FEMA

Final Exercise Report

Salem/Hope Creek
Nuclear Generating Stations

Licensee: PSEG Nuclear, LLC

Exercise Dates: March 16, 2004

Report Date: June 15, 2004

FEDERAL EMERGENCY MANAGEMENT AGENCY
ONE INDEPENDENCE MALL, 6TH FLOOR
615 CHESTNUT STREET
PHILADELPHIA, PENNSYLVANIA 19106-4404

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I. EXECUTIVE SUMMARY

On March 16, 2004, an exercise was conducted in the plume exposure pathway, Emergency Planning Zone (EPZ) around the Salem/Hope Creek Nuclear Generating Stations (S/HCNGS), formerly known as the Artificial Island Nuclear Generating Stations, by the Federal Emergency Management Agency (FEMA), Region III. The purpose of the exercise was to assess the level of State and local preparedness in responding to a radiological emergency. This exercise was held in accordance with FEMA's policies and guidance concerning the exercise of State and local radiological emergency response plans (RERPs) and procedures. The most recent exercise at this site was conducted on March 12 and 19, 2002.

FEMA wishes to acknowledge the efforts of the many individuals who participated in the exercise in the State of Delaware, Kent and New Castle Counties, and local organizations. FEMA also wishes to acknowledge the efforts of the many individuals that participated in the March 2, 2004 out-of-sequence demonstration of activities at the State Emergency Operations Center and New Castle County school districts.

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 out-of-sequence activities and the biennial exercise conducted on March 2 and 16, 2004, as well as any identified exercise issues and recommendations for corrective action.

The State and local organizations, except where noted in this report, demonstrated knowledge of their emergency response plans and procedures and adequately implemented them. One Deficiency, two Areas Requiring Corrective Action (ARCAs), and two Planning Issues were identified as a result of this exercise. The Deficiency and both ARCAs were successfully resolved; one through redemonstration and the other by corrective action. One prior ARCA was successfully resolved during this exercise. Two Planning Issues were identified with one resolved through corrective action.

II. INTRODUCTION

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

FEMA Rule 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 (44 CFR Part 354, Appendix A, September 14, 1993); and

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

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

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

The State of Delaware and local jurisdictions formally submitted their RERPs to FEMA Region III for 44 CFR 350 approval, which was granted in June 1986.

On March 16, 2004, FEMA Region III evaluated a full-scale REP exercise to assess the capabilities of State and local offsite emergency preparedness organizations in implementing their RERPs and procedures to protect the public health and safety during a radiological emergency involving the Salem/Hope Creek Nuclear Generating Stations (S/HCNGS). Out-of-sequence demonstrations of school protective action implementation were conducted on March 2, 2004. The purpose of this exercise report is to present the REP exercise results and findings on the performance of the offsite response organizations (OROs) during a simulated radiological emergency.

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

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

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

- FEMA Guidance Memoranda MS-1, "Medical Services," November 1986;

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

- 66 FR 47525, "FEMA Radiological Emergency Preparedness: Exercise Evaluation Methodology," September 12, 2001; and

- 66 FR 47546, "FEMA Radiological Emergency Preparedness: Alert and Notification," September 12, 2001.

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 State and local governments' schedule of corrective actions for each identified exercise issue, and (2) descriptions of unresolved ARCAs assessed during previous exercises, if applicable, and the status of the OROs' efforts to resolve them.

III. EXERCISE OVERVIEW

Contained in this section are data and basic information relevant to the March 2, 2004 out-of-sequence demonstrations and the March 16, 2004 full-scale exercise to test the offsite emergency response capabilities in the area surrounding the 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 the 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 demonstration on March 2, 2004, and the full-scale exercise on March 16, 2004.

STATE OF DELAWARE

Delaware Army National Guard
Delaware Cooperative Extension
Delaware Department of Agriculture
Delaware Department of Education
Delaware Department of Health and Social Services — Division of Administrative Services
Delaware Department of Health and Social Services — Division of Public Health
Delaware Department of Health and Social Services — Division of Social Services
Delaware Department of Natural Resources and Environmental Control — Division of Fish & Wildlife
Delaware Department of Natural Resources and Environmental Control — Division of Water Resources
Delaware Department of Natural Resources and Environmental Control — Division of Parks and Recreation
Delaware Department of Safety and Homeland Security
Delaware Department of Transportation — Delaware Transit Corporation
Delaware Department of Transportation — Division of Highways
Delaware Emergency Management Agency
Delaware Office of Emergency Medical Services
Delaware State Fire School
Delaware State Police
Kent County Liaison
New Castle County Liaison
U.S. Army Corps of Engineers

