



FEDERAL EMERGENCY MANAGEMENT AGENCY

Region II

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26 Federal Plaza, Room 1337
New York, New York 10278-0002

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

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Dear Mr. Miller:

Please find enclosed a copy of the final exercise report for the April 11, 2000, Full-Participation Plume Exposure Pathway exercise of the offsite radiological emergency response plans specific to the Salem / Hope Creek Nuclear Power Station.

The State of New Jersey and local emergency response organizations successfully demonstrated their capabilities to implement the New Jersey Radiological Emergency Response Plan and procedures in this exercise, and in related Out-Of-Sequence activities. There were no Deficiencies and three Areas Requiring Corrective Action (ARCAs) identified in this exercise. The three ARCAs have been corrected and were successfully demonstrated on March 20, 2001 during the annual State exercise for this site.

The State plans and preparedness are adequate to: protect the health and safety of the public living in the vicinity of the Salem / Hope Creek nuclear generating station; and provide reasonable assurance that appropriate measures can be taken in the event of a radiological emergency.

Please contact Robert F. Reynolds at 212-225-7204, if there are any questions regarding this matter.

Sincerely,


Joseph Picciano
Acting Regional Director



Exercise Report

SALEM/HOPE CREEK NUCLEAR GENERATING STATION

Licensee: Public Service Electric and Gas Company

Exercise Date: April 11, 2000

Report Date: June 27, 2001

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

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I. EXECUTIVE SUMMARY

On April 11, 2000 an exercise was conducted in the Plume Exposure Pathway, emergency-planning zone (EPZ) around the Salem/Hope Creek Nuclear Generating Station. 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 and procedures. This was a joint exercise with FEMA Region III and the State of Delaware. This report addresses the results of the exercise in New Jersey. The Delaware portion of the joint exercise is discussed in a separate report prepared by FEMA Region III.

The most recent exercises at this site was conducted on March 3, 1998 (Plume) and May 5-7, 1998 (Ingestion). The qualifying emergency preparedness exercise was conducted on April 8, 1981.

FEMA wishes to acknowledge the efforts of the many individuals in New Jersey, and in particular in Salem County, Cumberland County, Lower Alloways Creek, Pennsville, Salem City, and Greenwich who participated in this exercise.

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

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

Salem County EV-2 Interviews and Bus Run	March 22, 2000
Salem County Congregate Care Center	February 23, 2000
State Access Control Point	February 24, 2000
Salem County General Population Bus Run	March 22, 2000
Salem County Reception Center	May 3, 2000
Salem County Medical Services Drill	April 27, 2000
Cumberland County EV-2 Interviews and Bus Run	March 22, 2000
Cumberland County Congregate Care Center	February 23, 2000
Cumberland County Emergency Worker Decontamination Center	May 11, 2000

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

The three (3) Areas Requiring Corrective Action (ARCA) were corrected in Out-of-Sequence demonstrations on March 20, 2001 in accordance with new policies from the REP Program Strategic Review:

Initiative 1.3: Negotiate Use of Out-of-Sequence Demonstrations, adopted October 1, 1999;

Initiative 1.4: Give Direct Feedback, adopted October 1, 1999;

Initiative 1.5: Correct Issues Immediately, adopted March 31, 2000.

In addition three prior unresolved ARCAs were satisfactorily addressed.

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 radiological emergency response plans (RERP) and procedures developed by State and local governments;
- Determining whether such plans and procedures can be implemented on the basis of observation and evaluation of exercises of the plans and procedures conducted by State and local governments;
- Responding to requests by the 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.

Formal submission of the RERPs for the Salem/Hope Creek Nuclear Generating Station to FEMA Region II by the State of New Jersey and involved local jurisdictions occurred on February 3, 1982. Formal approval of the RERPs, under 44 CFR 350, by FEMA Headquarters was August 3, 1998.

A REP exercise was conducted on April 11, 2000 by FEMA Region II to assess the capabilities of State and local emergency preparedness organizations in implementing their RERPs and procedures to protect the public health and safety during a radiological emergency involving the Salem/Hope Creek Nuclear Generating Station. The exercise was staged for the Hope Creek reactor at the Salem/Hope Creek site. 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 evaluation team, with final determinations made by the FEMA Region II RAC Chairperson, and approved by the Regional Director.

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

- NUREG-0654/FEMA-REP-1, Rev. 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," November 1980;
- FEMA-REP-14, "Radiological Emergency Preparedness Exercise Manual," September 1991; and
- FEMA-REP-15, "Radiological Emergency Preparedness Exercise Evaluation Methodology", September 1991.

Section III of this report, entitled "Exercise Overview," presents basic information and data relevant to the exercise. This section of the report contains a description of the plume pathway EPZ, 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 April 11, 2000 exercise to test the offsite emergency response capabilities in the area surrounding the Salem/Hope Creek Nuclear 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.

A. Plume Emergency Planning Zone Description

1. Site Vicinity Description

There are two nuclear generating stations (three units) located on Artificial Island. The nuclear generating stations are Salem Nuclear Generating Station (SNGS) Units 1 and 2, and the Hope Creek Nuclear Generating Station (HCNGS). The stations are adjacent to each other and located on the southern tip of the Artificial Island in Lower Alloways Creek Township, Salem County, New Jersey. The two stations are owned and operated by the Public Service Electric & Gas Company (PSE&G), located at 80 Park Plaza, Newark, New Jersey.

The Artificial Island (actually an artificial peninsula) projects from the eastern shore about one-third of the way across the Delaware River, which has a width of about two and one-half miles at this location. The stations are roughly midway between Wilmington and Dover, Delaware, which are approximately 20 miles north and south of the site, respectively. Philadelphia is about 32 miles north-northeast of the site and Salem is about seven and one-half miles north-northeast of the site.

There are no major highways or railroads within seven miles of the site. The only road access is via the PSE&G road connecting with an existing secondary road three miles to the east of the site. There is also a waterborne access by way of the intercoastal waterway channel.

The site is situated on the low-lying coastal plain in New Jersey. The region features extensive marsh and meadowlands. Most of the land within three miles of the site is undeveloped, being made up of tidal marshes or river water. The nearest permanent resident on the New Jersey shore is approximately three miles east of the area. Most of the land within the five counties surrounding the area is undeveloped (48 percent) or is used for agriculture (42 percent). Developed urban areas constitute about 10 percent of the available land. Major farm products within the 25-mile radius include vegetables, poultry, dairy products, and field crops.

The net tidal flow is estimated at 400,000 cubic feet/second, which produces a relatively high current velocity in the station vicinity. The water of the Delaware River at Artificial Island, and for some 25 miles upstream, is brackish. Therefore, the water is basically used by industry for cooling applications and not for domestic water supply in this region. On the New Jersey side of the Delaware River there are eight towns within the 25-mile radius of the site. All have public water supply. Salem City is the only municipality, which obtains water from surface sources (Alloways Creek, about eight miles SE of the area). Nearly all the water supply for private use is also obtained from wells, most of which are two inches in diameter and more than 75' deep. There are no non-productive wells close to the site, and the nearest residences (summer cottages) are about three miles away.

