U.S. Department of Homeland Security
One Independence Mall, Sixth Floor
615 Chestnut Street
Philadelphia, PA 19106-4404

FEMA

August 18, 2008

NRC Headquarters Document Control Desk
US Nuclear Regulatory Commission
Washington, DC 20555-0001

Enclosed is the final report for the Salem Hope Creek Nuclear Generating Station Radiological Emergency Preparedness Exercise held on May 20, 2008.

If you have any questions, please contact Darrell Hammons at (215) 931-5546.

Sincerely,

Darrell Hammons
Regional Assistance Committee Chair

Enclosure

AX45
NSIR

Salem/Hope Creek Nuclear Generating Stations Exercise May 20, 2008

Final Report – Radiological Emergency Preparedness Program

August 13, 2008

FEMA

FEMA Region III

FEMA

Final Exercise Report

Salem/Hope Creek Nuclear Generating Stations

Licensee: **PSEG Nuclear, LLC**

Exercise Date: **May 20, 2008**

Report Date: **August 13, 2008**

U.S. DEPARTMENT OF HOMELAND SECURITY
FEMA REGION III
NATIONAL PREPAREDNESS DIVISION
TECHNOLOGICAL HAZARDS BRANCH

ONE INDEPENDENCE MALL, 6TH FLOOR
615 CHESTNUT STREET
PHILADELPHIA, PENNSYLVANIA 19106-4404

TABLE OF CONTENTS

APPENDICES

LIST OF TABLES

I. EXECUTIVE SUMMARY

On May 20, 2008, a full-scale plume exercise was conducted in the 10-mile plume exposure pathway, emergency planning zone (EPZ) around the Salem/Hope Creek Nuclear Generating Stations (S/HCNGS) by the Federal Emergency Management Agency (FEMA), Region III. Out-of-sequence demonstrations were conducted on May 7-8, 2008. The purpose of the exercise and the out-of-sequence demonstrations was to assess the level of State and local preparedness in responding to a radiological emergency. The exercise and out-of-sequence demonstrations were held in accordance with FEMA's policies and guidance concerning the exercise of State and local radiological emergency response plans (RERP) and procedures.

The most recent prior full-scale exercise at this site was conducted on March 21, 2006. The qualifying emergency preparedness exercise was conducted in 1986.

FEMA wishes to acknowledge the efforts of the many individuals in the State of Delaware and the risk jurisdictions of Kent and New Castle Counties who were evaluated at this exercise.

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

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

- *Congregate Care:* Conducted on May 8, 2008 in Kent and New Castle Counties.
- *Schools:* Conducted on May 7, 2008 at the State Emergency Operations Center and in New Castle County.

The State and local organizations except where noted in this report, demonstrated knowledge of their emergency response plans and procedures and adequately implemented them. There were no Deficiencies and no Areas Requiring Corrective Action (ARCAs) identified as a result of this exercise. One planning issue from a previous exercise was resolved (see Appendix 5).

II. Introduction

On December 7, 1979, the President directed the Federal Emergency Management Agency (FEMA) to assume the lead responsibility for all off-site nuclear planning and response. FEMA's activities were 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.

44 CFR 350 establishes the policies and procedures for FEMA's initial and continued approval of Tribal, 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 (RERPs) and procedures developed by State and local governments;

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

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

- Coordinating the activities of the following 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 III Radiological Assistance Committee (RAC), which is chaired by FEMA.

A REP exercise was conducted on May 20, 2008, 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 Salem/Hope Creek Nuclear Generating Stations (S/HCNGS). The purpose of this exercise report is to present the exercise results and findings on the performance of the off-site response organizations (OROs) during a simulated radiological emergency.

The findings presented in this report are based on the evaluations of the Federal evaluator team, with final determinations made by the FEMA Region III RAC Chairperson and approved by FEMA Headquarters.

These reports are provided to the NRC and participating States. State and local governments utilize the findings contained in these reports for the purposes of planning, training, and improving emergency response capabilities.

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

- 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 Guidance Memoranda MS-1, "Medical Services," November 1986;
- FEMA-REP-14, "Radiological Emergency Preparedness Exercise Manual," September 1991;
- 66 FR 47546, "FEMA Radiological Emergency Preparedness: Alert and Notification," September 12, 2001; and
- 67 FR 20580, "FEMA Radiological Emergency Preparedness: Exercise Evaluation Methodology," April 25, 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 emergency planning zone (EPZ), a listing of all participating jurisdictions and functional entities that 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 evaluation areas at each jurisdiction or functional entity evaluated in a jurisdiction-based, issues-only format. This section also contains: (1) descriptions of all Deficiencies and Areas Requiring Corrective Action (ARCAs) assessed during this exercise, recommended corrective actions, and the Tribal, State, and local governments' schedule of corrective actions for each identified exercise issue and (2) descriptions of ARCAs assessed during previous exercises and resolved at this exercise,

including the corrective action demonstrated, as well as ARCAs assessed during previous exercises and scheduled for demonstration at this exercise which remain unresolved.

The final section of the report is comprised of the appendices, which present the following supplementary information: acronyms and abbreviations, exercise evaluators and team leaders, exercise evaluation area criteria and extent of play agreement, and the exercise scenario. It also presents information on planning issues (both new planning issues identified during this exercise and resolved planning issues identified during previous exercises).

III. Exercise Overview

Contained in this section are data and basic information relevant to the May 20, 2008 exercise to test the off-site emergency response capabilities in the area surrounding Salem/Hope Creek Nuclear Generating Stations (S/HCNGS). This section of the exercise report includes a description of the plume pathway emergency planning zone (EPZ), a listing of all participating jurisdictions and functional entities that were evaluated, and a tabular presentation of the time of actual occurrence of key exercise events and activities.

A. Plume Emergency Planning Zone Description

The S/HCNGS site is located on the east bank of the Delaware River in Lower Alloways Creek Township, Salem County, New Jersey, about 18 miles south of Wilmington, Delaware. The 700-acre site is on the southern end of Artificial Island, a 3-mile-long, 1-mile-wide, man-made peninsula. The peninsula is connected to the mainland by a strip of tideland formed by hydraulic fill from dredging operations on the Delaware River. The tideland was constructed by the U.S. Army Corps of Engineers. The coordinates of the site are latitude 39°27'46" north and longitude 75°32'08" west. Two pressurized water reactors (Salem) and one boiling water reactor (Hope Creek) are located on the island. Each Salem unit generates a maximum output of 1,106 megawatts (MW); Unit 1 commenced commercial operations in June 1977 and Unit 2 in October 1981. The Hope Creek Unit, which generates a maximum output of 1,031 MW, became operational in December 1986.

The site lies on the low coastal plain of New Jersey, surrounded by extensive marshlands and meadowlands. The land within the two Delaware counties (New Castle and Kent) near the site is either undeveloped (48 percent) or used for agricultural purposes (42 percent). Major farm products within a 25-mile radius of the site include vegetables, poultry, dairy products, and indigenous field crops.

The nearest major population center (more than 25,000 people) is Wilmington, Delaware, which has a population of 71,529 and lies 20 miles north of S/HCNGS. The maximum population distribution in Delaware, including residents and transients, is 0 within the 2-mile EPZ, 850 within the 5-mile EPZ, and 24,976 within the 10-mile EPZ. There are 37 early warning sirens in the Delaware portion of the EPZ.

The Ingestion Planning Zone (IPZ) is approximately 7,850 square miles in area, which is equivalent to a 50-mile radius around the plant site. The States of Delaware, Maryland, and New Jersey, and the Commonwealth of Pennsylvania have jurisdictions within the IPZ. The largest city within the IPZ is Philadelphia, Pennsylvania, with a population of 1,587,855, about 46 miles from the plant site.

B. Exercise Participants

The following agencies, organizations, and units of government participated in the S/HCNGS out-of-sequence activities on May 7-8, 2008, or the exercise on May 20, 2008.

STATE OF DELAWARE

Army Corp of Engineers
Civil Air Patrol
Cumberland County Emergency Management Agency
Delaware Army National Guard
Delaware Cooperative Extension
Delaware Department of Emergency Management
Delaware Department of Health
Delaware Department of Transportation
Delaware Emergency Management Agency
Delaware National Guard
Delaware State Fire School
Delaware State Patrol
Delaware State Police
Delaware Transit Corporation
Department of Energy
Department of Natural Resources and Environmental Conservation
Department of Safety and Homeland Security
Department of Social Services
Division of Medicaid and Medical Assistance
Division of Public Health
Federal Emergency Management Agency
Maryland Emergency Management Agency
Maryland University Center for Physical Oceanography
New Jersey Department of Environmental Health, Nuclear Engineering Section
New Jersey Department of Health
New Jersey Office of Emergency Management
Public Service Electric Gas – Nuclear
Salem County Emergency Management Agency
Salem County Sheriff's Department
US Nuclear Regulatory Commission
US Coast Guard

KENT COUNTY

Delaware Civil Air Patrol
Delaware State Police
Kent County Department of Public Safety
Kent County Levy Court

NEW CASTLE COUNTY

New Castle County 911 Dispatch
New Castle County Emergency Medical Services
New Castle County Office of the Chief Executive Officer
New Castle County Police
New Castle Emergency Management Staff

SCHOOLS (NEW CASTLE COUNTY)

Appoquinimink School District
Cedar Lane Early Childhood Center
Cedar Lane Elementary School
Colonial School District
Delaware Department of Education
Delaware Emergency Management Agency
New Castle County Vocational Technical School District
Redding Middle School
St. George's Technical High School
Wrangle Hill Elementary School

PRIVATE/VOLUNTEER ORGANIZATIONS

Amateur Radio Emergency Services (ARES) and Radio Amateur Civil Emergency Services (RACES), including the following clubs:
    Kent County Amateur Radio Club
American Red Cross including the following local chapters:
    Delmarva Chapter of the American Red Cross
Citizens Hose Fire Company (volunteer)
Delmarva Peninsula Disaster Shelter Program
GSS/Food Distribution
Odessa Fire Company
Public Service Electric and Gas
University of Delaware Cooperative Extension

C. Exercise Timeline

Table 1 presents the times at which key events and activities occurred during the S/HCNGS exercise on May 20, 2008. Also included are times notifications were made to the participating jurisdictions/functional entities.

TABLE 1. EXERCISE TIMELINE

DATE AND SITE: *May 20, 2008 Salem/Hope Creek Nuclear Generating Stations*

Emergency Classification Level or Event	Time Utility Declared	Time Notification Was Received or Action Was Taken					
		Delaware State EOC	EOF	State TAC	Emergency News Center	Kent County EOC	New Castle County EOC
Unusual Event	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Alert	1616	1630	1658	1630	1700	1645	1651
Site Area Emergency	1755	1803	1756	1803	1809	1813	1847
General Emergency	1907	1917	1907	1917	1926	1920	1921
Simulated Radiation Release Started	1856	1917	1857	1918	1926	1920	1921
Simulated Radiation Release Terminated	2200	2204	2203	2204	N/A	N/A	N/A
Facility Declared Operational		1645	1645	1704	1720	1700	1725
Declaration of State Emergency		1845	1907	1845	1859	1901	1850
Exercise Terminated		2215	2220	2215	2215	2140	2140
Early Precautionary Actions: River Alerting		1805	1805	1805	1830	1901	1815
Other: Animals on stored feed/water Evacuate schools/special pops/daycare		1845	1855	1845	1927	1901	1847
1st A&N Decision (State [made]: local [received]) Shelter ERPA A		1845	1855	1845	1927	1901	1847
1st Siren Activation		1900					
1st EAS or EBS Message		1905					
2nd A&N Decision (State [made]: local [received]) Shelter ERPA B Evacuate ERPA A KI GP & EW all ERPAs		1950	1950	1950	2005	2009	2000
2nd Siren Activation		2005					
2nd EAS or EBS Message		2010					
3rd A&N Decision (State [made]: local [received]) Shelter ERPA C Evacuate ERPAs A & B		2114	2115	2114	2131	2114	2114
3rd Siren Activation		2130					
3rd EAS or EBS Message		2135					
KI Administration Decision: Emergency Workers and General Public advised to take KI		1950	1950	1950	2005	2005	2000

Legend: N/A – Not Applicable

IV. Evaluation and Results

Contained in this section are the results and findings of the evaluation of all jurisdictions and locations that participated in the May 20, 2008, biennial Radiological Emergency Preparedness (REP) exercise. The exercise was held to test the offsite emergency response capabilities of local governments in the 10-mile Emergency Planning Zone (EPZ) surrounding the Salem/Hope Creek Nuclear Generating Stations (S/HCNGS).

