoal Iodine adsorption efficiency is potentially reduced to only 50% of design values for Iodine adsorption. The remaining "B" train was subsequently declared inoperable for Technical Specification purposes, but available for use "as is" with potentially limited (50%) Iodine adsorption capacity. Supply is expediting the delivery of replacement charcoal material. An estimated delivery time is unknown at this time. Engineering evaluation of the situation continues.

"A" Feedwater String is out of service to replace the motor on "A" Reactor Feedwater Pump. Expected return to service is 09/21/07 at 16:00

The Outage Control Center (OCC) is staffed at minimal levels.

Direction for the Operating Unit

Maintain current power level

Following shift turnover, the operations crew will continue on with the in progress scheduled testing of the Core Spray System 1 Pump Comprehensive surveillance test procedure IST 610.4.002 (currently in progress) at Step 6.11

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Weather Forecast:

Partly cloudy and warm this afternoon with light winds from the North-Northeast at 7 - 9 mph. Highs today will be in the mid 80's. The skies will become clear tonight with lows in the mid 60s. Fair and cooler conditions tomorrow with winds shifting from the West-Northwest at 10 to 12 mph. The high tomorrow will be 75 to 80 degrees. Probability of precipitation is 0% tonight.

- EVENT 1** At ~15:40, operations personnel begin to investigate an unexpected lowering of the Torus water level. Equipment operators locate a water leak from a Core Spray System 1 pipe inside the Northwest Corner Room, downstream of the suction valve (V-20-32) for Core Spray Pump C. The room floor drain is clogged, water has accumulated inside the room, and water has risen to above the bottom level of the Core Spray pump motor (approximately two feet deep and rising). The flooding inside the NW Corner Room, which has now degraded the Core Spray System 1 equipment condition, warrants the declaration of an ALERT per EAL HA5 by 16:00. There is no non-routine radioactive release at the time of the ALERT.
- EVENT 2** At ~ 15:50, following reports from the field, operations attempt to close V-20-32, however the valve fails to close electrically. An equipment operator is dispatched to the electrical motor control center for V-20-32 to investigate. The equipment operator determines that a resettable electrical protective device (thermal overload) for the valve motor has tripped and stopped valve movement. The thermal overload is successfully reset and the V-20-32 is successfully closed. Once V-20-32 is closed the flood into the NW Corner Room is stopped however, the Core Spray System 1 equipment remains inoperable due to the water remaining on the floor in the room.
- EVENT 3** At ~< 16:00, the Shift Manager assumes the position of Shift Emergency Director and declares an ALERT based on Emergency Action Level (EAL) HA5, based on degraded safety system performance due to uncontrolled flooding. The Shift Emergency Director activates the Emergency Response Organization (ERO), activates the Emergency Response Facilities (ERFs), and completes initial event declaration notifications to the State of New Jersey and the Nuclear Regulatory Commission (NRC).
- EVENT 4** At ~ 17:29 an unanticipated Main Turbine Trip occurs.
- EVENT 5** At ~ 17:30, numerous additional equipment malfunctions occur following the unanticipated Main Turbine Trip and include; a failure to automatically shutdown (SCRAM) the reactor (ATWS) following the Main Turbine Trip, a small amount of fuel clad damage occurs and radiation levels begin to slowly increase. Alternate

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control rod insertion systems (ARI) successfully insert all control rods and the reactor is shutdown.

- EVENT 6** At ~ 17:31, when the Isolation Condensers initiate (an expected occurrence following a Main Turbine Trip) a small steam leak on the steam supply piping to the "A" Isolation Condenser in the reactor building begins. Radiation levels in the reactor building begin to increase as a result of the fuel damage and steam leak.
- EVENT 7** At ~ 17:32, when the steam leak on the steam supply piping to the "A" Isolation Condenser is recognized, operators attempt to isolate the steam leak. Operator actions to close the "A" Isolation Condenser Steam Supply Isolation Valves are unsuccessful when both the V-14-30 and V-14-31 isolation valves begin to close but become mechanically bound and seize in the open position. The steam leak into the reactor building continues.
- EVENT 8** At ~ 17:35 the Inboard Main Steam Isolation Valves (MSIVs) unexpectedly close due to the loss of pneumatic control nitrogen pressure.
- EVENT 9** At ~ 17:40, a small non-routine radiological release is observed on plant main stack low range (RAGEMS) radiation monitoring equipment as a result of the fuel damage and unisolable steam leak into the reactor building. Due to the increasing radiation levels in the reactor building, the normal reactor building ventilation equipment automatically shuts down as designed and the known to be degraded, inoperable but available, "B" SBGTS automatically starts and processes the radioactive atmosphere from the reactor building, through the (degraded) SBGTS filter, and out to the environment via the plant main off-gas stack. The non-routine radioactive release continues.
- EVENT 10** At ~ 18:45, an electrical fault occurs in the Oyster Creek Switchyard which results in the deenergization of the 4160 VAC Bus "B" which subsequently results in the loss of the "B" and "C" Condensate and Feedwater pumps.
- EVENT 11** At ~ 18:55, a small Loss of Coolant Accident (LOCA) on the "B" Reactor Recirculation loop piping inside the drywell begins and reactor water level begins to slowly lower. Reactor water level lowers to ~ -20 Top of Active Fuel (TAF) warranting an emergency depressurization of the reactor.
- EVENT 12** At ~ 19:00, control room operators manually open reactor vessel pressure relief valves, and successfully depressurize the reactor vessel to allow Core Spray System 2 and the "A" Condensate Pump to inject water and reflood and cool the core.
- EVENT 13** At ~ 19:10, a larger elevated radioactive release begins due to increased fuel cladding failure caused by the LOCA and brief partial uncovering of the reactor core. The elevated radioactive release pathway is from the reactor vessel, out

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through the existing "A" isolation condenser steam line leak and into the reactor building, through the degraded SBT system and out to the environment as a monitored elevated radioactive release via the plant main off-gas stack.

- EVENT 14** At ~ < 19:10, the Station Emergency Director is expected to declare a General Emergency, based on the LOSS of all three fission product barriers, with a radioactive release in progress and will develop and approve a plant based Protective Action Recommendation (PAR) for the State of New Jersey.
- EVENT 15** At~ 19:15, plant operators recognize increasing drywell pressure and radiation due to the "B" Reactor Recirculation loop leak inside the drywell and place the Drywell Spray and Torus Cooling systems in service for containment pressure and temperature control.
- EVENT 16** At ~ <19:25, the Station Emergency Director and Corporate Emergency Director develop, approve, and deliver the following PAR to state of New Jersey officials; EVACUATE the Emergency Planning Zone (EPZ) for 5 miles full circle, and from 5 to 10 miles downwind in sectors SW, SSW, S, and SHELTER all areas of the EPZ not evacuated. KI is recommended by the utility.
- EVENT 17** At ~ 19:40, power to the 4160 Bus "B" is restored.
- EVENT 18** At ~ 19:50, the non-routine radiological release is observed to be lowering slowly as a result of reflooding and depressurizing the reactor vessel to reduce the driving head for the source term. The non-routine radiological release continues until exercise termination.
- EVENT 19** At 20:45, a wind shift occurs and is recognized requiring the development, approval, and issuance of a revised PAR to now include an additional affected downwind sector to EVACUATE: SSE.
- EVENT 20** At ~< 21:00, the Station Emergency Director and Corporate Emergency Director develop, approve, and deliver the revised PAR to state of New Jersey officials.
- EVENT 21** At 21:30, terminate the exercise.