2. Governments Within the 10-Mile Emergency Planning Zone (EPZ)

The area within ten miles of the Artificial Island site encompasses small portions of two states:

New Jersey and Delaware

The State of Delaware has its own Radiological Emergency Response Plan in case of a radiological emergency at the Artificial Island site.

The New Jersey portion of the plume exposure EPZ is located within two (2) counties and eight (8) municipalities:

Salem County

Elsinboro Township*
 Lower Alloways Creek Township
 Mannington Township*
 Quinton Township*
 Salem City
 Pennsville Township

Cumberland County

Greenwich Township
 Stow Creek Township*

The New Jersey portion of the plume exposure EPZ is inhabited by approximately 20, 703 people with the following breakdown by county:

Salem County	19,685
Cumberland County	<u>1,018</u>
Total	20,703

* Municipality did not participate in exercise as per extent of play agreement.

B. Exercise Participants

The following agencies, organizations, and units of government participated in the Salem/Hope Creek Nuclear Generating Station exercise on April 11, 2000.

STATE OF NEW JERSEY

New Jersey State Agencies and Organizations -

Governor's Office
New Jersey State Police
New Jersey Office of Emergency Management (NJOEM)
New Jersey Department of Environmental Protection and Energy
New Jersey Bureau of Nuclear Engineering (NJBNE)
New Jersey Bureau of Communication and Support Service
New Jersey Bureau of Radiological Health
New Jersey Department of Health
New Jersey Department of Transportation
New Jersey Department of Education
New Jersey Department of Agriculture
Board of Public Utilities
Department of Law & Public Safety
Department of Military & Veterans Affairs
New Jersey Transit
Office of Attorney General
National Guard

RISK JURISDICTIONS - COUNTIES

SALEM COUNTY

County Agencies and Organizations -

Salem County Freeholders
Salem County Office of Emergency Management
Salem County Road & Highways
Salem County Schools
Salem County Engineer
Salem County Fire Departments
Salem County Police Departments
Salem County Department of Agriculture
Salem County Department of Health
Salem County Department of Building and Maintenance

CUMBERLAND COUNTY

County Agencies and Organizations -

Cumberland County Emergency Management
Cumberland County Board of Freeholders
Cumberland County Fire Police Departments
Cumberland County Fire Departments
Cumberland County Department of Public Works
Cumberland County Health Department
Cumberland County Sheriff Department
Cumberland County Superintendent of Schools
Cumberland County Department of Agriculture
Cumberland County Prosecutor
Cumberland County Department of Nursing
Cumberland County Human Resources
Cumberland County 911 Dispatch

RISK JURISDICTIONS – MUNICIPALITIES

Risk Municipal Agencies and Organizations -

Pennsville Mayor
Pennsville EMC
Pennsville Police Department
Pennsville Fire Department
Pennsville Public Works
Salem City Council
Salem City EMC
Salem City Police Department
Salem City Fire Department
Salem City Public Works
Salem City EMS
Salem City Public Information
Lower Alloways Creek Legislative Committee
Lower Alloways Creek Emergency Management Agency
Lower Alloways Creek Police Department
Lower Alloways Creek Fire and Rescue Company
Lower Alloways Creek EMS and Rescue
Greenwich Office of Emergency Management
Greenwich Fire Police

FEDERAL AGENCIES

Nuclear Regulatory Commission
United States Coast Guard

PRIVATE and VOLUNTEER ORGANIZATIONS

RACES

WBSS Emergency Alert System (EAS) Gateway Station

Salvation Army

American Red Cross

Penn State University

Hershey Medical Center

Civil Air Patrol

Williams Bus Company

NON-PARTICIPATING MUNICIPALITIES (per Extent-of-Play)

Mannington

Quinton

Elsinboro

Stow Creek

UTILITY

PSE&G

C. Exercise Timeline

Table 1, on the following page(s), presents the time at which key events and activities occurred during the Salem/Hope Creek Nuclear Generating Station exercise on April 11, 2000. Also included are times notifications were made to the participating jurisdictions/functional entities.

Table 1. Exercise Timeline

April 11, 2000 - Salem/Hope Creek Nuclear Generating Station

Emergency Classification Level or Event	Time Utility Declared	Time That Notification Was Received or Action Was Taken							
		SEOC	EOF	BNE-FCP	ENC	SCEOC	CCEOC	Municipals	FMTs
Unusual Event	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alert	1509	1515	1509	NA	1532	1532	1535	LAC 1523 PV 1550 SC 1550 GW 1600	#A 1535 #C 1537
Site Area Emergency	1703	1712	1714	1720	1715	1720	1727	LAC 1713* PV 1745** SC ----- GW 1729	1723
General Emergency	1832	1843	1843	1855	1845	1850	1850	LAC 1855 PV 1905 SC 1855 GW 1901	1857
Simulated Rad. Release Started	1830	1835	1834	1834	1845	1850	1850	LAC 1855* PV 2018 SC 2018* GW 1901	1838
Simulated Rad. Release Terminated	NA	NA	NA	NA	NA	NA	NA	NA	NA
Facility Declared Operational		1605	1652	1644	1635	1618	1725	LAC 1700 PV 1626 SC 1615 GW 1615	1700
Governor's Declaration of State of Emergency		1936	1919	1930	1936	1948	1955	LAC 2001 PV 2002 SC 2000 GW NO	1931`
Exercise Terminated		2135	1919	2140	2155	2137	2135	LAC NA PV 2140 SC 2140 GW NO	2143
1st Protective Action Decision 1727 Precautionary – No PADs EAS #1		1727	NA	NA	1740	1730	1735	LAC 1735 PV 1730 SC 1735 GW 1732	NA
1st Siren Activation		1735	NA	NA	1735	1735	1735	1735	NA
1st EAS Message Broadcast		1740	NA	NA	1740	1740	1740	1740	1740
2nd Protective Action Decision EAS #2 – Evacuate ERPAs: 1, 2, 6, 7 & 8		1917	NA	NA	1926	1921	1924	LAC 1928 PV 1922 SC 1927 GW 1924	NA
2nd Siren Activation		1925	NA	NA	1925	1925	1925	1925	NA
2nd EAS Message Broadcast		1930	NA	NA	1930	1930	1930	1930	1930

LEGEND: S - Support Jurisdiction D - Decision Making Jurisdiction A - Activating Jurisdiction N/A - Not Applicable N/O - Not Observed

*Rec'd from Utility Not from SCEOC

** Rec'd from SCEOC after formal request

Table 1. Exercise Timeline

April 11, 2000 - Salem/Hope Creek Nuclear Generating Station

Emergency Classification Level or Event	Time Utility Declared	Time That Notification Was Received or Action Was Taken							
		SEOC	EOF	BNE-FCP	ENC	SCEOC	CCEOC	Municipals	FMTs
KI Administration Decision: No Ingestion Necessary		1928	NA	NA	NA	NA	1940 (via Free-Play Inject)	NA	NA

LEGEND: S - Support Jurisdiction D - Decision Making Jurisdiction A - Activating Jurisdiction N/A - Not Applicable N/O - Not Observed

IV. EXERCISE EVALUATION AND RESULTS

Contained in this section are the results and findings of the evaluation of all New Jersey jurisdictions and functional entities, which participated in the April 11, 2000 exercise to test the offsite emergency response capabilities of State and local governments in the 10-mile EPZ, surrounding the Salem/Hope Creek Nuclear Generating Station.