Each jurisdiction and functional entity was evaluated on the basis of its demonstration of the exercise evaluation area criteria contained in the REP Exercise Evaluation Methodology. Detailed information on the exercise evaluation area 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

The matrix presented in Table 2, on the following pages, presents the status of the exercise evaluation area criteria from the REP Exercise Evaluation Methodology that were scheduled for demonstration during this exercise by all participating jurisdictions and functional entities. Exercise evaluation area criteria are listed by number and the demonstration status of the criteria is indicated by the use of the following letters:

M Met (No Deficiency or Area Requiring Corrective Action (ARCA) assessed and no unresolved ARCAs from prior exercises)

TABLE 2. SUMMARY RESULTS OF EXERCISE EVALUATION

DATE AND SITE; May 20, 2008 Salem/Hope Creek Nuclear Generating Stations

OFFSITE RESPONSE ORGANIZATION	EMERGENCY OPNS MANAGEMENT					PROTECTIVE ACTION DECISION-MAKING						PROTECTIVE ACTION IMPLEMENTATION									FIELD MEASUREMENT & ANALYSIS					EMERGENCY NOTIFICATION & PUBLIC INFO				SUPPORT OPERATION/ FACILITIES			
1.0 STATE OF DELAWARE	1.a.1	1.b.1	1.c.1	1.d.1	1.e.1	2.a.1	2.b.1	2.b.2	2.c.1	2.d.1	2.e.1	3.a.1	3.b.1	3.c.1	3.c.2	3.d.1	3.d.2	3.e.1	3.e.2	3.f.1	4.a.1	4.a.2	4.a.3	4.b.1	4.c.1	5.a.1	5.a.2	5.a.3	5.b.1	6.a.1	6.b.1	6.c.1	6.d.1
1.1 State Emergency Operations Center (SEOC)	M		M	M	M		M	M	M				M	M		M	M								M		M	M				
1.2 Technical Assessment Center (TAC-EOC)	M			M			M	M														M										
1.3 Emergency Operations Facility				M	M																											
1.4 Emergency News Center (Woodstown, NJ)	M																											M				
1.5 State Field Monitoring Team Vehicle	M			M	M	M						M	M								M		M									
1.6 State Field Monitoring Team 1 (Delaware National Guard)	M			M	M	M						M	M								M		M									
1.7 State Traffic and Access Control (Odessa Troop 9, at SEOC)				M	M	M						M	M			M	M															
1.8 Congregate Care Facility (Dover HS)																															M	
1.9 Congregate Care Facility (Central MS)																															M	
1.10 Congregate Care Facility (William Henry MS)																															M	
1.11 Congregate Care Facility (Caesar Rodney HS)																															M	
1.12 Congregate Care Facility (Fred Fifer MS)																															M	
1.13 Congregate Care Facility (Lake Forest HS)																															M	
1.14 Congregate Care Facility (W.T. Chipman MS)																															M	
1.15 Congregate Care Facility (Milford HS)																															M	
1.16 Congregate Care Facility (Milford MS)																															M	
1.17 Congregate Care Facility (Mount Pleasant HS)																															M	
1.18 Congregate Care Facility (Concord HS)																															M	

LEGEND; M = Met (no Deficiency or ARCA(s) assessed) Blank = Not scheduled for demonstration

TABLE 2. SUMMARY RESULTS OF EXERCISE EVALUATION

DATE AND SITE; May 20, 2008 Salem/Hope Creek Nuclear Generating Stations

OFFSITE RESPONSE ORGANIZATION	EMERGENCY OPNS MANAGEMENT					PROTECTIVE ACTION DECISION-MAKING						PROTECTIVE ACTION IMPLEMENTATION									FIELD MEASUREMENT & ANALYSIS					EMERGENCY NOTIFICATION & PUBLIC INFO				SUPPORT OPERATION/ FACILITIES			
2.0 RISK JURISDICTIONS	1.a.1	1.b.1	1.c.1	1.d.1	1.e.1	2.a.1	2.b.1	2.b.2	2.c.1	2.d.1	2.e.1	3.a.1	3.b.1	3.c.1	3.c.2	3.d.1	3.d.2	3.e.1	3.e.2	3.f.1	4.a.1	4.a.2	4.a.3	4.b.1	4.c.1	5.a.1	5.a.2	5.a.3	5.b.1	6.a.1	6.b.1	6.c.1	6.d.1
KENT COUNTY																															
2.1 Kent County EOC	M		M	M	M									M	M											M		M					
2.2 Route Alerting (Citizen Hose Fire Company)				M	M	M						M	M															M					
2.3 New Castle County EOC	M	M	M	M	M									M	M											M		M					
2.4 Route Alerting (Odessa Fire Company, Odessa)				M	M	M						M	M															M					
3.0 SCHOOLS	1.a.1	1.b.1	1.c.1	1.d.1	1.e.1	2.a.1	2.b.1	2.b.2	2.c.1	2.d.1	2.e.1	3.a.1	3.b.1	3.c.1	3.c.2	3.d.1	3.d.2	3.e.1	3.e.2	3.f.1	4.a.1	4.a.2	4.a.3	4.b.1	4.c.1	5.a.1	5.a.2	5.a.3	5.b.1	6.a.1	6.b.1	6.c.1	6.d.1
3.1.1 State Dep't. of Education (State EOC)															M																	
3.2.1 Appoquinimink SD															M																	
3.2.2 Cedar Lane ES															M																	
3.2.3 Cedar Lane Early Childhood Center															M																	
3.2.4 Redding MS															M																	
3.2.5 Middletown HS															M																	
3.2.6 Colonial SD															M																	
3.2.7 Wrangle Hill ES															M																	
3.2.8 New Castle Co. Vo-Tech SD															M																	
3.2.9 St. Georges Technical HS															M																	

LEGEND; M = Met (no Deficiency or ARCA(s) assessed) Blank = Not scheduled for demonstration

B. Status of Jurisdictions Evaluated

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

- **Met** – Listing of the demonstrated exercise evaluation area criteria 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 evaluation area criteria 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 Action** – Listing of the demonstrated exercise evaluation area criteria under which one or more ARCAs were assessed during the current exercise. Included is a description of the ARCAs assessed during this exercise and the recommended corrective actions to be demonstrated before or during the next biennial exercise.

- **Not Demonstrated** – Listing of the exercise evaluation area criteria that were scheduled to be demonstrated during this exercise, but were not demonstrated 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 are the reasons the ARCAs remain 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 in the 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 the 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."

The Federal Emergency Management Agency (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 Area Criterion** – A letter and number corresponding to the criteria in the FEMA REP Exercise Evaluation Methodology.
- **Issue Classification Identifier** – (D = Deficiency, A = ARCA). Only Deficiencies and ARCAs are included in exercise reports.
- **Exercise Issue Identification Number** – A separate two digit indexing number assigned to each issue identified in the exercise.

1.0 STATE OF DELAWARE

1.1 State Emergency Operations Center

a. **MET:** 1.a.1 2.b.1 3.b.1 5.a.1
1.c.1 2.b.2 3.c.1 5.a.3
1.d.1 2.c.1 3.d.1 5.b.1
1.e.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

1.2 Technical Assessment Center (at Emergency Operations Center)

a. **MET:** 1.a.1 2.b.1 4.a.2
1.d.1 2.b.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 Emergency Operations Facility

a. **MET:** 1.d.1
1.e.1

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 Emergency News Center (Woodstown, NJ)

a. **MET:** 1.a.1 5.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

1.5 State Field Monitoring Team Vehicle

a. **MET:** 1.a.1 2.a.1 3.a.1 4.a.1
1.d.1 3.b.1 4.a.3
1.e.1

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 State Field Monitoring Team 1 (Delaware National Guard)

a. **MET:** 1.a.1 2.a.1 3.a.1 4.a.1
1.d.1 3.b.1 4.a.3
1.e.1

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 Traffic and Access Control (Odessa Troop 9)

a. **MET:** 1.d.1 2.a.1 3.a.1
1.e.1 3.b.1
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

1.8 Congregate Care Facility (Dover High School)

a. **MET:** 6.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

1.9 Congregate Care Facility (Central Middle School)

a. **MET:** 6.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

1.10 Congregate Care Facility (William Henry Middle School)

a. **MET:** 6.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

1.11 Congregate Care Facility (Caesar Rodney High School)

a. **MET:** 6.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

1.12 Congregate Care Facility (Fred Fifer Middle School)

a. **MET:** 6.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

1.13 Congregate Care Facility (Lake Forest High School)

a. **MET:** 6.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

1.14 Congregate Care Facility (W.T. Chipman Middle School)

a. **MET:** 6.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

1.15 Congregate Care Facility (Milford High School)

a. **MET:** 6.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

1.16 Congregate Care Facility (Milford Middle School)

a. **MET:** 6.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

1.17 Congregate Care Facility (Mount Pleasant High School)

a. **MET:** 6.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

1.18 Congregate Care Facility (Concord High School)

a. **MET:** 6.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

2.0 RISK JURISDICTIONS

2.1 Kent County Emergency Operations Facility

a. MET: 1.a.1 3.c.1 5.a.1
1.c.1 3.c.2 5.a.3
1.d.1
1.e.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 Route Alerting (Citizen Hose Fire Company)

a. MET: 1.d.1 2.a.1 3.a 1 5.a.3
1.e.1 3.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

2.3 New Castle Emergency Operations Center

a. MET: 1.a.1 3.c.1 5.a.1
1.b.1 3.c.2 5.a.3
1.c.1
1.d.1
1.e.1

b. DEFICIENCY: None

c. AREAS REQUIRING CORRECTIVE ACTION: None

d. **NOT DEMONSTRATED:** None

e. **PRIOR ARCAs – RESOLVED:** None

f. **PRIOR ARCAs – UNRESOLVED:** None

2.4 Route Alerting (Odessa Fire Company, Odessa)

a. **MET:** 1.d.1 2.a.1 3.a 1 5.a.3
1.e.1 3.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

3.0 SCHOOLS

3.1. State of Delaware

3.1.1 State Department of Education

a. **MET:** 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

3.2. New Castle County

3.2.1 Appoquinimink School District

a. **MET:** 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

3.2.2 Cedar Lane Elementary School

a. **MET:** 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

3.2.3 Cedar Lane Early Childhood Center

a. **MET:** 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

3.2.4 Redding Middle School

a. **MET:** 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

3.2.5 Middletown High School

a. **MET:** 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

3.2.6 Colonial School District

a. **MET:** 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

3.2.7 Wrangle Hill Elementary School

a. **MET:** 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

3.2.8 New Castle County Vocational Technical School District

a. **MET:** 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

3.2.9 St. George's Technical High School

a. **MET:** 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

APPENDIX 1:
Acronyms and Abbreviations

A&N	Alert and Notification
ARC	American Red Cross
ARC 3031	American Red Cross document *Mass Care – Preparedness and Operations*
ARCA	Area Requiring Corrective Action
CFR	Code of Federal Regulations
DAPA	Drywell Atmosphere Post Accident
DELDOT	Delaware Department of Transportation
DEMA	Delaware Emergency Management Agency
DEP	Department of Environmental Protection
DILs	Derived Intervention Levels
DNG	Delaware National Guard
DRD	Direct Reading Dosimeter
EAL	Emergency Action Level
EAS	Emergency Alerting System
EBS	Emergency Broadcast System
ECL	Emergency Classification Level
ENC	Emergency News Center
EOC	Emergency Operations Center
EOF	Emergency Operations Facility
EPZ	Emergency Planning Zone
ES	Elementary School
FEMA	Federal Emergency Management Agency
FR	Federal Register
FRERP	Federal Radiological Emergency Response Plan
FRVS	Filtration, Recirculation, and Ventilation System
HS	High School
ICFI	ICF International
IPZ	Ingestion Pathway Emergency Planning Zone
KCEM	Kent County Emergency Management
KI	Potassium Iodide
LPCI	Low-Pressure Coolant Injection
LOCA	Loss of Coolant Accident

MS	Middle School
MS-1	Medical Services Drill
MSIV	Main Steam Isolation Valve
MSL	Main Steam Line
MW	Megawatt
NRC	U.S. Nuclear Regulatory Commission
NUREG-0654	NUREG-0654/FEMA-REP-1, Rev. 1 (Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants), November 1980
ORO	Offsite Response Organization
OSC	Operational Support Center
PAD	Protective Action Decision
PAG	Protective Action Guidance
PAR	Protective Action Recommendation
R	Roentgen(s)
RAC	Regional Assistance Committee
RCS	Reactor Coolant System
Rem	Roentgen Equivalent Man
REP	Radiological Emergency Preparedness
RERP	Radiological Emergency Response Plan
RHR	Residual Heat Removal
R/hr	Roentgens per hour
SD	School District
SEOC	State Emergency Operations Center
SOP	Standard Operating Procedure
TL	Team Leader
TTL	Technical Team Leader

APPENDIX 2:
Exercise Evaluators and Team Leaders

The following is a list of the personnel who will evaluate the Salem/Hope Creek Nuclear Generating Stations REP exercises on May 20, 2008 and the out of sequence activities on May 7 & 8, 2008. Evaluator Team Leader (TL) and Technical Team Leader (TTL) are indicated by the letters after their name. The organization each evaluator represents is indicated by the following abbreviations:

DHS/FEMA	Federal Emergency Management Agency
ICF	ICF International
FAA	Federal Aviation Administration

OBSERVERS-AT-LARGE	NAME	ORGANIZATION
RAC Chairman	Darrell Hammons	DHS/FEMA
Project Officer	Wayne Shych	DHS/FEMA
ICF Regional Coordinator	Roger Kowieski	ICF

1. Biennial Plume Exercise – May 20, 2008 (4:00-10:30 pm)

EVALUATION SITE	EVALUATOR	ORGANIZATION
STATE OF DELAWARE		
State Emergency Operations Center	John Price (TL)	DHS/FEMA
	Marcy Campbell	ICF
	Greg Dawkins	ICF
	Frank Cordaro	ICF
State Traffic And Access Control *(Odessa – Troop 9 & DELDOT)* *(Interview at the state EOC & parking lot)*	Richard Wessman	ICF
Emergency News Center (Woodstown, NJ)	Robert Black	ICF
Technical Assessment Center (TAC-EOC)	Ken Wierman	DHS/FEMA
Emergency Operations Facility (EOF)	Chris Thompson	FAA
State Field Monitoring Team Vehicle	Melody Geer (TTL)	ICF
State Field Monitoring Team 1	Dave Stuenkel	ICF