KENT COUNTY

Kent County Department of Public Services
Kent County Emergency Management
Kent County Emergency Medical Services
Delaware Emergency Management Agency Liaison
Delaware Emergency Medical Services Liaison

NEW CASTLE COUNTY

Appoquinimink School District
Brick Mill Elementary School
City of Wilmington, Delaware
Colonial School District
Commodore MacDonough School
Delaware Emergency Management Agency Liaison
New Castle County Community Services
New Castle County Emergency Communications
New Castle County Emergency Medical Services
New Castle County Government Executive Office
New Castle County Office of Emergency Preparedness
New Castle County Police Department
New Castle County Special Services (Public Works)

PRIVATE/VOLUNTEER ORGANIZATIONS

The following private and volunteer organizations participated in the S/HCNGS exercise activities at many different locations throughout the area. We thank them and all those who volunteer their services to State, county, and municipal governments during emergencies.

American Red Cross
Civil Air Patrol
Kent County Amateur Radio Club
Middletown Volunteer Fire Company
PSEG Nuclear
Radio Amateur Civil Emergency Services (RACES)
Salvation Army
Verizon Communications

C. Exercise Timeline

Table 1, on the following page, presents the times at which key events and activities occurred during the S/HCNGS exercise on March 16, 2004. Also included are times that notifications were made to participating jurisdictions and functional entities.

TABLE 1. EXERCISE TIMELINE

DATE AND SITE: ***March 16, 2004, 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
Alert	1620	1628	1749	1746	1655	1710
Site Area Emergency	1755	1759	1759	1809	1806	1819
General Emergency	1925	1929	1929	1934	1938	1943
Simulated Rad Release Started	1915	1917	1915	1934	2026	1943
Simulated Rad Release Terminated		N/R	2028	2144	2130	2118
Facility Declared Operational		1655	1745	1745	1817	1745
Declaration of State Emergency		1958	1959	2004	2026	2018
Exercise Terminated		2235	2236	2236	2237	2250
Early Precautionary Actions: Evacuate schools and special populations, Decision-animals on stored feed and water		1832	N/R	1838	1902	1840
1st A&N Decision (State [made]; local [received]) Evacuate: ERPA "A"		1832	1832	1838	1852	1840
1st Siren Activation		1845	1845	1845	1845	1845
1st EAS/EBS Message		1850	1850	1850	1850	1850
2nd A&N Decision (State [made]; local [received]) Shelter: "B" & "C" Evacuate: "A"		1958	1959	2004	2015	2008
2nd Siren Activation		2008	2008	2008	2008	2008
2nd EAS or EBS Message		2013	2013	2013	2013	2013
KI Administration Decision: Emergency Workers and Public Advised to take		1958	1959	2004	2032	2018

Notes: N/A – Not Applicable; N/R – Not Received at location

IV. EXERCISE EVALUATION AND RESULTS

Contained in this section are the results and findings of the evaluation of all jurisdictions and functional entities, which participated in the March 2, 2004 out-of-sequence demonstrations and March 16, 2004 full-scale exercise to test the offsite emergency response capabilities of State and 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 FEMA Radiological Emergency Preparedness (REP) Exercise Evaluation Methodology. Detailed information on the exercise evaluation area criteria and the extent of play agreement used in this exercise can be 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 FEMA 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 ARCAs assessed and no unresolved ARCAs from prior exercises)

D^1 Deficiency assessed, but successfully redemonstrated

A ARCA(s) assessed

A^1 ARCA(s) assessed, but successfully redemonstrated

N Not Demonstrated (Reason explained in Section IV.B)