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

A. Summary Results of Exercise Evaluation - Table 2

The matrix presented in Table 2, on the following page(s), presents the status of all exercise objectives from FEMA-REP-14, which was scheduled for demonstration during this exercise by all participating jurisdictions and functional entities. Exercise objectives are listed by number and the demonstration status of those objectives is indicated by the use of the following letters:

- M - Met (No Deficiency or ARCAs assessed and no unresolved ARCAs from prior exercises)
- D - Deficiency assessed
- A - ARCA(s) assessed or unresolved ARCA(s) from prior exercise(s)
- N - Not Demonstrated (Reason explained in Subsection B)

Table 2. Summary Results of Exercise Evaluation

April 11, 2000 - Salem/Hope Creek Nuclear Generating Station

JURISDICTION/FUNCTIONAL ENTITY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
State of New Jersey																															
State Emergency Operations Center	M	M	M	M					M	M	M		M	M																	
Dose Assessment (BNE-EOF)	M	M	M	M			M							M																	
Field Team Coordination (BNE-FCP)	M	M	M	M	M	M		M						M																	
State Radiological Field Monitoring Teams				M	M	M		M						M																	
Emergency News Center	M	M		M	M								M	M																	
EAS - Gateway Station				M						M	M																				
Access Control Point				M	M												M														
Salem County																															
Emergency Operations Center	M	M	A	M	M					M				M																	
School Interviews & Bus Run (EV-2 Questionnaire)				M	M											M															
Congregate Care Center		M		M																											
Medical Drill																															
General Population Bus Run				M	M										M																
Reception Center		M		M	M																										
Cumberland County																															
Emergency Operations Center	M	M	M	M	M									M																	
School Interviews & Bus Run (EV-2 Questionnaire)				M	M											M															
Congregate Care Center		M		M																											
Emergency Worker Decontamination Center		M		M	M																										
Salem County Municipalities																															
Lower Alloways Creek EOC	M	M	A	M	A										M																
Pennsville EOC	M	M	M	M	M					M																					
Salem City EOC	M	M	M	M	M					M																					
Cumberland County Municipalities																															
Greenwich EOC	M	M	M	M	M					M					M																

LEGEND: M = Met (No Deficiency or ARCAs assessed; A = ARCA(s) assessed at exercise and corrected on March 20, 2001.
 N = Not Demonstrated; D = Deficiency(ies) assessed; Blank = Not scheduled for demonstration

B. Status of Jurisdictions Evaluated

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

- **Met** - Listing of the demonstrated exercise objectives under which no Deficiencies or ARCAs were assessed during this exercise and under which no ARCAs assessed during prior exercises remain unresolved.
- **Deficiency** - Listing of the demonstrated exercise objectives under which one or more Deficiencies were assessed during this exercise. Included is a description of each Deficiency and recommended corrective actions.
- **Area Requiring Corrective Actions** - Listing of the demonstrated exercise objectives under which one or more ARCAs were assessed during the current exercise or ARCAs assessed during prior exercises remain unresolved. Included is a description of the ARCAs assessed during this exercise and the recommended corrective action to be demonstrated before or during the next biennial exercise.
- **Not Demonstrated** - Listing of the exercise objectives which were not demonstrated as scheduled during this exercise and the reason they were not demonstrated.
- **Prior ARCAs - Resolved** - Descriptions of ARCAs assessed during previous exercises, which were resolved in this exercise, and the corrective actions demonstrated.
- **Prior ARCAs - Unresolved** - Descriptions of ARCAs assessed during prior exercises, which were not resolved in this exercise. Included is the reason the ARCA remains unresolved and recommended corrective actions to be demonstrated before or during the next biennial exercise.

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

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

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

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

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

- **Plant Site Identifier** - A two-digit number corresponding to the Utility Billable Plant Site Codes.
- **Exercise Year** - The last two digits of the year the exercise was conducted.
- **Objective Number** - A two-digit number corresponding to the objective numbers in FEMA-REP-14.
- **Issue Classification Identifier** - (D = Deficiency, A = ARCA). Only Deficiencies and ARCAs are included in exercise reports.
- **Exercise Issue Identification Number** - A separate two (or three) digit indexing number assigned to each issue identified in the exercise.

1 NEW JERSEY STATE

1.1 State Emergency Operations Center (SEOC)

- a. **MET:** 1, 2, 3, 4, 9, 10, 11, 13 & 14
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** None
- d. **NOT DEMONSTRATED:** None
- e. **PRIOR ARCAs - RESOLVED:**

Issue No.: 02-96-14-A-02

Description: The decision to administer KI to emergency workers was made at the SEOC by the Deputy State Director at 2105 after discussion with representatives of the Department of Health and NJBNE. This decision clearly indicated that emergency workers were to ingest KI as a protective action. The message sent to the Cumberland County EOC stated only that KI was to be issued, not authorized to ingest. No authorization to ingest KI was sent as an order. This caused confusion and KI was not ingested during the exercise in Cumberland County (NUREG-0654, J.10.e).

Recommendation: Protective action information sent to the Counties should be accurate and complete. The EOC staff should perform more thorough and detailed review of message contents.

Corrective Actions Demonstrated: A State Controller injected a message at the SEOC to simulate ingestion of KI in Cumberland County. The Cumberland County EOC was contacted at 1939 and was advised to have emergency workers ingest KI (simulated). Additionally, all operations officers assigned to the SEOC had received training regarding the proper notification procedures and wording to be used when advising the counties to ingest KI. The wording now used in this notification eliminates any potential confusion. The procedures used by the operations officers have been revised with strong emphasis on the word "ingest."

Issue No.: 02-98-11-A-01

Description: The first message, EBS#1, advised the population in ERPAs 1, 2, 3, 4, 5 and 8 to evacuate all sectors, 0-5 miles. However, the broadcast of EBS#1 was aired (simulated) at 1145, four-minutes over the 15-minute time requirement. Also, three pages, consisting of a cover sheet, evacuation route descriptions plus two reception center locations, and the Alert and Notification Siren and EBS message form, was telexed to the Radio Station without telephone call notification. At 1157, Radio Station personnel discovered this unannounced telex in their machine, and contacted the New Jersey State EOC for instructions on what action that they should take (NUREG-0654, E. 7).

Recommendation: New Jersey State EOC staff in the PIO Room must be more diligent during the procedure followed to telex information to the Radio Station. Cover sheets should be carefully proofread, and steps should be taken to insure that complete messages are telexed to the Radio Station. Staff should take additional training in disseminating information.