1. **Biennial Plume Exercise – May 20, 2008 (4:00-10:30 pm) (Cont.)**

EVALUATION SITE	EVALUATOR	ORGANIZATION
RISK JURISDICTIONS		
Kent County Emergency Operations Center	Angela Hough (TL)	DHS/FEMA
	Wendy Swygert	ICF
	Gary Goldberg	ICF
Route Alerting – Kent County *(Citizen Hose Fire Company)*	Mark Dalton	ICF
New Castle County Emergency Operations Center	Bart Freeman (TL)	DHS/FEMA
	William O'Brien	ICF
	Gary Bolender	ICF
Route Alerting – New Castle County *(Odessa Fire Company, Odessa)*	Todd Sniffin	ICF

3. Out-of-Sequence Demonstrations – May 7, 2008 (10:00 am)

EVALUATION SITE	EVALUATOR	ORGANIZATION
SCHOOLS	Wayne Shych (TL)	DHS/FEMA
State Emergency Operations Center	Wayne Shych (TL)	DHS/FEMA
Appoquinimink School District (New Castle)	Bart Freeman	DHS/FEMA
Cedar Lane Elementary **	Roger Kowieski	ICF
Cedar Lane Early Childhood Center **	Gary Goldberg	ICF
Redding Middle School	Richard Wessman	ICF
Middletown High School *	Bart Freeman	Same as District Office
Colonial School District (New Castle)	John Price	DHS/FEMA
Wrangle Hill Elementary *	John Price	Same as District Office
New Castle County Vocational Technical School District	Angela Hough	DHS/FEMA
St George's Technical High School *	Angela Hough	Same as District Office

* Evaluator will start at School District office and will relocate to risk school building.
** School buildings are located on same campus

4. Congregate Care Centers – May 8, 2008 (10:00 am)

EVALUATION SITE	EVALUATOR	ORGANIZATION
CONGREGATE CARE CENTERS		
Dover High School	Angela Hough	DHS/FEMA
Central Middle School	Angela Hough	DHS/FEMA
Concord High School	Angela Hough	DHS/FEMA
Mount Pleasant High School	Angela Hough	DHS/FEMA
William Henry Middle School	Angela Hough	DHS/FEMA
Caesar Rodney High School	Bart Freeman	DHS/FEMA
Fred Fifer Middle School	Bart Freeman	DHS/FEMA
Lake Forest High School	Bart Freeman	DHS/FEMA
W.T. Chipman Middle School	Bart Freeman	DHS/FEMA
Milford High School	Wayne Shych	DHS/FEMA
Milford Middle School	Wayne Shych	DHS/FEMA

APPENDIX 3:
Exercise Evaluation Area Criteria and Extent of Play Agreement

This appendix contains the extent of play agreement from the State of Delaware approved by the Federal Emergency Management Agency (FEMA) Region III on February 29, 2008.

The exercise evaluation area criteria, contained in the "FEMA Radiological Emergency Preparedness Exercise Evaluation Methodology", 67 FR 20580, April 25, 2002, 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.

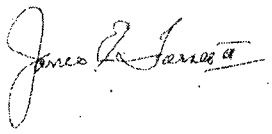
Because the exercise evaluation area criteria are intended for use at all nuclear power plant sites, and because of variations among offsite plans and procedures, an extent of play agreement is prepared by the State and approved by FEMA to provide evaluators with guidance on expected actual demonstration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

STATE OF DELAWARE

EXERCISE CRITERIA AND EXTENT-OF-PLAY

May 2008

February 29, 2008



Approved Director, Delaware Emergency Management Agency / February 29, 2008

Real Life Emergencies Take Priority over Exercise Play

INTRODUCTION

The purpose of this document is to establish those exercise evaluation areas and corresponding Extent-of-Play parameters expected to be demonstrated during the Salem Nuclear Power Plant Plume graded exercise to be conducted on May 20, 2008.

This exercise is being conducted in close cooperation with the State of New Jersey. The New Jersey Management Office of Emergency Management (NJOEM) will submit a separate set of evaluation objectives to FEMA Region II for consideration.

These evaluation areas have been developed through reviews of past exercises, associated plans and procedures, the proposed exercise scenario, applicable FEMA guidance documents, and extensive discussions with FEMA representatives.

All demonstrations will be conducted in accordance with established plans and procedures, except as noted for specific exercise evaluation areas described herein.
Out-of-sequence evaluations for plume phase activities will be conducted during the week May 5th. These demonstrations will be designated with an (*) on the associated objective and extent of play. The activities to be demonstrated out of sequence are:

- Special Facilities – Schools – Date May 7, 2008
  Wrangle Hill Elementary School - Colonial School District
  St. Georges Technical High School – New Castle Votech School District
  Redding Middle School, Cedar Lane Elementary School, Cedar Lane Early Childhood Center, Middletown High School - Appoquinimink School District

- Congregate Care – Interview the Red Cross Shelter Manager. – Date May 8, 2008,
- Dover High School, Central Middle School, William Henry Middle School, Caesar Rodney High School, Fred Fifer Middle School, Lake Forest High School, W. T. Chipman Middle School, Milford High School, Milford Middle School, Mount Pleasant High School and Concord High School.

- Delaware National Guard (DNG) Field Teams – DNG pre demonstrate equipment checkout, ambient radiation monitoring procedures and airborne radioiodine procedures. DNG Headquarters May 20, 2008 (3:00 p.m.)

The full-scale graded plume phase exercise will be conducted on May 20, 2008 involving the risk jurisdictions and selected State agencies in Delaware. Demonstration activities will be initiated following a simulated accident at the plant.

Actions will be taken in accordance with each jurisdiction's emergency plan and procedures unless specified under the specific Extent-of-Play.

State Locations

State Emergency Operations Center (EOC)
State Technical Assessment Center (TAC)
Emergency Operations Facility (EOF)
Emergency News Center (ENC)
Delaware National Guard (DNG) Field Teams

Plume Zone Local Jurisdictions

New Castle County EOC
Kent County EOC

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)

INTENT

This sub-element is derived from NUREG-0654, which provides that OROs should have the capability to alert, notify, and mobilize emergency personnel and to activate and staff emergency facilities.

EXTENT-OF-PLAY

Responsible OROs should demonstrate the capability to receive notification of an emergency situation from the licensee, verify the notification, and contact, alert, and mobilize key emergency personnel in a timely manner. Responsible OROs should demonstrate the activation of facilities for immediate use by mobilized personnel when they arrive to begin emergency operations. Activation of facilities should be completed in accordance with the plan and/or procedures. Pre-positioning of emergency personnel is appropriate, in accordance with the Extent-of-Play agreement, at those facilities located beyond a normal commuting distance from the individual's duty location or residence. Further, pre-positioning of staff for out-of-sequence demonstrations is appropriate in accordance with the Extent-of-Play agreement.

State of Delaware Extent-of-Play

All activities will be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless indicated in the Extent-of-Play agreement below.

State EOC, Kent County EOC and New Castle County EOC

Responders will pre-position at the State EOC, Kent County EOC and New Castle County EOC for exercise activities.

Mobilization will involve the primary agencies identified in the State of Delaware Radiological Emergency Plan (See List Below).

Delaware Emergency Management Agency, Kent County Emergency Management, New Castle County Office of Emergency Preparedness, Delaware National Guard, Delaware State Police, Division of Public Health, Division of Water Resources, Division of Social Services, Division of Fish and Wildlife, Delaware State Fire School, Delaware Department of Transportation, American Red Cross of Delmarva Peninsula, Division of Parks and Recreation and Amateur Radio.

Emergency Operations Facility (EOF)

Responders will pre-position at the Emergency Operations Facility (EOF).

Emergency News Center (ENC)

Responders will pre-position at the Emergency News Center (ENC).

Field Monitoring Teams

Responders will pre-position at the DNG Headquarters.

Locations evaluated

State EOC, Kent County EOC, New Castle County EOC, DNG Field Teams, EOF, and ENC.

Outstanding Issues
None

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)

INTENT

This sub-element is derived from NUREG-0654, which provides that OROs have facilities to support the emergency response.

EXTENT-OF-PLAY

Facilities will only be specifically evaluated for this criterion if they are new or have substantial changes in structure or mission. Responsible OROs should demonstrate the availability of facilities that support the accomplishment of emergency operations. Some of the areas to be considered are: adequate space, furnishings, lighting, restrooms, ventilation, backup power and/or alternate facility (if required to support operations).

State of Delaware Extent-of-Play

All activities will be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless indicated in the Extent-of-Play agreement below.

Twenty-four hour rosters will be available for key players at each EOC.

Locations evaluated

State EOC, Kent County EOC and New Castle County EOC (Baseline)
Mass Care Centers

Outstanding Issues
None

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)

INTENT

This sub-element is derived from NUREG-0654, which provides that OROs have the capability to control their overall response to an emergency.

EXTENT-OF-PLAY

Leadership personnel should demonstrate the ability to carry out essential functions of the response effort, for example: keeping the staff informed through periodic briefings and/or other means, coordinating with other appropriate OROs, and ensuring completion of requirements and requests.

State of Delaware Extent-of-Play

All activities will be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless indicated in the Extent-of-Play agreement below.

Locations evaluated

State EOC, Kent County EOC and New Castle County EOC

Outstanding Issues
None

EVALUATION AREA 1: EMERGENCY OPERATIONS MANAGEMENT

Sub-element 1.d – Communications Equipment

Criterion 1.d.1: At least two communication 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)

INTENT

This sub-element is derived from NUREG-0654, which provides that OROs should establish reliable primary and backup communication systems to ensure communications with key emergency personnel at locations such as the following: appropriate contiguous governments within the emergency planning zone (EPZ), Federal emergency response organizations, the licensee and its facilities, emergency operations centers (EOC), and field teams.

EXTENT-OF-PLAY

OROs will demonstrate that a primary and at least one backup system are fully functional at the beginning of an exercise. If a communications system or system is not functional, but exercise performance is not affected, no exercise issue will be assessed. Communications equipment and procedures for facilities and field units should be used as needed for the transmission and receipt of exercise messages. All facilities and field teams should have the capability to access at least one communication system that is independent of the commercial telephone system. Responsible OROs should demonstrate the capability to manage the communication systems and ensure that all message traffic is handled without delays that might disrupt the conduct of emergency operations. OROs should ensure that a coordinated communication link for fixed and mobile medical support facilities exist.

The specific communications capabilities of OROs should be commensurate with that specified in the response plan and/or procedures. Exercise scenarios could require the failure of a communications system and the use of an alternate system.

State of Delaware Extent-of-Play

All activities will be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless indicated in the Extent-of-Play agreement below.

Locations evaluated

State EOC, TAC, DNG Field Teams, Kent County EOC and New Castle County EOC, Traffic and Access Control - Delaware State Police and Delaware Department of Transportation and Route Alerting – Odessa Fire Company (Odessa) and Citizens Hose Fire Company (Smyrna).

Outstanding Issues
None

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; J.10.a, b, e, f, j, k; J.11; K.3.a)

INTENT

This sub-element is derived from NUREG-0654, which provides that OROs have emergency equipment and supplies adequate to support the emergency response.

EXTENT-OF-PLAY

Equipment within the facility(ies) should be sufficient and consistent with the role assigned to that facility in the ORO's plans and/or procedures in support of emergency operations. Use of maps and displays is encouraged.

All instruments, including air sampling flow meters (field teams only), should be inspected, inventoried, and operationally checked before each use. They should be calibrated in accordance with the manufacturer's recommendations (or at least annually for the unmodified CDV-700 series or if there are no manufacturer's recommendations for a specific instrument; modified CDV-700 instruments should be calibrated in accordance with the recommendation of the modification manufacturer.). A label indicating such calibration should be on each instrument or verifiable by other means. Note: Field team equipment is evaluated under 4.a.1; radiological laboratory equipment under 4.c.1; reception center and emergency worker facilities' equipment is evaluated under 6.a.1; and ambulance and medical facilities' equipment is evaluated under 6.d.1.

Sufficient quantities of appropriate direct-reading and permanent record dosimetry and dosimeter chargers should be available for issuance to all categories of emergency workers that could be deployed from that facility. Appropriate direct-reading dosimeters should allow individual(s) to read the administrative reporting limits and maximum exposure limits contained in the ORO's plans and procedures.

Dosimeters should be inspected for electrical leakage at least annually and replaced, if necessary. CDV-138s, due to their documented history of electrical leakage problems, should be inspected for electrical leakage at least quarterly and replaced if necessary. This leakage testing will be verified during the exercise, through documentation submitted in the Annual Letter of Certification, and/or through a staff assistance visit.

Responsible OROs should demonstrate the capability to maintain inventories of KI sufficient for use by emergency workers, as indicated on rosters; institutionalized individuals, as indicated in capacity lists for facilities; and, where stipulated by the plan and/or procedures, members of the general public (including transients) within the plume pathway EPZ.

Quantities of dosimetry and KI available and storage locations(s) will be confirmed by physical inspection at storage location(s) or through documentation of current inventory submitted during the exercise, provided in the Annual Letter of Certification submission, and/or verified during a Staff Assistance Visit. Available supplies of KI should be within the expiration date indicated on KI bottles or blister packs. As an alternative, the ORO may produce a letter from FEMA indicating that the KI supply remains potent, in accordance with Food and Drug Administration (FDA) guidance. FEMA issues these letters based upon the findings of the certified independent laboratory that performed the analysis at the ORO's request and expense.

At locations where traffic and access control personnel are deployed, appropriate equipment (e.g., vehicles, barriers, -- cones and signs, etc.) should be available or their availability described.

State of Delaware Extent-of-Play

All activities will be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless indicated in the Extent-of-Play agreement below

Radiological Equipment verification is included with the Annual Letter of Certification (ALC) or information is available at the State EOC. Additionally, this information will be available for the evaluator(s).

Deployment of traffic equipment will be simulated for Traffic and Access Control. Equipment will be available for review.

Radiological Emergency Worker kit (dosimeters and anti-contamination suit) will be available at the State EOC during the interview.

Locations evaluated

State EOC, DNG Field Teams (plume), Route Alerting – Odessa Fire Company (Odessa) and Citizens Hose Fire Company (Smyrna), Traffic and Access Control - Delaware State Police and Delaware Department of Transportation.

Outstanding Issues
None

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, K.4)

INTENT

This sub-element is derived from NUREG-0654, which provides that an ORO have the capability to assess and control the radiation exposure received by emergency workers and have a decision chain in place as specified in the ORO's plans and procedures to authorize emergency worker exposure limits to be exceeded for specific missions.

Radiation exposure limits for emergency workers are the recommended accumulated dose limits or exposure rates that emergency workers may be permitted to incur during an emergency. These limits include any pre-established administrative reporting limits (that take into consideration Total Effective Dose Equivalent or organ-specific limits) identified in the ORO's plans and procedures.

EXTENT-OF-PLAY

OROs authorized to send emergency workers into the plume exposure pathway EPZ should demonstrate a capability to meet the criterion based on their emergency plans and procedures. Responsible OROs should demonstrate the capability to make decisions concerning the authorization of exposure levels in excess of pre-authorized levels and to the number of emergency workers receiving radiation dose above pre-authorized levels. As appropriate, OROs should demonstrate the capability to make decisions on the distribution and administration of KI, as a protective measure, based on the ORO's plan and/or procedures or projected thyroid dose compared with the established protective action guides (PAGs) for KI administration.

State of Delaware Extent-of-Play

All activities will be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless indicated in the Extent-of-Play agreement below. The taking of KI by emergency workers will be simulated.

Locations evaluated
DNG Field Teams (plume), Delaware State Police, Delaware Department of Transportation and the Odessa Fire Company (Odessa) and Citizens Hose Fire Company (Smyrna).

Outstanding Issues

Planning

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, 11; Supplement 3)

INTENT

This sub-element is derived from NUREG-0654, which indicates that OROs have the capability to independently project integrated dose from exposure rates or other information and compare the estimated dose savings with the protective action guides. OROs have the capability to choose, among a range of protective actions, those most appropriate in a given emergency situation. OROs base these choices on protective action guides (PAGs) from the ORO's plans and procedures, or EPA 400-R-92-001 and other criteria, such as, plant conditions, licensee protective action recommendations, coordination of protective action decisions with other political jurisdictions (e.g. other affected OROs), availability of appropriate in-place shelter, weather conditions, evacuation time estimates, and situations that create higher than normal risk from evacuation.

EXTENT-OF-PLAY

During the initial stage of the emergency response, following notification of plant conditions that may warrant offsite protective actions, the ORO should demonstrate the capability to use appropriate means, described in the plan and/or procedures, to develop protective action recommendations (PARs) for decision-makers based on available information and recommendations from the licensee and field monitoring data, if available.

When release and meteorological data are provided by the licensee, the ORO also considers these data. The ORO should demonstrate a reliable capability to independently validate dose projections. The types of calculations to be demonstrated depend on the data available and the need for assessments to support the PARs appropriate to the scenario. In all cases, calculation of projected dose should be demonstrated. Projected doses should be related to quantities and units of the PAGs to which they will be compared. PARs should be promptly transmitted to decision-makers in a prearranged format.

Differences greater than a factor of 10 between projected doses by the licensee and the ORO should be discussed with the licensee with respect to the input data and assumptions used, the use of different models, or other possible reasons. Resolution of these differences should be incorporated into the PAR if timely and appropriate. The ORO should demonstrate the capability to use any additional data to refine projected doses and exposure rates and revise the associated PARs.

State of Delaware Extent-of-Play

All activities will be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless indicated in the Extent-of-Play agreement below.

Locations evaluated

State EOC
Technical Assessment Center (TAC)

Outstanding Issues
None

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 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; J.10.m)

INTENT

This sub-element is derived from NUREG-0654, which indicates that OROs have the capability to independently project integrated dose from exposure rates or other information and compare the estimated dose savings with the protective action guides. OROs have the capability to choose, among a range of protective actions, those most appropriate in a given emergency situation and base these choices on protective action guides (PAGs) from the ORO's plans and procedures, FRC Reports Numbers 5 and 7 or EPA 400-R-92-001 and other criteria, such as, plant conditions, licensee protective action recommendations, coordination of protective action decisions with other political jurisdictions (e.g. other affected OROs), availability of appropriate in-place shelter, weather conditions, evacuation time estimates, and situations that create higher than normal risk from evacuation.

EXTENT-OF-PLAY

OROs should have the capability to make both initial and subsequent PADs. They should demonstrate the capability to make initial PADs in a timely manner appropriate to the situation, based on notification from the licensee, assessment of plant status and releases, and PARs from the utility and ORO staff.

The dose assessment personnel may provide additional PARs based on the subsequent dose projections, field monitoring data, or information on plant conditions. The decision-makers should demonstrate the capability to change protective actions as appropriate based on these projections.

If the ORO has determined that KI will be used as a protective measure for the general public under off-site plans, then the ORO should demonstrate the capability to make decisions on the distribution and administration of KI as a protective measure for the general public to supplement shelter and evacuation protective actions. This decision should be based on the ORO's plan and/or procedures or projected thyroid dose compared with the established PAG for KI administration. The KI decision-making process should involve close coordination with appropriate assessment and decision-making staff.

If more than one ORO is involved in decision-making, OROs should communicate and coordinate PADs with affected OROs. OROs should demonstrate the capability to communicate the contents of decisions to the affected jurisdictions.

State of Delaware Extent-of-Play

All activities will be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless indicated in the Extent-of-Play agreement below.

Locations evaluated

State EOC
Technical Assessment Center (TAC)

Outstanding Issues

None

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.c, d, e, g)

INTENT

This sub-element is derived from NUREG-0654, which provides that OROs should have the capability to determine protective action recommendations, including evacuation, sheltering and use of potassium iodide (KI), if applicable, for special population groups (e.g., hospitals, nursing homes, correctional facilities, schools, licensed day care centers, mobility impaired individuals, and transportation dependent individuals). Focus is on those special population groups that are (or potentially will be) affected by a radiological release from a nuclear power plant.

EXTENT-OF-PLAY

Usually, it is appropriate to implement evacuation in areas where doses are projected to exceed the lower end of the range of PAGs, except for situations where there is a high-risk environment or where high-risk groups (e.g., the immobile or infirm) are involved; In these cases, examples of factors that should be considered are weather conditions, shelter availability, Evacuation Time Estimates, availability of transportation assets, risk of evacuation vs. risk from the avoided dose, and precautionary school evacuations. In situations were an institutionalized population cannot be evacuated, the administration of KI should be considered by the OROs.

State of Delaware Extent-of-Play

All activities will be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless indicated in the Extent-of-Play agreement below.

Locations evaluated

State EOC

Outstanding Issues

None

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, I.8; J.11)

INTENT

This sub-element is derived from NUREG-0654, which provides that OROs have the means to assess the radiological consequences for the ingestion exposure pathway, relate them to the appropriate protective action guides (PAGs), and make timely, appropriate protective action decisions to mitigate exposure from the ingestion pathway.

During an accident at a nuclear power plant, a release of radioactive material may contaminate water supplies and agricultural products in the surround areas. Any such contamination would likely occur during the plume phase of the accident, and depending on the nature of the release could impact the ingestion pathway for weeks or years.

EXTENT-OF-PLAY

It is expected that the ORO will take precautionary actions to protect food and water supplies, or to minimize exposure to potentially contaminated water and food, in accordance with their respective plans and procedures. Often such precautionary actions are initiated by the OROs based on criteria related to the facility's emergency classification levels (ECL). Such action may include recommendations to place milk animals on stored feed and to use protected water supplies.

The ORO should use its procedures (for example, development of a sampling plan) to assess the radiological consequences of a release on the food and water supplies. The ORO assessment should include the evaluation of the radiological analyses of representative samples of water, food, and other ingestible substances of local interest from potentially impacted areas, the characterization of the releases from the facility, and the extent of areas potentially impacted by the release. During this assessment, OROs should consider the use of agricultural and watershed data within the 50-mile EPZ. The radiological impacts on the food and water should then be compared to the appropriate ingestion PAGs contained in the ORO's plan and/or procedures. (The plan and/or procedures may contain PAGs based on specific dose commitment criteria or based on criteria as recommended by current Food and Drug Administration guidance.) Timely and appropriate recommendations should be provided to the ORO decision-makers group for implementation decisions. As time permits, the ORO may also include a comparison of taking or not taking a given action on the resultant ingestion pathway dose commitments.

The ORO should demonstrate timely decisions to minimize radiological impacts from the ingestion pathway, based on the given assessments and other information available. Any such decisions should be communicated and to the extent practical, coordinated with neighboring and local OROs.

OROs should use Federal resources, as identified in the Federal Radiological Emergency Response Plan (FRERP), and other resources (e.g., compacts, nuclear insurers, etc), if available. Evaluation of this criterion will take into consideration the level of Federal and other resources participating.

State of Delaware Extent-of-Play

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 plan and/or procedures. (NUREG-0654, A.1.b; I.10; M)

INTENT

The sub-element is derived from NUREG-0654, which provides that OROs have the capability to make decisions on relocation, re-entry, and return of the general public. These decisions are essential for the protection of the public from the direct long-term exposure to deposited radioactive materials from a severe accident at a commercial nuclear power plant.

EXTENT-OF-PLAY

Relocation: OROs should demonstrate the capability to estimate integrated dose in contaminated areas and to compare these estimates with PAGs, apply decision criteria for relocation of those individuals in the general public who have not been evacuated but where projected doses are in excess of relocation PAGs and control access to evacuated and restricted areas. Decisions are made for relocating members of the evacuated public who lived in areas that now have residual radiation levels in excess of the PAGs. Determination of areas to be restricted should be based on factors such as the mix of radionuclides in deposited materials, calculated exposure rates vs. the PAGs and field samples of vegetation and soil analyses.

Re-entry: Decisions should be made regarding the location of control points and policies regarding access and exposure control for emergency workers and members of the general public who need to temporarily enter the evacuated area to perform specific tasks or missions.

Examples of control procedures are the assignment of or checking for, direct reading and non direct-reading dosimeters for emergency workers; questions regarding the individual's objectives and locations expected to be visited and associated time frames; availability of maps and plots of radiation exposure rates; advice on areas to avoid; and procedures for exit including: monitoring of individuals, vehicles, and equipment, decision criteria regarding decontamination; and proper disposition of emergency worker dosimeters and maintenance of emergency worker radiation exposure records.

Responsible OROs should demonstrate the capability to develop a strategy for authorized re-entry of individuals into the restricted zone, based on established decision criteria. OROs should demonstrate the capability to modify those policies for security purposes (e.g., police patrols), for maintenance of essential services (e.g., fire protection and utilities), and for other critical functions. They should demonstrate the capability to use decision making criteria in allowing access to the restricted zone by the public for various reasons, such as to maintain property (e.g., to care for the farm animals or secure machinery for storage), or to retrieve important

possessions. Coordinated policies for access and exposure control should be developed among all agencies with roles to perform in the restricted zone. OROs should demonstrate the capability to establish polices for provision of dosimetry to all individuals allowed to re-enter the restricted zone. The extent that OROs need to develop policies on re-entry will be determined by scenario events.,

Return: Decisions are to be based on environmental data and political boundaries or physical/geological features, which allow identification of the boundaries of areas to which members of the general public may return. Return is permitted to the boundary of the restricted area that is based on the relocation PAG.

Other factors that the ORO should consider are, for example; conditions that permit the cancellation of the emergency classification level and the relaxation of associated restrictive measures, basing return recommendations (i.e., permitting populations that were previously evacuated to reoccupy their homes and businesses on an unrestricted basis) on measurements of radiation from ground deposition; and the capability to identify services and facilities that require restoration within a few days and to identify the procedures and resources for their restoration. Examples of these services and facilities are: medical and social services, utilities, roads, schools, and intermediate term housing for relocated persons.

State of Delaware Extent-of-Play

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.3)

INTENT

This sub-element is derived from NUREG-0654, which provides that OROs should have the capability to provide for the following: distribution, use, collection, and processing of direct-reading dosimeters and permanent record dosimeters; provide for direct-reading dosimeters to be read at appropriate frequencies by emergency workers; maintain a radiation dose record for each emergency worker; and provide for establishing a decision chain or authorization procedure for emergency workers to incur radiation exposures in excess of protective action guides, always applying the ALARA (As Low As is Reasonably Achievable) principle as appropriate.