Corrective Action Demonstrated: The PIO at the New Jersey OEM, assisted by four staff members (EAS radio station and rumor control coordinators and two clerical staff), successfully demonstrated the capability to formulate and disseminate accurate information and instructions to the public within 15 minutes. Two EAS messages were developed, approved through the decision management chain in accordance with the New Jersey State Plan, and faxed to radio station WBBS for broadcast at 1740 and 1930 at the SAE and GE ECL's). Verification that the faxed EAS messages had been received by radio station WBBS corrects previous ARCA 02-98-11-A-01. Also, the content of the EAS messages was verified with the EAS station by reading portions of the pages that had been faxed for the broadcast. Logs of the messages broadcast to the public were maintained by the PIO, and copies of the messages were retained by the PIO at the New Jersey SEOC.

Issue: 02-98-13-A-02

Description: The Rumor Control staff was not able to provide prompt and accurate information to callers. The "EMITS" internal events log system along with facsimile transmissions of Press Releases and EBS messages are the primary channels for the Rumor Control staff to access current and accurate information on the event. However, the Rumor Control staff did not actively and consistently monitor the "EMITS" system or facsimiles to attain this information. This caused the dissemination of inaccurate information to callers. At 1125, 23-minutes after the escalation of the Emergency Classification Level (ECL) from an Alert status to

a General Emergency, a call was placed by a FEMA evaluator to the Rumor Control staff. The operator responded to the call and provided inaccurate information including an "Alert Status." The FEMA evaluator placed a second call at 1137, 34-minutes after the ECL change and the same inaccurate information was provided (NUREG-0654, G. 4. c).

Recommendation: It is recommended that the Rumor Control staff be notified of any ECL changes, or significant events, by the public address system installed at the State EOC. Also, active and consistent monitoring of ECL status should be stressed to staff. The Rumor Control Coordinator should provide periodic briefings to the staff on all important event information.

Corrective Action Demonstrated: The capability to provide prompt and accurate information to callers was clearly demonstrated by all staff members assigned to the Rumor Control function at the SEOC. This staff had received additional training in maintaining up-to-date information regarding the ongoing radiological emergency. In addition, the staff were advised of the need to scroll the EMITS message log system to keep abreast of changing conditions.

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

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

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

b. **DEFICIENCY:** None

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

d. **NOT DEMONSTRATED:** None

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

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

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

- a. **MET:** 1, 2, 3, 4, 5, 6, 8 & 14
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** None
- d. **NOT DEMONSTRATED:** None
- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

1.4 State Radiological Field Monitoring Teams (FMT)

- a. **MET:** 4, 5, 6, 8 & 14
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** None
- d. **NOT DEMONSTRATED:** None
- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

1.5 Emergency New Center (ENC)

- a. **MET:** 1, 2, 4, 5, 12 & 13
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** None
- d. **NOT DEMONSTRATED:** None
- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

1.6 Emergency Alert Station - Gateway Radio Station WBSS

- a. MET: 4, 10 & 11**
- b. DEFICIENCY: None**
- c. AREAS REQUIRING CORRECTIVE ACTION: None**
- d. NOT DEMONSTRATED: None**
- e. PRIOR ARCAs - RESOLVED: None**
- f. PRIOR ARCAs - UNRESOLVED: None**

1.7 State Access Control Point (Demonstrated out-of-sequence on February 24, 2000)

- a. MET: 4, 5 & 17**
- b. DEFICIENCY: None**
- c. AREAS REQUIRING CORRECTIVE ACTION: None**
- d. NOT DEMONSTRATED: None**
- e. PRIOR ARCAs - RESOLVED: None**
- f. PRIOR ARCAs - UNRESOLVED: None**

2 RISK JURISDICTIONS

2.1 COUNTIES

2.1.1 Salem County

2.1.1.1 Salem County Emergency Operations Center (SCEOC)

- a. **MET:** 1, 2, 4, 5, 10 & 14
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:**

Issue: 02-00-03-A-01

Description: The SCEOC is responsible for providing timely information to the municipal EOCs in the County. The municipal EOCs were not always informed of updates and changes in ECLs and other important emergency information as required. (NUREG-0654, A.1, 2) For example:

1. Lower Alloways Creek and Salem City never received the SAE declaration from the SCEOC., Pennsville and Salem City did not receive the notification of the Site Area Emergency in a timely manor upon its receipt at the SCEOC. After receiving notification of the first Alert and Notification sequence from the SCEOC at 1730, Pennsville contacted the SCEOC to determine why they were still in the Alert ECL. The County informed them that the SAE had been declared.
2. When the SCEOC transmitted the update to a GE ECL to the municipal EOCs information on the radiological *release in progress* was not included.

Recommendation: Officials at the SCEOC should provide timely emergency information to the municipal EOCs as required.

Corrective Action Demonstrated: The Salem County EOC demonstrated the ability to send emergency information in a timely manner to the EPZ municipalities of Lower Alloways Creek, Pennsville and Salem City in an Out Of Sequence demonstration on March 20, 2001, during the annual State exercise for Salem / Hope Creek. In addition, the County Message Center staff, including County 911 Dispatchers, was trained to verify receipt of all messages sent to Municipal EOCs, as required by the Salem County Plan.

d. NOT DEMONSTRATED: None

e. PRIOR ARCAs - RESOLVED: None

f. PRIOR ARCAs - UNRESOLVED: None

2.1.1.2 Salem County School Interviews and Bus Run
(Demonstrated out-of-sequence on March 22, 2000)

a. MET: 4, 5 & 16

b. DEFICIENCY: None

c. AREAS REQUIRING CORRECTIVE ACTION: None

d. NOT DEMONSTRATED: None

e. PRIOR ARCAs - RESOLVED: None

f. PRIOR ARCAs - UNRESOLVED: None

2.1.1.3 Salem County Congregate Care Center
(Demonstrated out-of-sequence on February 23, 2000)

a. MET: 2, 4 & 19

b. DEFICIENCY: None

c. AREAS REQUIRING CORRECTIVE ACTION: None

d. NOT DEMONSTRATED: None

- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

2.1.1.4 Salem County Medical Drill
(Demonstrated out-of-sequence on April 27, 2000)

- a. **MET:** 20 & 21
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** None
- d. **NOT DEMONSTRATED:** None
- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

2.1.1.5 Salem County General Population Bus Run
(Demonstrated out-of-sequence on March 22, 2000)

- a. **MET:** 4, 5 & 15
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** None
- d. **NOT DEMONSTRATED:** None
- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

2.1.1.6 Salem County Reception Center

(Demonstrated out-of-sequence on May 2, 2000)

- a. **MET:** 2, 4, 5 & 18
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** None
- d. **NOT DEMONSTRATED:** None
- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

2.1.2 Cumberland County

2.1.2.1 Cumberland County Emergency Operations Center (CCEOC)

- a. **MET:** 1, 2, 3, 4, 5 & 14
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** None
- d. **NOT DEMONSTRATED:** None
- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

2.1.2.2 Cumberland County School Interviews and Bus Run
(Demonstrated out-of-sequence on March 22, 2000)

- a. **MET:** 4, 5 & 16
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** None
- d. **NOT DEMONSTRATED:** None
- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

2.1.2.3 Cumberland County Congregate Care Center
(Demonstrated out-of-sequence on February 23, 2000)

- a. **MET:** 2, 4 & 19
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** None
- d. **NOT DEMONSTRATED:** None
- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