EXTENT-OF-PLAY

OROs should demonstrate the capability to provide appropriate direct-reading and permanent record dosimetry, dosimetry chargers, and instructions on the use of dosimetry to emergency workers. For evaluation purposes, appropriate direct-reading dosimetry is defined as dosimetry that allows individual(s) to read the administrative reporting limits (that are pre-established at a level low enough to consider subsequent calculation of Total Effective Dose Equivalent) and maximum exposure limits (for those emergency workers involved in life saving activities) contained in the OROs plans and procedures.

Each emergency worker should have the basic knowledge of radiation exposure limits as specified in the ORO's plan and/or procedures. Procedures to monitor and record dosimeter readings and to manage radiological exposure control should be demonstrated.

During a plume phase exercise, emergency workers should demonstrate the procedures to be followed when administrative exposure limits and turn-back values are reached. The emergency worker should report accumulated exposures during the exercise as indicated in the plans and procedures. OROs should demonstrate the actions described in the plan and/or procedures by determining whether to replace the worker, to authorize the worker to incur additional exposures or to take other actions. If scenario events do not require emergency workers to seek authorizations for additional exposure, evaluators should interview at least two emergency workers, to determine their knowledge of whom to contact in the event authorization is needed and at what exposure levels. Emergency workers may use any available resources (e.g. written procedures and/or co-workers) in providing responses.

Although it is desirable for all emergency workers to each have a direct-reading dosimeter, there may be situations where team members will be in close proximity to each other during the entire mission and adequate control of exposure can be affected for all members of the team by one dosimeter worn by the team leader. Emergency workers who are assigned to low exposure rate areas, e.g., at reception centers, counting laboratories, emergency operations centers, and communications centers, may have individual direct-reading dosimeters or they may be monitored by dosimeters strategically placed in the work area. It should be noted that, even in these situations, each team member must still have their own permanent record dosimeter.

Individuals without specific radiological response missions, such as farmers for animal care, essential utility service personnel, or other members of the public who must re-enter an evacuated area following or during the plume passage, should be limited to the lowest radiological exposure commensurate with completing their missions.

State of Delaware Extent-of-Play

All activities will be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless indicated in the Extent-of-Play agreement below.

Dosimetry electrical leakage checks will be submitted with the ALC or available at the State EOC. Additionally, this information will be available for the evaluator. Electronic dosimetry may be substituted for SRD's at some state or local jurisdictions.

Locations evaluated

DNG State Field Teams, Odessa Fire Company (Odessa), Citizens Hose Fire Company (Smyrna), Delaware State Police and Delaware Department of Transportation.

Out-of Sequence Demonstrations

Outstanding Issues

Planning

State Field Monitoring Team – New Planning Issue

Issue No.: 02-06-2.a.1-P-01

Condition: Interchangeable use of R and Rem in some procedures, i.e. Standard Operating Procedure (SOP) 801.

Possible Cause: Inattention to detail during plan revisions.

Reference: State of Delaware SOP 801

Effect: Dosimetry used in the field reads in units of R whereas the turnback levels and Dose limits in the procedure are in Rem. Rem implies an internal dose component as well as an external dose.

Recommendation: Review the procedures for the use of R and Rem and consider the appropriateness of the levels. Field dosimetry measures are in units of R and are reported as such.

State Response: DEMA will review and revise procedures as necessary for clarification of the use of R and Rem in SOP 801.

Schedule for Corrective Action: This issue will be addressed during the next scheduled REP Plan update and re-evaluated during the next scheduled graded REP exercise.

FEMA Response: Concur. This will be evaluated during the next graded REP exercise.

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 for emergency workers and institutionalized individuals (not the general public) is maintained. (NUREG-0654, E.7; J.10.e, f)

INTENT

This sub-element is derived from NUREG-0654, which provides that OROs should have the capability to provide radioprotective drugs for emergency workers, institutionalized individuals, and, if in the plan and/or procedures, to the general public for whom immediate evacuation may not be feasible, very difficult, or significantly delayed. While it is necessary for OROs to have the capability to provide KI to emergency workers and institutionalized individuals, the provision of KI to the general public is an ORO option, reflected in ORO's plans and procedures. Provisions should include the availability of adequate quantities, storage, and means of the distribution of radioprotective drugs.

EXTENT-OF-PLAY

OROs should demonstrate the capability to make KI available to emergency workers, institutionalized individuals, and, where provided for in the ORO plan and/or procedures, to members of the general public. OROs should demonstrate the capability to accomplish distribution of KI consistent with decisions made. Organizations should have the capability to develop and maintain lists of emergency workers and institutionalized individuals who have ingested KI, including documentation of the date(s) and time(s) they were instructed to ingest KI. The ingestion of KI recommended by the designated ORO health official is voluntary. For evaluation purposes, the actual ingestion of KI is **not** necessary. OROs should demonstrate the capability to formulate and disseminate appropriate instructions on the use of KI for those advised to take it. If a recommendation is made for the general public to take KI, appropriate information should be provided to the public by the means of notification specified in the ORO's plan and/or procedures.

Emergency workers should demonstrate the basic knowledge of procedures for the use of KI whether or not the scenario drives the use of KI. This can be accomplished by an interview with the evaluator.

State of Delaware Extent-of-Play

All activities will be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless indicated in the Extent-of-Play agreement below

If directed, ingestion of KI will be simulated.

Locations evaluated

DNG Field Teams (plume), Delaware State Police, Delaware Department of Transportation and the Odessa Fire Company (Odessa) and Citizens Hose Fire Company (Smyrna).

Outstanding Issues

None

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 areas subject to protective actions. (NUREG-0654, E.7; J.9; J.10.c, d, e, g)

INTENT

This sub-element is derived from NUREG-0654, which provides that OROs should have the capability to implement protective action decisions, including evacuation and/or sheltering, for all special populations. Focus is on those special populations that are (or potentially will be) affected by a radiological release from a nuclear power plant.

EXTENT-OF-PLAY

Applicable OROs should demonstrate the capability to alert and notify (e.g., provide protective action recommendations and emergency information and instructions) special populations (hospitals, nursing homes, correctional facilities, mobility impaired individuals, transportation dependent, etc). OROs should demonstrate the capability to provide for the needs of special populations in accordance with the ORO's plans and procedures.

Contact with special populations and reception facilities may be actual or simulated, as agreed to in the Extent-of-Play. Some contacts with transportation providers should be actual, as negotiated in the Extent-of-Play. All actual and simulated contacts should be logged.

State of Delaware Extent-of-Play

All activities will be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless indicated in the Extent-of-Play agreement below

List of institutionalized special populations will be available at the State EOC.

List of individual special populations will be available at the Kent County EOC and New Castle County EOC.

There will be no actual notification of special populations.

All actual and simulated contacts will be logged.

Locations evaluated

State EOC, Kent County EOC and New Castle County EOC

Outstanding Issues

None

EVALUATION AREA 3: PROTECTIVE ACTION IMPLEMENTATION

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

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

INTENT

This sub-element is derived from NUREG-0654, which provides that OROs should have the capability to implement protective action decisions, including evacuation and/or sheltering, for all special populations. Focus is on those special population groups that are (or potentially will be) affected by a radiological release from a nuclear power plant.

EXTENT-OF-PLAY

Applicable OROs should demonstrate the capability to alert and notify all public school systems/districts, licensed day care centers, and participating private schools within the emergency planning zone of emergency conditions that are expected to or may necessitate protective actions for students.

In accordance with plans and/or procedures, OROs and/or officials of participating public and private schools and licensed day care centers should demonstrate the capability to make and implement prompt decisions on protective actions for students. Officials should demonstrate that the decision making process for protective actions considers (e.g., either accepts automatically or gives heavy weight to) protective action recommendations made by ORO personnel, the ECL at which these recommendations are received, preplanned strategies for protective actions for that ECL, and the location of students at the time (e.g., whether the students are still at home, en route to the school, or at the school).

Implementation of protective actions should be completed subject to the following provisions; At least one school in each affected school system or district, as appropriate, needs to demonstrate the implementation of protective actions. The implementation of canceling the school day, dismissing early, or sheltering should be simulated by describing to evaluators the procedures that would be followed. If evacuation is the implemented protective action, all activities to coordinate and complete the evacuation of students to reception centers, congregate care centers, or host schools may actually be demonstrated or accomplished through an interview process. If accomplished through an interview process, appropriate school personnel including decision making officials (e.g., superintendent/principal, transportation director/bus dispatcher), and at least one bus driver (and the bus driver's escort, if applicable) should be available to demonstrate knowledge of their role(s) in the evacuation of school children. Communications capabilities between school officials and the buses, if required by the plan and/or procedures, should be verified.

Officials of the participating school(s) or school system(s) should demonstrate the capability to develop and provide timely information to OROs for use in messages to parents, the general public, and the media on the status of protective actions for schools.

State of Delaware Extent-of-Play

All activities will be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless indicated in the Extent-of-Play agreement below

Will demonstrate protective actions for schools as an out-of-sequence activity during TBD

School principals or designees, Superintendent or designees, and bus drivers will be interviewed on procedures. A bus will be available at each school, for equipment (communications and maps) observation. However, the school children will not be involved with the demonstration nor will the buses be driven to the designated routes. The Department of Education (DOE) representative at the State EOC will demonstrate their procedures.

Private schools, private kindergartens and licensed day cares do not participate in REP Exercises. However, OROs will be prepared to show evaluators list of these facilities that they will contact in the event of an emergency in accordance with their plans and procedures.

The licensed day care notification process will be demonstrated at the State EOC on May 20, 2008. List of licensed day cares will be available at the State EOC. The process of notification procedures will be demonstrated and documented. There will be no actual notification of licensed day cares.

Locations evaluated

Out-of-Sequence: -

May 7, 2008 10:00 a.m.
Wrangle Hill Elementary School – Colonial School District –
St. Georges Technical High School – New Castle Votech School District
Redding Middle School, Cedar Lane Elementary School, Cedar Lane Early Childhood Center, Middletown High School - Appoquinimink School District – Appoquinimink School District –

State EOC/Department of Education Representative - May 7, 2008

State EOC for Licensed Day Care Notification Process - May 20, 2008

Outstanding Issues
None

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, k)

INTENT

This sub-element is derived from NUREG-0654, which provides that OROs have the capability to implement protective action plans, including relocation and restriction of access to evacuated/sheltered areas. This sub-element focuses on selecting, establishing, and staffing of traffic and access control points and removal of impediments to the flow of evacuation traffic.

EXTENT-OF-PLAY

OROs should demonstrate the capability to select, establish, and staff appropriate traffic and access control points consistent with protective action decisions (for example, evacuating, sheltering, and relocation), in a timely manner. OROs should demonstrate the capability to provide instructions to traffic and access control staff on actions to take when modifications in protective action strategies necessitate changes in evacuation patterns or in the area(s) where access is controlled.

Traffic and access control staff should demonstrate accurate knowledge of their roles and responsibilities. This capability may be demonstrated by actual deployment or by interview in accordance with the Extent-of-Play agreement.
In instances where OROs lack authority necessary to control access by certain types of traffic (rail, water, and air traffic), they should demonstrate the capability to contact the State or Federal agencies with authority to control access.

State of Delaware Extent-of-Play

All activities will be based on the ORO's plans and procedures and completed, as they would be in an actual emergency, unless indicated in the Extent-of-Play agreement.

Interviews will be conducted at the State EOC out-of-sequence between 6:00 p.m. and 7:00 p.m. which may not be within exercise play. There will be no actual deployment of Access Control and Traffic Control Points.

Delaware State Police and Delaware Department of Transportation personnel will be interviewed on Traffic and Access Control procedures and will demonstrate communication system, as well as exposure control procedures. DSP and DelDOT personnel will simulate reporting to the Emergency Worker Decontamination Center (National Guard Readiness Center) in Middletown, DE.

If directed, suiting in anti-contamination clothing and the ingestion of KI will be simulated.

Locations evaluated

Delaware Department of Transportation
Delaware State Police
State EOC

Outstanding Issues

None

EVALUATION AREA 3: PROTECTIVE ACTION IMPLEMENTATION

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

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

INTENT

This sub-element is derived from NUREG-0654, which provides that OROs have the capability to implement protective action plans, including relocation and restriction of access to evacuated/sheltered areas. This sub-element focuses on selecting, establishing, and staffing of traffic and access control points and removal of impediments to the flow of evacuation traffic.

EXTENT-OF-PLAY

OROs should demonstrate the capability, as required by the scenario, to identify and take appropriate actions concerning impediments to evacuation. Actual dispatch of resources to deal with impediments, such as wreckers, need not be demonstrated; however, all contacts, actual or simulated should be logged.

State of Delaware Extent-of-Play

All activities will be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless indicated in the Extent-of-Play agreement below

Interviews will be conducted at the State EOC.

There will be no actual deployment of Access Control and Traffic Control points.

Radiological Emergency Worker kits (dosimeters and anti-contamination suits) will be available at the State EOC during the interview.

If directed, suiting in anti-contamination clothing and the ingestion of KI will be simulated.

DSP and DelDOT personnel will simulate reporting to the Emergency Worker Decontamination Center (National Guard Readiness Center) in Middletown, DE.

Locations evaluated

Delaware State Police and Delaware Department of Transportation
State EOC

Outstanding Issues

None

EVALUATION AREA 3: PROTECTIVE ACTION IMPLEMENTATION

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

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

INTENT

This sub-element is derived from NUREG-0654, which provides that OROs should have the capability to implement protective actions, based on criteria recommended by current Food and Drug Administration guidance, for the ingestion pathway emergency planning zone (IPZ), the area within an approximate 50-mile radius of the nuclear power plant. This sub-element focuses on those actions required for implementation of protective actions.

EXTENT-OF-PLAY

Applicable OROs should demonstrate the capability to secure and utilize current information on the locations of dairy farms, meat and poultry producers, fisheries, fruit growers, vegetable growers, grain producers, food processing plants, and water supply intake points to implement protective actions within the ingestion pathway EPZ.

OROs should use Federal resources as identified in the FRERP, and other resources (e.g. compacts, nuclear insurers, etc), if available. Evaluation of this criterion will take into consideration the level of Federal and other resources participating in the exercise.

State of Delaware Extent-of-Play

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, E.5, 7; J.9, 11)

INTENT

This sub-element is derived from NUREG-0654, which provides that OROs should have the capability to implement protective actions, based on criteria recommended by current Food and Drug Administration guidance, for the ingestion pathway emergency planning zone (IPZ), the area within an approximate 50-mile radius of the nuclear power plant. This sub-element focuses on those actions required for implementation of protective actions.

EXTENT-OF-PLAY

Development of measures and strategies for implementation of ingestion pathway zone (IPZ) protective actions should be demonstrated by formulation of protective action information for the general public and food producers and processors. This includes the capability for the rapid reproduction and distribution of appropriate reproduction-ready information and instructions to pre-determined individuals and businesses. OROs should demonstrate the capability to control, restrict or prevent distribution of contaminated food by commercial sectors. Exercise play should include demonstration of communications and coordination between organizations to implement protective actions. However, actual field play of implementation activities may be simulated. For example, communications and coordination with agencies responsible for enforcing food controls within the IPZ should be demonstrated, but actual communications with food producers and processors may be simulated.

State of Delaware Extent-of-Play

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 the public are coordinated with appropriate organizations and implemented. (NUREG-0654, M.1, 3)

INTENT

This sub-element is derived from NUREG-0654, which provides that OROs should demonstrate the capability to implement plans, procedures, and decisions for relocation, re-entry, and return. Implementation of these decisions is essential for the protection of the public from the direct long-term exposure to deposited radioactive materials from a severe accident at a commercial nuclear power plant.

EXTENT-OF-PLAY

Relocation: OROs should demonstrate the capability to coordinate and implement decisions concerning relocation of individuals, not previously evacuated, to an area where radiological contamination will not expose the general public to doses that exceed the relocation PAGs. OROs should also demonstrate the capability to provide for short-term or long-term relocation of evacuees who lived in areas that have residual radiation levels above the PAGs.

Areas of consideration should include the capability to communicate with OROs regarding timing of actions, notification of the population of the procedures for relocation, and the notification of, and advice for, evacuated individuals who will be converted to relocation status in situations where they will not be able to return to their homes due to high levels of contamination. OROs should also demonstrate the capability to communicate instructions to the public regarding relocation decisions.

Re-entry: OROs should demonstrate the capability to control re-entry and exit of individuals who need to temporarily re-enter the restricted area, to protect them from unnecessary radiation exposure and for exit of vehicles and other equipment to control the spread of contamination outside the restricted area. Monitoring and decontamination facilities will be established as appropriate.

Examples of control procedure subjects are: (1) the assignment of, or checking for, direct-reading and non-direct-reading dosimeters for emergency workers; (2) questions regarding the individuals' objectives and locations expected to be visited and associated timeframes; (3) maps and plots of radiation exposure rates; (4) advice on areas to avoid; and procedures for exit, including monitoring of individuals, vehicles, and equipment, decision criteria regarding contamination, proper disposition of emergency worker dosimeters, and maintenance of emergency worker radiation exposure records.

Return; OROs should demonstrate the capability to implement policies concerning return of members of the public to areas that were evacuated during the plume phase. OROs should demonstrate the capability to identify and prioritize services and facilities that require restoration

within a few days, and to identify the procedures and resources for their restoration. Examples of these services and facilities are medical and social services, utilities, roads, schools, and intermediate term housing for relocated persons.

Communications among OROs for relocation, re-entry, and return may be simulated; however all simulated or actual contacts should be documented. These discussions may be accomplished in a group setting.

OROs should use Federal resources as identified in the FRERP, and other resources (e.g. compacts, nuclear insurers, etc), if available. Evaluation of this criterion will take into consideration the level of Federal and other resources participating in the exercise.

State of Delaware Extent-of-Play

Not evaluated for this exercise.

EVALUATION AREA 4: FIELD MEASUREMENT AND ANALYSIS

Sub-element 4.a – Plume Phase Field Measurements and Analyses

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.8, 9, 11)

INTENT

This sub-element is derived from NUREG-0654, which provides that OROs should have the capability to deploy field teams with the equipment, methods, and expertise necessary to determine the location of airborne radiation and particulate deposition on the ground from an airborne plume. In addition, NUREG-0654 indicates that OROs should have the capability to use field teams within the plume emergency planning zone to measure airborne radioiodine in the presence of noble gases and to measure radioactive particulate material in the airborne plume.

In the event of an accident at a nuclear power plant, the possible release of radioactive material may pose a risk to the nearby population and environment. Although accident assessment methods are available to project the extent and magnitude of a release, these methods are subject to large uncertainties. During an accident, it is important to collect field radiological data in order to help characterize any radiological release. This does not imply that plume exposure projections should be made from the field data. Adequate equipment and procedures are essential to such field measurement efforts.

EXTENT-OF-PLAY

Field teams should be equipped with all instruments and supplies necessary to accomplish their mission. This should include instruments capable of measuring gamma exposure rates and detecting the presence of beta radiation. These instruments should be capable of measuring a range of activity and exposure, including radiological protection/exposure control of team members and detection of activity on the air sample collection media, consistent with the intended use of the instrument and the ORO's plans and procedures. An appropriate radioactive check source should be used to verify proper operational response for each low range radiation measurement instrument (less than 1 R/hr) and for high range instruments when available. If a source is not available for a high range instrument, a procedure should exist to operationally test the instrument before entering an area where only a high range instrument can make useful readings.

State of Delaware Extent-of-Play

All activities will be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless indicated in the Extent-of-Play agreement below.

Two (2) DNG Field Monitoring Teams (FMTs) will be evaluated and will pre-demonstrate instrument checkout prior to the start of the exercise. DNG Field Teams (2) will remain at the DNG Headquarters until activated. They will not be required to perform a second instrument checkout.

If the DNG State Field Monitoring Teams are requested to perform an additional air sample and count during exercise play, the FMTs will perform the tasking, but the pre-demonstration will serve as the evaluation demonstration for this criterion.
If directed, suiting in anti-contamination clothing and taking of KI will be simulated. DNG Field Monitoring Teams will simulate reporting to the Emergency Worker Decontamination Center in Middletown following completion of their assignment.

Locations evaluated

Delaware National Guard Field Teams

Outstanding Issues

None

EVALUATION AREA 4: FIELD MEASUREMENT AND ANALYSIS

Sub-element 4.a – Plume Phase Field Measurements and Analyses

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

INTENT

This sub-element is derived from NUREG-0654, which provides that OROs should have the capability to deploy field teams with the equipment, methods, and expertise necessary to determine the location of airborne radiation and particulate deposition on the ground from an airborne plume. In addition, NUREG-0654 indicates that OROs should have the capability to use field teams within the plume emergency planning zone to measure airborne radioiodine in the presence of noble gases and to measure radioactive particulate material in the airborne plume.

In the event of an accident at a nuclear power plant, the possible release of radioactive material may pose a risk to the nearby population and environment. Although accident assessment methods are available to project the extent and magnitude of a release, these methods are subject to large uncertainties. During an accident, it is important to collect field radiological data in order to help characterize any radiological release. This does not imply that plume exposure projections should be made from the field data. Adequate equipment and procedures are essential to such field measurement efforts.

EXTENT-OF-PLAY

Responsible OROs should demonstrate the capability to brief teams on predicted plume location and direction, travel speed, and exposure control procedures before deployment.

Field measurements are needed to help characterize the release and to support the adequacy of implemented protective actions or to be a factor in modifying protective actions. Teams should be directed to take measurements in such locations, at such times to provide information sufficient to characterize the plume and impacts.

If the responsibility to obtain peak measurements in the plume has been accepted by license field monitoring teams, with concurrence from OROs, there is no requirement for these measurements to be repeated by State and local monitoring teams. If the license teams do not obtain peak measurements in the plume, it is the ORO's decision as to whether peak measurements are necessary to sufficiently characterize the plume. The sharing and coordination of plume measurement information among all field teams (licensee, federal, and ORO) is essential. Coordination concerning transfer of samples, including a chain-of-custody form, to a radiological laboratory should be demonstrated.

OROs should use Federal resources as identified in the Federal Radiological Emergency Response Plan (FRERP), and other resources (e.g., compacts, etc), if available. Evaluation of this criterion will take into consideration the level of Federal and other resources participating in the exercise.

State of Delaware Extent-of-Play

All activities will be demonstrated in accordance with established plans and procedures as they would in an actual emergency.

Locations evaluated

Delaware National Guard Field Teams

Outstanding Issues

None

EVALUATION AREA 4: FIELD MEASUREMENT AND ANALYSIS

Sub-element 4.a – Plume Phase Field Measurements and Analyses

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.8, 9, 11)

INTENT

This sub-element is derived from NUREG-0654, which provides that OROs should have the capability to deploy field teams with the equipment, methods, and expertise necessary to determine the location of airborne radiation and particulate deposition on the ground from an airborne plume. In addition, NUREG-0654 indicates that OROs should have the capability to use field teams within the plume emergency planning zone to measure airborne radioiodine in the presence of noble gases and to measure radioactive particulate material in the airborne plume.

In the event of an accident at a nuclear power plant, the possible release of radioactive material may pose a risk to the nearby population and environment. Although accident assessment methods are available to project the extent and magnitude of a release, these methods are subject to large uncertainties. During an accident, it is important to collect field radiological data in order to help characterize
any radiological release. This does not imply that plume exposure projections should be made from the field data. Adequate equipment and procedures are essential to such field measurement efforts.

EXTENT-OF-PLAY

Field teams should demonstrate the capability to report measurements and field data pertaining to the measurement of airborne radioiodine and particulates to the field team coordinator, dose assessment, or other appropriate authority. If samples have radioactivity significantly above background, the appropriate authority should consider the need for expedited laboratory analyses of these samples. OROs should share data in a timely manner with all appropriate OROs. The methodology, including contamination control, instrumentation, preparation of samples, and a chain-of-custody form for transfer to a laboratory, will be in accordance with the ORO plan and/or procedures.

OROs should use Federal resources as identified in the FRERP, and other resources (e.g., compacts, etc), if available. Evaluation of this criterion will take into consideration the level of Federal and other resources participating in the exercise.

State of Delaware Extent-of-Play

All activities will be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless indicated in the Extent-of-Play agreement below.

Two (2) DNG Field Teams will pre-demonstrate ambient radiation monitoring procedures and airborne radioiodine particulate activity monitoring procedures at the DNG Headquarters prior to deployment. Delivery of samples for additional analysis will not be demonstrated. Chain of custody procedures will be described to the evaluator.

Locations evaluated

Delaware National Guard Field Teams

Outstanding Issues

None

EVALUATION AREA 4: FIELD MEASUREMENT 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, water, vegetation, and soil) to support adequate assessments and protective action decision-making. (NUREG-0654, I.8; J.11)

INTENT

This sub-element is derived from NUREG-0654, which provides that OROs should have the capability to assess the actual or potential magnitude and locations of radiological hazards in the ingestion emergency planning zone (IPZ) and for relocation, re-entry and return measures.

This sub-element focuses on the collection of environmental samples for laboratory analyses that are essential for decisions on protection of the public from contaminated food and water and direct radiation from deposited materials.

EXTENT-OF-PLAY

The ORO field teams should demonstrate the capability to take measurements and samples, at such times and locations as directed, to enable an adequate assessment of the ingestion pathway and to support re-entry, relocation, and return decisions. When resources are available, the use of aerial surveys and in-situ gamma measurement is appropriate. All methodology, including contamination control, instrumentation, preparation of samples, and a chain-of-custody form for transfer to a laboratory, will be in accordance with the ORO's plan and/or procedures.

Ingestion pathway samples should be secured from agricultural products and water. Samples in support of relocation and return should be secured from soil, vegetation, and other surfaces in areas that received radioactive ground deposition.

OROs should use Federal resources as identified in the FRERP, and other resources (e.g. compacts, nuclear insurers, etc), if available. Evaluation of this criterion will take into consideration the level of Federal and other resources participating in the exercise.

State of Delaware Extent-of-Play

Not evaluated for this exercise.

EVALUATION AREA 4: FIELD MEASUREMENT AND ANALYSIS

Sub-element 4.c - Laboratory Operations

Criterion 4.c.1: The laboratory is capable of performing required radiological analyses to support protective action decisions. (NUREG-0654, C.3; I.8, 9; J.11)

INTENT

This sub-element is derived from NUREG-0654, which provides that OROs should have the capability to perform laboratory analyses of radioactivity in air, liquid, and environmental samples to support protective action decision-making.