**2.1.2.4 Cumberland County Emergency Worker
Decontamination Center** (Demonstrated out-of-sequence on
May 11, 2000)

- a. **MET:** 2, 4, 5 & 22
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** None
- d. **NOT DEMONSTRATED:** None

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

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

2.2 MUNICIPAL EMERGENCY OPERATIONS CENTERS

2.2.1 Salem County Municipalities

2.2.1.1 Lower Alloways Creek Emergency Operations Center

a. **MET:** 1, 2, 4, & 15

b. **DEFICIENCY:** None

c. **AREAS REQUIRING CORRECTIVE ACTION:**

Issue: 02-00-03-A-02

Description: The management of the Lower Alloways Creek (LAC) Township Emergency Operations Center (EOC) did not conduct staff meetings and briefings, and did not solicit information on the progress of the Township's emergency response from some EOC staff members, such as the radiological officer. As required by Section F.3 of Appendix 1.2 to the State of New Jersey RERP. (NUREG-0654, A.1.d)

Recommendations: The management of the Lower Alloways Creek (LAC) Township should conduct periodic staff meetings and briefings and should solicit information from the EOC staff on the progress of the emergency response

Corrective Action Demonstrated: The Lower Alloways Creek Deputy Emergency Management Coordinator successfully demonstrated the ability to provide direction and control at the LAC EOC, in an Out Of Sequence demonstration on March 20, 2001, during the annual State exercise for Salem / Hope Creek. The Deputy Emergency Management Coordinator was in charge of EOC operations. He issued instructions to the staff, kept the staff updated with thorough briefings, retained messages and logs, clarified authorities, and communicated with outside agencies. No

conflicts arose during this exercise; the Deputy Coordinator provided guidance when needed. Decision-making was clear and concise and staff provided input. The LAC EOC Deputy Coordinator and staff followed its Plans and SOPs for this objective.

Issue: 02-00-05-A-03

Description: The radiological officer at the Lower Alloways Creek EOC gave a demonstration and a briefing on dosimetry that contained only a fraction of the information on the State of New Jersey's Emergency Worker Vital Information Checklist. He incorrectly stated that the exposure limit for LAC emergency workers was the lifesaving activities limit of 25 R instead of the normal activities limit of 1.25 R. To the contrary, New Jersey Department of Health SOP 603 requires Department of Health authorization for emergency worker exposures in excess of 1.25 Rem. He also incorrectly advised that thermoluminescent dosimeters (TLDs) could be carried in a wallet and that the state of New Jersey no longer issues KI to emergency workers. Emergency workers entering the field would have to rely on the radiological officer's briefing for radiological information. He did not distribute the Emergency Worker Vital Information Checklist (Green Card). (NUREG-0654-K4)

Recommendations: The radiological officer at the LAC Township EOC should receive further training in radiological exposure control. Furthermore, the Emergency Worker Vital Information Checklist Green Card should be distributed to each emergency worker receiving a dosimetry kit and the radiological officer should cover all the information on the green card in briefing emergency workers.

Corrective Action Demonstrated: The Lower Alloways Creek Radiological Officer successfully demonstrated the ability to conduct emergency worker exposure briefings in an Out Of Sequence demonstration on March 20, 2001, during the annual State exercise for Salem / Hope Creek. In addition, the Radiological Officer issued and completed documentation in accordance with the Plan and SOPs. The Federal Evaluator also verified that the Radiological Officer has received additional training on this subject.

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

2.2.1.2 Pennsville Emergency Operations Center

- a. **MET:** 1, 2, 3, 4, 5 & 10
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** None
- d. **NOT DEMONSTRATED:** None
- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

2.2.1.3 Salem City Emergency Operations Center

- a. **MET:** 1, 2, 3, 4, 5 & 10
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** None
- d. **NOT DEMONSTRATED:** None
- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

2.2.2 Cumberland County Municipalities

2.2.2.1 Greenwich Emergency Operations Center

- a. MET: 1, 2, 3, 4, 5, 10 & 15**
- 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 that were used in this report.

ANL	Argonne National Laboratory
ARC	American Red Cross
ARCA	Area Requiring Corrective Action
ARI	Alternate Rod Insertion
ATWS	Anticipated Transient Without Scram
BNE	New Jersey Bureau of Nuclear Engineering
BNE-FCP	New Jersey Bureau of Nuclear Engineering-Forward Command Post
CCC	Congregate Care Center
CCEOC	Cumberland County Emergency Operations Center
CCM	Cumberland County Municipalities
CCFA	Cumberland County Field Activities
CDE	Committed Dose Equivalent
CD-V	Civil Defense - Victoreen
CFR	Code of Federal Regulations
CO ₂	Carbon Dioxide
CRD	Control Rod Drive
DAPA	Drywell Atmosphere Post Accident
DHHS	U.S. Department of Health and Human Services
DOC	U.S. Department of Commerce
DOE	U.S. Department of Energy
DOI	U.S. Department of the Interior
DOT	U.S. Department of Transportation
DRD	Direct Reading Dosimeter
EAS	Emergency Alert System
EC	Emergency Coordinator
ECCS	Emergency Core Cooling System
ECG	Event Classification Guide
ECL	Emergency Classification Level
EDO	Emergency Duty Officer
EEM	Exercise Evaluation Methodology
EMC	Emergency Management Coordinator

ENC	Emergency News Center
EOC	Emergency Operations Center
EOF	Emergency Operations Facility
EPA	U.S. Environmental Protection Agency
EPZ	Emergency Planning Zone
ERM	Emergency Response Manager
FAA	Federal Aviation Agency
FAS	Fire Alarm Station
FCC	Federal Communications Commission
FCP	Forward Command Post
FDA	U.S. Food and Drug Administration
FEMA	Federal Emergency Management Agency
FR	Federal Register
FRVS	Filtration Recirculation Ventilation System
ft/min	feet per minute
ft ³ /min	cubic feet per minute
GE	General Emergency
GM	Guidance Memorandum
H ₂	Hydrogen
HCNGS	Hope Creek Nuclear Generating Station
KI	Potassium Iodide
mR	milliRoentgen
mR/h	milliRoentgen per hour
MSIV	Main Steam Isolation Valve
NJBNE	New Jersey Bureau of Nuclear Engineering
NJOEM	New Jersey Office of Emergency Management
NOAA	National Oceanic and Atmospheric Administration
NOUE	Notification of Unusual Event
NRC	U.S. Nuclear Regulatory Commission
NSS	Nuclear Shift Supervisor
NUREG-0654	NUREG-0654/FEMA-REP-1, Rev. 1, " <i>Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants</i> ," November 1980
NWS	National Weather Service
OEM	Office of Emergency Management