EXTENT-OF-PLAY

The laboratory staff should demonstrate the capability to follow appropriate procedures for receiving samples, including logging of information, preventing contamination of the laboratory, preventing buildup of background radiation due to stored samples, preventing cross contamination of samples, preserving samples that may spoil (e.g., milk), and keeping track of sample identity. In addition, the laboratory staff should demonstrate the capability to prepare samples for conducting measurements.

The laboratory should be appropriately equipped to provide analyses of media, as requested, on a timely basis, of sufficient quality and sensitivity to support assessments and decisions as anticipated by the ORO's plans and procedures. The laboratory instrument calibrations should be traceable to standards provided by the National Institute of Standards and Technology. Laboratory methods used to analyze typical radionuclides released in a reactor incident should be as described in the plans and procedures. New or revised methods may be used to analyze atypical radionuclide releases (e.g. transuranics or as a result of a terrorist event) or if warranted by circumstances of the event. Analysis may require resources beyond those of the ORO.

The laboratory staff is qualified in radioanalytical techniques and contamination control procedures.

OROs should use Federal resources as identified in the FRERP, and other resources (e.g. compacts, nuclear insurers, etc), if available. Evaluation of this criterion will take into consideration the level of Federal and other resources participating in the exercise.

State of Delaware Extent-of-Play

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 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 FEMA REP guidance. (10 CFR Part 50, Appendix E & NUREG-0654, E.1, 4, 5, 6, 7)

INTENT

This sub-element is derived from NUREG-0654, which provides that OROs should have the capability to provide prompt instructions to the public within the plume pathway EPZ. Specific provisions addressed in this sub-element are derived from the Nuclear Regulatory Commission (NRC) regulations (10 CFR Part 50, Appendix E.IV.D.), and FEMA-REP-10, "Guide for the Evaluation of Alert and Notification systems for Nuclear Power Plants."

EXTENT-OF-PLAY

Responsible OROs should demonstrate the capability to sequentially provide an alert signal followed by an initial instructional message to populated areas (permanent resident and transient) throughout the 10-mile plume pathway EPZ. Following the decision to activate the alert and notification system, in accordance with the ORO's plan and/or procedures, completion of system activation should be accomplished in a timely manner **(will not be subject to specific time requirements)** for primary alerting/notification. The initial message should include the elements required by current FEMA REP guidance.

For exercise purposes, timely is defined as "the responsible ORO personnel/ representatives demonstrate actions to disseminate the appropriate information/ instructions with a sense of urgency and without undue delay." If message dissemination is to be identified as not having been accomplished in a timely manner, the evaluator(s) will document a specific delay or cause as to why a message was not considered timely.

Procedures to broadcast the message should be fully demonstrated as they would in an actual emergency up to the point of transmission. Broadcast of the message(s) or test messages is not required. The alert signal activation may be simulated. However, the procedures should be demonstrated up to the point of actual activation.

The capability of the primary notification system to broadcast an instructional message on a 24-hour basis should be verified during an interview with appropriate personnel from the primary notification system.

State of Delaware Extent-of-Play

All activities will be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless indicated in the Extent-of-Play agreement below

Siren activation and broadcast of the EAS message will be simulated.

Alert and notification of the Delaware River area will be simulated. The Emergency Alert System (EAS) will be evaluated for an EAS message. One siren will be simulated to fail in each county (Kent County and New Castle County) (an inject will be provided for notification of siren failure) within the Odessa Fire Company (Odessa) in New Castle County and Citizens Hose Fire Company (Smyrna) district to initiate route alerting demonstration. The message broadcast for route alerting will be played by the Fire Company prior to deployment. A roster of special populations will be provided to the evaluator. No contact will be made during the demonstration with special populations. Upon completion of the route alerting, the fire company personnel will simulate reporting to the Emergency Worker Decontamination Center (Delaware National Guard Readiness Center) in Middletown, DE.

Locations evaluated

State EOC and New Castle County EOC, Kent County EOC (For siren failure notification to Fire Company)

Outstanding Issues

None

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 FEMA 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, E.6; Appendix 3.B.2.c)

INTENT

This sub-element is derived from NUREG-0654, which provides that OROs should have the capability to provide prompt instructions to the public within the plume pathway EPZ. Specific provisions addressed in this sub-element are derived from the Nuclear Regulatory Commission (NRC) regulations (10 CFR Part 50, Appendix E.IV.D.) and FEMA-REP-10, "Guide for the Evaluation of Alert and Notification systems for Nuclear Power Plants."

EXTENT-OF-PLAY

OROs with FEMA-approved exception areas (identified in the approved Alert and Notification System Design Report) 5-10 miles from the nuclear power plant should demonstrate the capability to accomplish primary alerting and notification of the exception area(s) within 45 minutes following the initial decision by authorized offsite emergency officials to notify the public of an emergency situation. The 45-minute
clock will begin when the OROs make the decision to activate the alert and notification system for the first time for a specific emergency situation. The initial message should, at a minimum, include: a statement that an emergency exists at the plant and where to obtain additional information.

For exception area alerting, at least one route needs to be demonstrated and evaluated. The selected routes should vary from exercise to exercise. However, the most difficult route should be demonstrated at least once every six years. All alert and notification activities along the route should be simulated (e.g., the message that would actually be used is read for the evaluator, but not actually broadcast) as agreed upon in the Extent-of-Play. Actual testing of the mobile public address system will be conducted at some agreed upon location.

Backup alert and notification of the public should be completed within 45 minutes following the detection by the ORO of a failure of the primary alert and notification system. Backup route alerting needs only be demonstrated and evaluated, in accordance with the ORO's plan and/or procedures and the Extent-of-Play agreement, if the exercise scenario calls for failure of any portion of the primary system(s), or if any portion of the primary system(s) actually fails to function. If demonstrated, only one route needs to be selected and demonstrated. All alert and notification activities along the route should be simulated (e.g., the message that would actually

be used is read for the evaluator, but not actually broadcast) as agreed upon in the Extent-of-Play. Actual testing of the Public Address system will be conducted at some agreed upon location.

State of Delaware Extent-of-Play

All activities will be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless indicated in the Extent-of-Play agreement below.

One back-up route-alerting route will be demonstrated in each county (Kent County and New Castle County).

Two sirens will be simulated to fail (an inject will be provided for notification of siren failure) within the Odessa Fire Company (Odessa) and Citizens Hose Fire Company district to initiate route alerting demonstration. The message broadcast for route alerting will be played by the Fire Company prior to deployment. A roster of special populations will be provided to the evaluator. No contact will be made during the demonstration with special populations. Upon completion of the route alerting, the fire company personnel will simulate reporting to the Emergency Worker Decontamination Center (Delaware National Guard Readiness Center), in Middletown, DE.

Locations evaluated

Odessa Fire Company (Odessa)
Citizens Hose Fire Company (Smyrna)

Outstanding Issues

None

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, a, b, c)

INTENT

This sub-element is derived from NUREG-0654, which provides that OROs should have the capability to disseminate to the public appropriate emergency information and instructions including any recommended protective actions. In addition, NUREG-0654 provides that OROs should ensure the capability exists for providing information to the media. This includes the availability of a physical location for use by the media during an emergency. NUREG-0654 also provides that a system be available for dealing with rumors. This system will hereafter be known as the public inquiry hotline.

EXTENT-OF-PLAY

Subsequent emergency information and instructions should be provided to the public and the media in a timely manner **(will not be subject to specific time requirements)**. For exercise purposes, timely is defined as "the responsible ORO personnel/representatives demonstrate actions to disseminate the appropriate information/instructions with a sense of urgency and without undue delay." If message dissemination is to be identified as not having been accomplished in a timely manner, the evaluator(s) will document a specific delay or cause as to why a message was not considered timely.

The OROs should ensure that emergency information and instructions are consistent with protective action decisions made by appropriate officials. The emergency information should contain all necessary and applicable instructions (e.g., evacuation instructions, evacuation routes, reception center locations, what to take when evacuating, information concerning pets, shelter-in-place instructions, information concerning protective actions for schools and special populations, public inquiry telephone number, etc.) to assist the public in carrying out protective action decisions provided to them. OROs should demonstrate the capability to use language that is clear and understandable to the public within both the plume and ingestion pathway EPZs. This includes demonstration of the capability to use familiar landmarks and boundaries to describe protective action areas.

The emergency information should be all-inclusive by including previously identified protective action areas that are still valid as well as new areas. The OROs should demonstrate the capability to ensure that emergency information that is no longer valid is rescinded and not repeated by broadcast media. In addition, the OROs should demonstrate the capability to ensure that current

emergency information is repeated at pre-established intervals in accordance with the plan and/or procedures.

OROs should demonstrate the capability to develop emergency information in a non-English language when required by the plan and/or procedures.

If ingestion pathway measures are exercised, OROs should demonstrate that a system exists for rapid dissemination of ingestion pathway information to pre-determined individuals and businesses in accordance with the ORO's plan and/or procedures.

OROs should demonstrate the capability to provide timely, accurate, concise, and coordinated information to the news media for subsequent dissemination to the public. This would include demonstration of the capability to conduct timely and pertinent media briefings and distribute media releases as the situation warrants. The OROs should demonstrate the capability to respond appropriately to inquiries from the news media. All information presented in media briefings and media releases should be consistent with protective action decisions and other emergency information provided to the public. Copies of pertinent emergency information (e.g., EAS messages and media releases) and media information kits should be available for dissemination to the media.

OROs should demonstrate that an effective system is in place for dealing with calls to the public inquiry hotline. Hotline staff should demonstrate the capability to provide or obtain accurate information for callers or refer them to an appropriate information source. Information from the hotline staff, including information that corrects false or inaccurate information when trends are noted, should be included, as appropriate, in emergency information provided to the public, media briefings, and/or media releases.

State of Delaware Extent-of-Play

All activities will be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless indicated in the Extent-of-Play agreement below.

Press releases and EAS messages are written and approved at the State EOC. Actual broadcast of EAS messages will be simulated. The Emergency News Center (ENC) lead, Woodstown, NJ disseminates this information at the ENC. At least one media briefing will be conducted. Public inquiry calls will be initiated. The public inquiry (rumor control) at the State EOC will be staffed with two operators and will receive at least six calls to include at least two (2) identifiable trends.

Locations evaluated

State EOC, Emergency News Center (ENC), Woodstown, NJ

Outstanding Issues

None

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; K.5.b)

INTENT

This sub-element is derived from NUREG-0654, which provides that OROs have the capability to implement radiological monitoring and decontamination of evacuees and emergency workers, while minimizing contamination of the facility, and registration of evacuees at reception centers.

EXTENT-OF-PLAY

Radiological monitoring, decontamination, and registration facilities for evacuees/ emergency workers should be set up and demonstrated as they would be in an actual emergency or as indicated in the Extent-of-Play agreement. This would include adequate space for evacuees' vehicles. Expected demonstration should include 1/3 of the monitoring teams/portal monitors required to monitor 20% of the population allocated to the facility within 12 hours. Prior to using a monitoring instrument(s), the monitor(s) should demonstrate the process of checking the instrument(s) for proper operation.

Staff responsible for the radiological monitoring of evacuees should demonstrate the capability to attain and sustain a monitoring productivity rate per hour needed to monitor the 20% emergency planning zone (EPZ) population planning base within about 12 hours. This monitoring productivity rate per hour is the number of evacuees that can be monitored per hour by the total complement of monitors using an appropriate monitoring procedure. A minimum of six individuals per monitoring station should be monitored, using equipment and procedures specified in the plan and/or procedures, to allow demonstration of monitoring, decontamination, and registration capabilities. The monitoring sequences for the first six simulated evacuees per monitoring team will be timed by the evaluators in order to determine whether the twelve-hour requirement can be met. Monitoring of emergency workers does not have to meet the twelve-hour requirement. However, appropriate monitoring procedures should be demonstrated for a minimum of two emergency workers.

Decontamination of evacuees/emergency workers may be simulated and conducted by interview. The availability of provisions for separately showering should be demonstrated or explained. The staff should demonstrate provisions for limiting the spread of contamination. Provisions could include floor coverings, signs and appropriate means (e.g. partitions, roped-off areas) to separate clean from potentially contaminated areas. Provisions should also exist to separate contaminated and uncontaminated individuals, provide changes of clothing for individuals whose clothing is contaminated, and store contaminated clothing and personal belongings to prevent further

contamination of evacuees or facilities. In addition, for any individual found to be contaminated, procedures should be discussed concerning the handling of potential contamination of vehicles and personal belongings.

Monitoring personnel should explain the use of action levels for determining the need for decontamination. They should also explain the procedures for referring evacuees who cannot be adequately decontaminated for assessment and follow up in accordance with the ORO's plans and procedures. Contamination of the individual will be determined by controller inject and not simulated with any low-level radiation source.

The capability to register individuals upon completion of the monitoring and decontamination activities should be demonstrated. The registration activities demonstrated should include the establishment of a registration record for each individual, consisting of the individual's name, address, results of monitoring, and time of decontamination, if any, or as otherwise designated in the plan. Audio recorders, camcorders, or written records are all acceptable means for registration.

State of Delaware Extent-of-Play

Not evaluated for this exercise.

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)

INTENT

This sub-element is derived from NUREG-0654, which provides that OROs have the capability to implement radiological monitoring and decontamination of emergency worker equipment, including vehicles.

EXTENT-OF-PLAY

The monitoring staff should demonstrate the capability to monitor equipment, including vehicles, for contamination in accordance with the ORO's plans and procedures. Specific attention should be given to equipment, including vehicles, that was in contact with individuals found to be contaminated. The monitoring staff should demonstrate the capability to make decisions on the need for decontamination of equipment including vehicles based on guidance levels and procedures stated in the plan and/or procedures.

The area to be used for monitoring and decontamination should be set up as it would be in an actual emergency, with all route markings instrumentation, record keeping and contamination control measures in place. Monitoring procedures should be demonstrated for a minimum of one vehicle. It is generally not necessary to monitor the entire surface of vehicles. However, the capability to monitor areas such as air intake systems, radiator grills, bumpers, wheel wells, tires, and door handles should be demonstrated. Interior surfaces of vehicles that were in contact with individuals found to be contaminated should also be checked.

Decontamination capabilities, and provisions for vehicles and equipment that cannot be decontaminated, may be simulated and conducted by interview.

State of Delaware Extent-of-Play

Not evaluated for this exercise.

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)

INTENT

This sub-element is derived from NUREG-0654, which provides that OROs demonstrate the capability to establish relocation centers in host areas. Congregate care is normally provided in support of OROs by the American Red Cross under existing letters of agreement.

EXTENT-OF-PLAY

Under this criterion, demonstration of congregate care centers may be conducted out of sequence with the exercise scenario. The evaluator should conduct a walk-through of the center to determine, through observation and inquiries, that the services and accommodations are consistent with ARC 3031 **In this simulation, it is not necessary to set up operations, as they would be in an actual emergency.** Alternatively, capabilities may be demonstrated by setting up stations for various services and providing those services to simulated evacuees. Given the substantial differences between demonstration and simulation of this criteria, exercise demonstration expectations should be clearly specified in extent-of-play agreements.

Congregate care staff should also demonstrate the capability to ensure that evacuees have been monitored for contamination, have been decontaminated as appropriate, and have been registered before entering the facility. This capability may be determined through an interview process.

If operations at the center are demonstrated, material that would be difficult or expensive to transport (e.g., cots, blankets, sundries, and large-scale food supplies) need not be physically available at the facility(ies). However, availability of such items should be verified by providing the evaluator a list of sources with locations and estimates of quantities.

State of Delaware Extent-of-Play

All activities will be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless indicated in the Extent-of-Play agreement below.

This element will be evaluated as an out-of-sequence activity. Actual set up of the center will not be demonstrated. Processes will be described to the evaluator during an interview at the designated location.

Capabilities will be demonstrated through an interview process.

Availability of additional personnel will be determined by interview.

Supplies required for long term mass care (cots, blankets, food, etc) are not to be acquired or brought to the Congregate Care Shelters.

Locations evaluated

Out-of-Sequence

May 8, 2008 10:00 a.m.
Dover High School, Central Middle School, William Henry Middle School, Caesar Rodney High School, Fred Fifer Middle School, Lake Forest High School, W. T. Chipman Middle School, Milford High School, Milford Middle School, Mount Pleasant High School, and Concord High School.

Outstanding Issues

None

APPENDIX 4:
Exercise Scenario

This appendix contains a summary of the simulated sequence of events used as the basis for invoking emergency response actions by Offsite Response Organizations (OROs) during the Salem/Hope Creek Nuclear Generating Stations (S/HCNGS) exercise on May 20, 2008.

The exercise scenario was submitted by the State of Delaware. The scenario was approved by the Federal Emergency Management Agency (FEMA) Region III on May 11, 2008.

The summary presented in this appendix is a compilation of exercise scenario materials submitted by the State of Delaware and PSEG Nuclear LLC. Events at the plant site that are not pertinent to the ORO response have been omitted.

PSEG NUCLEAR, LLC
Hope Creek – Graded Exercise
(5/20/08)

SCENARIO SYNOPSIS

The operations crew will be reporting to the simulator at 1500 for pre-exercise briefing. The scenario will start in the Hope Creek Simulator at 1600. The on-shift players, simulator crew, and Nuclear Equipment Operators will be pre-staged. Other PSEG Nuclear Emergency Response Facilities will be notified using page announcements and the callout system after 1615.

Initial Conditions:
Salem 1 is at 100% power at beginning of life.
Salem 2 is at 100% power at middle of life.
Hope Creek is at 100% power and has been online for the past 14 months.

All major equipment is operable with the following exception:
MIDAS (Dose Assessment Software) is not available in Automatic Mode due to a problem with the reliability of the automatic data collection system.

AT 1600 EXERCISE BEGINS

At 1605, both "B" Reactor Recirculation Pump Seals (Outboard and Inboard Seal) will fail, resulting in a small break Loss of Cooling Accident (LOCA). When the control room operators attempt to isolate the "B" Reactor Recirculation Pump, the "B" Reactor Recirculation Pump Discharge Valve will not completely close. Drywell pressure will start to increase. Operators may Scram the reactor before 1.68 psig (Reactor Scram and Emergency Core Cooling System Actuation Point) is reached in the drywell.

Approximately 1610, drywell pressure reaches 1.68 psig. Reactor Scrams (if not performed previously by operators), all Core Spray and Low-Pressure Coolant Injection (LPCI) Pumps start but will not inject (Reactor Pressure above shutoff head of the pumps), all Emergency Diesel Generators start but will not load (no loss of offsite power), and Primary Containment Isolation Valves will close.

"A" Filtration, Recirculation, and Ventilation System (FRVS) Vent Fan will trip 10 minutes after receiving a start signal. The "B" FRVS Vent auto starting shortly thereafter. In addition, the operators will discover a Source Range Monitor (SRM) Detector will fail to insert, the Suppression Chamber Sprays will not function, and the "B" Control Rod Drive Pump will not be able to start. All of these events are recoverable.

By 1625 or sooner, the Shift Manager (SM) who is now also the Emergency Coordinator (EC) should declare an **Alert** based on a loss of the Reactor Coolant System (RCS) Fission Product Barrier

ALERT

EAL 2.2.2.b:

Valid High Drywell Pressure ≥ 1.68 psig

(Loss of RCS Barrier = 4 points)

The EC will implement ECG Attachment 2 for the ALERT declaration. The emergency response organization callout system will be activated resulting in staffing of all emergency response facilities.

A plant cooldown will commence in accordance with applicable Emergency Operating Procedures and HC.IO.ZZ-0004.

By approximately 1700, the Operational Support Center (OSC) should be staffed and activated.

Shortly after activation of the OSC, reports will be received in the Control Room/OSC of an injured person in the radiological controlled area who may be contaminated. Injury is not serious but first aid will be necessary.

By approximately 1725, the Technical Support Center should be activated and the EC function transferred to the Emergency Duty Officer.

As the Main Turbine coasts down, the Turning Gear will fail to engage. Local engagement will be necessary.

At 1745, a large break LOCA will occur. The reactor water level should fall below the top of active fuel, and fuel damage would then occur. Coincident with the core uncovered, the Drywell Atmosphere Post Accident (DAPA) radiation monitors (High Range Containment Radiation Area Monitors) will begin to increase.

By 1750, DAPA "A" and DAPA "B" will be reading > 5000 R/hr, indicating a Loss of Fuel Cladding.

By 1800 or sooner, a **Site Area Emergency** (SAE) should be declared by the EC (EDO/ERM) based on Loss of the RCS and Fuel Fission Product Barriers

SITE AREA EMERGENCY

EAL 3.1.2, DAPA ≥ 5000 R/hr

AND

EAL 3.2.1.b, Reactor Water Level reaches –161" (Top of Active Fuel)
OR
EAL 3.2.2.b, Valid High Drywell Pressure (≥ 1.68 psig)

(Loss of Fuel Clad and RCS Barriers = 8 points)

The EC will implement ECG Attachment 3 for the SAE declaration.

Note: The EC may declare a SAE prior to 1750 based on EAL 3.1.1.a (Reactor Water level reaches –161") AND either EAL 3.2.1.b or EAL 2.3.3.b (Potential Loss of Fuel Clad Barrier and Loss of RCS Barrier = 7 points).

Soon afterward, the EC should implement accountability of the protected area and evacuation of the owner-controlled areas. (Accountability will be limited to drill participants and owner controlled area (OCA) evacuation will be simulated.)

By 1810, if not already done, the Emergency Operations Facility (EOF) will be activated and the Emergency Response Manager will assume the role of EC.

At 1830, the "B" Service Water Pump trips from pump bearing seizure.

At 1855, after "C" LPCI Loop was lined up and injecting into the vessel from the earlier large break LOCA, a significant water hammer event had occurred that would damage several components in the injection line, including the "C" LPCI Injection Line Isolation Check Valve and the "C" LPCI Pump Discharge Check Valve where the gasket blew out for this valve. The failure of these components occurs at 1855.

As a result, the High Pressure/Low Pressure interface between the Reactor Coolant System (RCS) and "C" LPCI Loop has been breached, creating an intersystem LOCA, and allowing reactor coolant to discharge directly into "C" Residual Heat Removal (RHR) Pump Room via the failed check valves. Attempts to close the "C" LPCI Injection Valve are unsuccessful, as the valve motor breaker trips.

RCS discharging into the RHR Pump Room creates a release 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 Offsite Dose Calculation Manual (ODCM)/Federal limits commences via the in-service FRVS Vent Fan.

Monitored Release Path: Reactor Pressure Vessel → "C" LCPI Pump Discharge Check Valve → RHR Pump Room → Reactor Building → FRVS Vent Fan → Outside Atmosphere

By 1910 or sooner, a **General Emergency** (GE) should be declared by the EC (ERM) based on a loss of all 3 Fission Product Barriers.

GENERAL EMERGENCY

EAL 3/1/2, DAPA ≥ 500 R/hr

AND

EAL 3.2.1.b, Reactor Water Level reaches –161" (Top of Active Fuel)
OR
EAL 3.2.2.b, Valid High Drywell Pressure (≥ 1.68 psig)

AND

EAL3.3.4.a, Leakage OUTSIDE Primary Containment that cannot be isolated from the Main Control Room

OR

EAL 3.3.5.b, ANY condition, in the opinion of the EC that indicates a Loss of the Containment Barrier

(Loss of Fuel Clad, RCS, and Containment Barriers = 10 points)

The EC will implement ECG Attachment 4 for the GE Declaration. A 10-mile keyhole evacuation type PAR must also be made.

At 2010, a fire will break out in the 117 ft level cable mezzanine. The fire will be small and quickly put out by the fire department, but the room will be filled with black smoke. No CO_2 discharge will occur, and the heat generated is not enough to cause activation of the thermal detection installed in the area.

At 2040, the wind will shift, resulting in the release heading toward the State of Delaware. The EOF staff should perform a Protective Action Recommendation upgrade.

At 2105, the "A" South Water Box will develop a leak through the manway. Isolation of the Water Box will stop the leak.

By no later than 2200, the radiological release into the Reactor Building will be terminated by the closing to "C" LPCI Injection Valve. The injection valve will go closed for scenario

control purposes at 2200, if it has not already been closed. The radiological release from the Reactor Building into the environment will gradually decrease throughout the remainder of the exercise, but will continue above the HC ODCM/Federal limits until the termination of the exercise. This is due to the radiological release products still bottled up in the Reactor Building being vented at a rate of 9000 cubic feet per minute.

Starting at 2230, the exercise may be terminated. The time for the actual termination of the exercise will be dependent on when all of the Emergency Response Facility and Offsite Stakeholder exercise objectives have been met.

APPENDIX 5:
Planning Issues

This appendix contains the Planning Issues assessed during the May 20, 2008, exercise at Salem/Hope Creek Nuclear Generating Stations (S/HCNGS) and those outstanding from earlier exercises. Planning Issues are issues identified in an exercise or drill that do not involve participant performance, but rather involve inadequacies in the plan or procedures. Planning Issues are required to be corrected through the revision and update of the appropriate State and local radiological emergency response plans (RERPs) and/or procedures in accordance with the following schedule:

- Within 120 days of the date of the exercise/drill when the Planning Issue is directly related to protection of the public health and safety.

- During the annual plan review and update (reported in the Annual Letter of Certification) when the Planning Issue does not directly affect the public health and safety. However, when the date for the annual plan review and update is imminent and the responsible organization does not have sufficient time to make the necessary revisions in the plans and/or procedures, the revised portion of the plans and/or procedures should be submitted in the subsequent annual plan review and update and reported in the Annual Letter of Certification.

Any requirement for additional training of responders to radiological emergencies necessitated by the revision and update of the plans and/or procedures must be completed within the timeframes described above in order for the Planning Issue to be considered resolved.

PRIOR PLANNING ISSUE RESOLVED

State Field Monitoring Team

Issue Number: 02-06-2.a.1-P-01

Condition: Interchangeable use of R and Rem in some procedures, i.e. Standard Operating Procedure (SOP) 801.

Possible Cause: Inattention to detail during plan revisions.

Reference: State of Delaware SOP 801

Corrective Action Demonstrated: A complete review of Standard Operating Procedure (SOP) 801 and all other supporting procedures was done. The practice of using R and Rem interchangeably has been corrected in the June 2008 revision.