ORO	Offsite Response Organization
OSC	Operations Support Center
PAD	Protective Action Decision
PAG	Protective Action Guide
PAR	Protective Action Recommendation
PIO	Public Information Officer
POR	Point Of Review
PSIG	Pounds per square inch - gauge
PSE&G	Public Service Electric & Gas Company
R	Roentgen
RAC	Regional Assistance Committee
RACS	Reactor Auxiliary Cooling System
RACES	Radio Amateur Civil Emergency Service
REM	Roentgen Equivalent Man
REP	Radiological Emergency Preparedness
RERP	Radiological Emergency Response Plan
RHR	Residual Heat Removal
R/h	Roentgen(s) per hour
RO	Radiological Officer
RPS	Reactor Protection System
RPV	Reactor Pressure Valve
RSCS	Rod Sequence Control System
Rx	Reactor
SAE	Site Area Emergency
SCEOC	Salem County Emergency Operations Center
SCFA	Salem County Field Activities
SCM	Salem County Municipalities
SEOC	State Emergency Operations Center
SLC	Standby Liquid (Boron) Control
SNGS	Salem Nuclear Generating Station
SNSS	Senior Nuclear Shift Supervisor
SOP	Standard Operating Procedures
SRV	Safety Relief Valve
TDD	Telecommunications Device for the Deaf
TEDE	Total Effected Dose Equivalent
TLD	Thermoluminescent Dosimeter
TORUS	Hope Creek Suppression Pool
TSC	Technical Support Center

USCG
USDA

U.S. Coast Guard
U.S. Department of Agriculture

APPENDIX 2

EXERCISE EVALUATORS AND TEAM LEADERS

The following is a list of the personnel who evaluated the Salem/Hope Creek Nuclear Generating Station exercise on April 11, 2000. Evaluator Team Leaders are indicated by the letters "(TL)" after their names. The organization which each evaluator represents is indicated by the following abbreviations:

FEMA - Federal Emergency Management Agency
 NRC - Nuclear Regulatory
 USDA - U.S. Department of Agriculture
 DOT - U.S. Department of Transportation
 ANL - Argonne National Laboratory
 INEEL - Idaho National Engineering & Environmental Laboratory

<u>EVALUATION SITE</u>	<u>EVALUATOR</u>	<u>ORGANIZATION</u>
Exercise Oversight	R. Reynolds (RAC Chairperson)	FEMA
New Jersey State		
SEOC	R. Acerno (TL)	FEMA
SEOC	S. Thomas	FEMA
SEOC	B. Hasemann	FEMA
SEOC	T. Baldwin	ANL
EOF	B. Bores (TL)	NRC
EOF	B. Salmonson	INEEL
EOF	H. Berry	ANL
Bureau of Nuclear Engineering - FCP	F. Wilson	ANL
Bureau of Nuclear Engineering - FCP	G. Gibeault	INEEL
Field Monitoring Team	J. Staroba (TL)	ANL
Field Monitoring Team	C. Herzenberg	ANL
ENC	C. McCoy (TL)	ANL
ENC	B. Young	ANL
EAS Gateway Radio Station WBSS	S. Nelson	ANL
State Access Control Point [*]	T. Carroll	ANL

* Out-of-Sequence Demonstration

<u>EVALUATION SITE</u>	<u>EVALUATOR</u>	<u>ORGANIZATION</u>
Salem County		
SCEOC	B. Gasper (TL)	ANL
SCEOC	K. Reed	FEMA
SCEOC	A. Teotia	ANL
Salem Co. - School Interviews & Bus Run *	K. Reed	FEMA
Salem Co. - Congregate Care Center *	T. Carroll	ANL
	K. Reed	FEMA
Salem Co. - General Population Bus Run *	K. Reed	FEMA
Salem Co. - Reception Center *	T. Carroll	ANL
Salem Co. - Emergency Worker Decon *	T. Carroll	ANL
Salem Co. - Medical Drill*	T. Carroll	ANL
Salem County Municipal Emergency Operations Centers		
Lower Alloways Creek EOC	P. Kier (TL)	ANL
Pennsville EOC	R. Ohlsen	FEMA
Salem City EOC	L Thomas	USDA
	K. McCarroll	FEMA
Cumberland County		
CCEOC	R. Thomson (TL)	ANL
CCEOC	T. Carroll	ANL
CCEOC	D. Petta	DOT
CCEOC	S. Waters	FEMA
CC - School Interviews & Bus Run *	K. Reed	FEMA
CC - Congregate Care Center *	T. Carroll	ANL
	K. Reed	FEMA
Cumberland County Municipal Emergency Operations Centers		
Greenwich EOC	A. Davis	FEMA

* Out-of-Sequence Demonstration

APPENDIX 3

EXERCISE OBJECTIVES AND EXTENT-OF-PLAY AGREEMENT

This appendix lists the exercise objectives which were scheduled for demonstration in the Salem/Hope Creek Nuclear Generating Station exercise on April 11, 2000 and the extent-of-play agreement approved by FEMA Region II on April 7, 2000.

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

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

A. Exercise Objectives

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

OBJECTIVE 1: MOBILIZATION OF EMERGENCY PERSONNEL

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

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

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

OBJECTIVE 3: DIRECTION AND CONTROL

Demonstrate the capability to direct and control emergency operations.

OBJECTIVE 4: COMMUNICATIONS

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

OBJECTIVE 5: EMERGENCY WORKER EXPOSURE CONTROL

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

OBJECTIVE 6: FIELD RADIOLOGICAL MONITORING - AMBIENT RADIATION MONITORING

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

OBJECTIVE 7: PLUME DOSE PROJECTION

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

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

Demonstrate the appropriate use of equipment and procedures for the measurement of airborne radioiodine concentrations as low as 10^{-7} (0.000001) microcuries per cubic centimeter in the presence of noble gases and obtain samples of particulate activity in the airborne plume.

OBJECTIVE 9: PLUME PROTECTIVE ACTION DECISION MAKING

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

OBJECTIVE 10: ALERT AND NOTIFICATION

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

OBJECTIVE 11: PUBLIC INSTRUCTIONS AND EMERGENCY INFORMATION

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

OBJECTIVE 12: EMERGENCY INFORMATION - MEDIA

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

OBJECTIVE 13: EMERGENCY INFORMATION - RUMOR CONTROL

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

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

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

OBJECTIVE 15: IMPLEMENTATION OF PROTECTIVE ACTIONS - SPECIAL POPULATIONS

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

OBJECTIVE 16: IMPLEMENTATION OF PROTECTIVE ACTIONS - SCHOOLS

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

OBJECTIVE 17: TRAFFIC AND ACCESS CONTROL

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

OBJECTIVE 18: RECEPTION CENTER - MONITORING, DECONTAMINATION AND REGISTRATION

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

OBJECTIVE 19: CONGREGATE CARE

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

OBJECTIVE 20: MEDICAL SERVICES - TRANSPORTATION

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

OBJECTIVE 21: MEDICAL SERVICES - FACILITIES

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

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

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

B. Extent-of-Play Agreement

The extent-of-play agreement on the following pages was submitted by the State of New Jersey, and was approved by FEMA Region II on April 7, 2000 in preparation for the Salem/Hope Creek Nuclear Generating Station exercise on April 11, 2000. The extent-of-play agreement includes any significant modification or change in the level of demonstration of each exercise objective listed in Subsection A of this appendix.

2000 S/HC NBU PLUME EXERCISE April 11, 2000

GENERAL INFORMATION

EXERCISE DATE: April 11, 2000

TIME: 3:30 p.m. to 10:30 p.m. (approximately)

SCENARIO: There will be no need to emit detectable levels of iodine, as long as a discussion of the need to take KI ensues at the State EOC. The PAG does not need to be exceeded. Plant status will be contained in the scenario.

OUT OF SEQUENCE DEMONSTRATIONS: Whenever feasible, the NJOEM and FEMA will work together to conduct out-of-sequence exercise demonstrations which produce cost-savings without jeopardizing the intent of the exercise process or the health and safety of the public.

DRAFT EXTENT OF PLAY INFORMATION

OBJECTIVE 1: MOBILIZATION OF EMERGENCY PERSONNEL

NJ OEM and BNE radiological emergency response personnel live in various areas of the State. The artificiality of the exercise time line often hinders what may be determined to be a "timely" response. Organizations will respond 60-minutes following ALERT declaration. The NJBNE will show their mobilization techniques in the State RERP Plan which allows for timely activation of the agency.

LOCATIONS OBSERVED: STATE EOC, SCEOC, SCMEOCs, CCEOC, CCMEOCs, ENC, EOF and BNE-FCP

DATE: April 11, 2000

OBJECTIVE 2: FACILITIES-EQUIPMENT, DISPLAYS AND WORK ENVIRONMENT

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

LOCATIONS OBSERVED: STATE EOC, SCEOC, SCMEOCs, CCEOC, CCMEOCs, ENC, EOF AND BNE-FCP

DATE: April 11, 2000

OBJECTIVE 3: DIRECTION AND CONTROL

The staff of the New Jersey Office of Emergency Management (NJOEM), as well as other locations, will demonstrate the capability to direct and control emergency operations and perform all of their assigned responsibilities as outlined in the New Jersey Radiological Emergency Response Plan.

LOCATIONS OBSERVED: STATE EOC, SCEOC, SCMEOCs, CCEOC, CCMEOCs, EOF AND BNE-FCP

DATE: April 11, 2000

OBJECTIVE 4: COMMUNICATIONS

The telephone is the primary means of communications. Radio is the backup method of communications.

LOCATIONS OBSERVED: STATE EOC, SCEOC, SCMEOCs, CCEOC, CCMEOCs, EOF, ENC SFA AND BNE-FCP

DATE: April 11, 2000

OBJECTIVE 5: EMERGENCY WORKER EXPOSURE CONTROL

One emergency worker exposure control kit will be utilized in each municipal EOC. No TLDs will be distributed during this exercise, but their location and recording methodology will be explained to the evaluator. County and municipal coordinators will show the evaluator an SOP regarding TLD distribution and record keeping. TLDs are kept at the county EOCs where they can be inspected by evaluators. 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 limits is 1.25 R. This is applicable to all demonstrations involving Objective 5. Direct-reading dosimeters (DRDs) in the emergency worker exposure control kits contain 0-20 R and 0-200 mR dosimeters. Inspection dates (including leak test information) for this instrumentation are on file at the NJOEM Radiation Laboratory and will be visually inspected and evaluated by FEMA staff prior to the exercise. KI will not be distributed. It is stored at the State OEM and at the County OEM until an actual incident.

LOCATIONS OBSERVED: SCEOC, SCMEOCs, CCEOC, CCMEOCs, BNE-FCP, AND SFA

DATE: April 11, 2000

OBJECTIVE 6: FIELD RADIOLOGICAL MONITORING-AMBIENT RADIATION MONITORING

Instrument source checks will be conducted in accordance with BNE SOP-302, Attachment 302-1, and page 5 of 5. A barium source (Ba_{133}) will be shared by state and county field monitoring teams.

LOCATIONS OBSERVED: BNE-FCP, SFA

OBJECTIVE 7: PLUME DOSE PROJECTION

Demonstrate the capability to develop dose projections and protective action recommendations regarding evacuation and sheltering. The primary method for estimating projected doses will be the Radiological Assessment System for Consequence Analysis (RASCAL) Model. This dose projection model was developed for the NRC and is available for any nuclear emergency response organization.

LOCATION OBSERVED: EOF

DATE: April 11, 2000

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

The state and county will utilize one field monitoring team each for evaluation.

Field team instrument checkout and air sampling will be demonstrated prior to the beginning of the exercise. This will be out-of-sequence with the exercise scenario at the BNE-FCP in Mannington Township. In accordance with NJ SOP-302, during the field demonstration, gamma exposure rates will be measured utilizing a Ludlum Model 3 secured onto the BNE emergency response vehicle. Suiting in anti-contamination clothing will be simulated.

LOCATIONS OBSERVED: BNE-FCP and SFA

DATE: April 11, 2000

OBJECTIVE 9: PLUME PROTECTIVE ACTION DECISION-MAKING

Independent Protective Action Recommendations (PAR) are made at the EOF by NJBNE staff and utility staff. The Protective Action Decisions (PAD) are made by the Governor or Governor's Authorized Representative at the NJ State EOC. Please refer to NJ SOP-305 and NJ SOP-901, which outline this process.

LOCATION OBSERVED: STATE EOC

DATE: April 11, 2000

OBJECTIVE 10: ALERT AND NOTIFICATION

EAS - Time will be observed for the first EAS message. This will trigger the simulated activation of the Alert and Notification sirens and simulated broadcast of the EAS message.

LOCATIONS OBSERVED: STATE EOC and EAS Radio Station WBS

SIRENS: Sirens will be simulated during the exercise. No sirens will be sounded. The EAS radio message (Radio Station WBSS) will not be broadcast.

LOCATION OBSERVED: SCEOC

ROUTE ALERTING: Route Alerting will be demonstrated via discussion at the municipal EOCs in Pennsville and Greenwich Townships. The demonstration will take place out-of-sequence during the exercise.

HEARING IMPAIRED NOTIFICATION: Hearing Impaired Notification will be demonstrated via discussion at the municipal EOCs in Salem City and Greenwich Townships. A copy of the list of hearing-impaired persons will be available to the FEMA evaluator.

DATE: April 11, 2000

OBJECTIVE 11: PUBLIC INSTRUCTIONS AND EMERGENCY INFORMATION

Census data indicates that no other language besides English should be broadcast. EAS messages will be generated from the State EOC during the exercise. The first EAS message will be timed.

LOCATIONS OBSERVED: STATE EOC, EAS Radio Station WBSS

ARCA: State EOC, 02-98-11-A-01

EBS message #1 advised the populations of ERPAs 1, 2, 3, 4, 5 and 8 to evacuate. Three pages, consisting of a cover sheet, evacuation routes descriptions plus two reception center locations, and the Alert and Notification Siren and EBS message form, were telexed to the Radio Station WBSS without prior telephone call notification. Once station staff discovered this unannounced telex, they contacted the NJ State EOC for instructions on what to do.

DATE: April 11, 2000

OBJECTIVE 12: EMERGENCY INFORMATION - MEDIA

The "EMITS" system serves as an automated status board in the NJ Room at the Emergency News Center (ENC). Press releases will be generated from the State EOC during the exercise. Periodic press briefings will be jointly conducted at the ENC by representatives from the utility and the states of New Jersey and Delaware.

LOCATION OBSERVED: ENC

DATE: April 11, 2000

OBJECTIVE 13: EMERGENCY INFORMATION - RUMOR CONTROL

Five rumor control operators will handle ten-calls-per operator. One “false” trend will be tracked and addressed through the Public Information Officer at the SEOC and staff at the ENC.

LOCATIONS OBSERVED: STATE EOC and ENC

ARCA: State EOC, 02-98-13-A-02

The Rumor Control staff failed to note the escalation of the Emergency Classification Level (ECL) from Alert to General Emergency, which could result in dissemination of inaccurate information.

DATE: April 11, 2000

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

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

LOCATION OBSERVED: STATE EOC, BNE-EOF, BNE-FCP, SCEOC, CCEOC

ARCA: State EOC, 02-96-14-A-02

In the 1996 Salem/Hope Creek exercise, a decision was made that emergency workers were to ingest KI as a protective action. The message sent to Cumberland County stated only that KI was to be issued, not authorized to ingest. This ARCA was not cleared in the 1998 Salem/Hope Creek exercise due to the scenario used (the plume did not affect Cumberland County).

DATE: April 11, 2000

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

Evacuation of mobility-impaired persons will be demonstrated via discussions during the exercise at the municipal EOCs at Lower Alloways Creek and Greenwich Townships. The list of mobility-impaired persons will be provided to the FEMA evaluator.

LOCATIONS OBSERVED: Lower Alloways Creek and Greenwich

DATE: April 11, 2000

TRANSIT DEPENDENT BUS RUN: Evacuation of transit-dependent persons will take place out-of-sequence of the exercise. One Williams Bus Company bus will demonstrate transit-dependent evacuation. The demonstration will take place in Lower Alloways Creek (Bus Route Number 1).

LOCATION OBSERVED: Lower Alloways Creek Bus Route Number 1

Date: March 22, 2000

OBJECTIVE 16: IMPLEMENTATION OF PROTECTIVE ACTIONS – SCHOOLS

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

- Elsinboro School
- Lower Alloways Creek School
- Quinton School
- Salem Middle School
- St. Mary's School
- Morris Goodwin School
- Stow Creek School
- Woodland Country Day School

DATE: March 22, 2000

A school bus evacuation route demonstration will take place, out-of-sequence with the exercise, from the Quinton School and Morris Goodwin School in Greenwich.

DATE: March 22, 2000

OBJECTIVE 17: TRAFFIC AND ACCESS CONTROL

An Access Control Post (chosen by FEMA) at the five-mile ring will be demonstrated by the NJ State Police out-of-sequence with the exercise.

DATE: February 24, 2000

OBJECTIVE 18: RECEPTION CENTER MONITORING, DECONTAMINATION, AND REGISTRATION

The facilities will be set up prior to the arrival of the FEMA evaluator. A portal monitor will be used for monitoring. At least one-third of the required monitors will be present and six evacuees will be inspected. At least two vehicles will be monitored and decontaminated.

Plastic sheeting will be available, but will not be spread on the floor. Action level for the presence of contamination is 1,000 cpm above background.

LOCATION OBSERVED: Woodstown High School

DATE: May 3, 2000

OBJECTIVE 19: CONGREGATE CARE

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

LOCATIONS OBSERVED: Salem County Community College/Cumberland County Vo-Tech

DATE: February 23, 2000

OBJECTIVES 20 AND 21: MEDICAL SERVICES-FACILITIES, TRANSPORTATION

The demonstration will take place out-of-sequence with the exercise. The participants will demonstrate the ability to respond to a radiological emergency and demonstrate the adequacy of equipment, personnel and procedures to transport a contaminated individual from an accident scene to the Memorial Hospital of Salem County.

LOCATIONS OBSERVED: Memorial Hospital of Salem County
Elsinboro Ambulance Squad

DATE: April 27, 2000

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

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

LOCATION OBSERVED: Shiloh EWDC

DATE: May 11, 2000

APPENDIX 4

EXERCISE SCENARIO

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 Salem/Hope Creek Nuclear Generating Station exercise on April 11, 2000.

This exercise scenario was submitted by the State of New Jersey and Public Service Electric and Gas, and approved by FEMA Region II on March 10, 2000.

SCENARIO SYNOPSIS

14:00, Crew's players briefing in the classroom.

14:30, the drill will begin with the Hope Creek Control Room Staff having completed shift turnover and prestaged in the Simulator Control Room.

15:00, a fire is reported in 10A402 'B' vital 4.160kv bus.

Within 15 minutes of field assessment of the fire an
* Alert should be declared by the OS based on:
EAL #9.2.2, Fire affecting the operability of Plant Safety Systems.

15:15, As Emergency Coordinator (EC), the OS will initiate the required notifications and implement EPEP to direct protective actions Onsite as needed. Assembly of drill participants will occur at Hope Creek. At this time the TSC, OSC, EOF and ENC will begin setup as Emergency Response Facilities.

15:30, man was hurt inspecting the fire damage and needs to transported to the Hospital.

17:00, a major LOCA will occur and reactor level will go below -161" (Top of Active Fuel) and fuel damage will have increased to the point where the DAPA Radiation readings will reach 5000R/hr at 1730.

*SITE AREA EMERGENCY should be declared by the EDO based on:
EAL #3.1.1.a or 3.1.2 & 3.2.2.b or 3.2.1.b,
Potential Loss of Fuel Clad and a Loss Reactor Coolant System barriers.

17:15, accountability will be implemented (drill players only) and activation of the EOF will occur.

18:30, "B" Core Spray suction line between the suction valve and pump has sheared. Attempts to close the suction valve are unsuccessful.

As a result "B" Core Spray Loop has been breached, and allowing Reactor Coolant to discharge directly into the "B" Core Spray Room via the breach. Attempts to close the "B" Core Spray suction valve (F001B) are unsuccessful, as the valve motor breaker has no power.

As RCS is discharged into the Core Spray room, creating a flow path into the Reactor Building. With RCS discharging directly into the Reactor Building, Area Radiation Monitors quickly increase by greater than 1000 times and an effluent release greater than Tech Spec limits commences via in service "A" FRVS Vent Fan.

*General Emergency should be declared by the ERM based on:

EAL #3.1.2, 3.2.2.b & 3.3.4.b

Loss of Fuel Clad, Reactor Coolant System and Containment barriers.

18:30, Monitored Release Path: RPV->>"B" Core Spray suction line breach ->> Reactor Building >> "A" FRVS Vent Fan->> Outside Atmosphere.

20:15, Wind has shifted toward Delaware.

21:10, Drywell H² will reach 2% and Severe Accident Guideline transfer will start.

21:40, the leak path will be isolated as the "B" Core Spray suction valve (1BEHV-F001B) is closed from the TORUS room.

22:00, the FRVS Vent Effluent readings will have decreased. The ERM and his staff in the EOF will decide whether the Emergency Conditions have stabilized and are in fact improving. The Head Referee will terminate the exercise when all major drill objectives have been satisfactorily demonstrated.