TABLE 2. SUMMARY RESULTS OF 2004 EMERCISE EVALUATION

DATE AND SITE: ***March 2 and 16, 2004, 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. 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 EMERGENCY OPERATION CENTER	M	N	M	M	M	M	M	M	M				M	M	M*	M	M									M			M				
PUBLIC INFORMATION ACTIVITIES (STATE MEDIA)																																	
DELAWARE STATE POLICE COMMUNICATIONS CENTER																																	
1.2 EMERGENCY NEWS CENTER	M	M		A[1]																									M				
1.3 TECHNICAL ASSESSMENT CENTER (TAC-EOC)	M	M	M				M	M																									
1.4 EMERGENCY OPERATIONS FACILITY (EOF)		M		M																													
1.5 STATE FIELD MONITORING TEAM 1				M	M	M						M	M								M	M	M									
1.6 STATE FIELD MONITORING TEAM 2				M	M	M						M	M								A[1]	M	M									
STATE FIELD SAMPLING TEAM A																																	
STATE FIELD SAMPLING TEAM B																																	
STATE LABORATORY																																	
1.7 STATE TRAFFIC AND ACCESS CONTROL (Troop 9 and Div. of Highways '04)				M	M	M						M	M			M	M																
1.8 ROUTE ALERTING (Volunteer Hose Fire Company (Middletown) '02 & '04)				M	M	M						M	M														M					
ROUTE ALERTING (Townsend Fire Company '98)																																	
ROUTE ALERTING (Smyrna Citizens Hose Fire Company '00)																																	
MED. SERVICES - TRANSPORT (NC Co. Paramed/Odessa Vol. Amb. Serv. '99)																																	

Legend
M = Met (no Deficiency or ARCA(s) assessed)
D[1] =Deficiency(ies) assessed, but successfully redemonstrated
A = ARCA(s) assessed (not affecting health and safety of public)
A[1] = ARCA(s) assessed, but successfully redemonstrated
N = Not demonstrated as scheduled (reason explained in Section IV.B.)
Blank = Not scheduled for demonstration

M* Out-of-sequence demonstration, March 2, 2004

TABLE 2. SUMMARY RESULTS OF 2004 EMERCISE EVALUATION (Continued)

DATE AND SITE: *March 2 and 16, 2004, 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. 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
MED. SERVICES – FACILITY (Christiana Hospital '99)																																
1.9 CONGREGATE CARE (Interview RC Manager)					M																									M	
2. RISK JURISDICTIONS																																
KENT COUNTY	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
2.1 EMERGENCY OPERATIONS CENTER	M	N	M	M	M	M								M	N										M							
NEW CASTLE COUNTY	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
2.2 EMERGENCY OPERATIONS CENTER	M	M	D[1]	M	M	M								M	M										M							
RECEPTION/MONITORING/DECON. CENTER (Haslet National Guard Armory '97)																																
RECEPTION/MONITORING/DECON. CENTER (Newport National Guard Armory '97)																																
RECEPTION/MONITORING/DECON. CENTER (Marshallton Armory '00)																																
MASS CARE CENTER (Dover High School)																																
EMERGENCY WORKER DECON. CENTER (Middletown Armory '98 & '00)																																
MEDICAL SERVICES	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
MEDICAL TRANSPORTATION (Townsend Fire Co./New Castle Paramedics '01)																																
MEDICAL TRANSPORTATION (Middletown Fire Co./New Castle Paramedics)																																

Legend
M = Met (no Deficiency or ARCA(s) assessed)
D[1] =Deficiency(ies) assessed, but successfully redemonstrated
A = ARCA(s) assessed (not affecting health and safety of public)
A[1] = ARCA(s) assessed, but successfully redemonstrated
N = Not demonstrated as scheduled (reason explained in Section IV.B.)
Blank = Not scheduled for demonstration

M* Out-of-sequence demonstration, March 2, 2004

TABLE 2. SUMMARY RESULTS OF 2004 EMERCISE EVALUATION (Continued)

DATE AND SITE: *March 2 and 16, 2004, 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			
MEDICAL SERVICES	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
MEDICAL FACILITY (Christiana Care Health System — Wilmington Hospital)																																
MEDICAL FACILITY (Christiana Care Health System — Christiana Hospital '01)																																
3. SCHOOL DISTRICTS																																
APPOQUINIMINK SCHOOL DISTRICT ('96)	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 BRICK MILL ELEMENTARY SCHOOL ('04)															M*																	
SILVER LAKE ELEMENTARY SCHOOL ('02)																																
CEDAR LANE ELEMENTARY SCHOOL ('94)																																
MIDDLETOWN HIGH SCHOOL																																
MIDDLETOWN MIDDLE SCHOOL																																
REDDING INTERMEDIATE SCHOOL																																
TOWNSEND ELEMENTARY SCHOOL ('00)																																
APPOQUINIMINK EARLY KINDER CARE																																
COLONIAL SCHOOL DISTRICT	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
3.2 COMMODORE MACDONOUGH SCHOOL ('04)															M*																	

Legend
M = Met (no Deficiency or ARCA(s) assessed)
D^1 =Deficiency(ies) assessed, but successfully redemonstrated
A = ARCA(s) assessed (not affecting health and safety of public)
A^1 = ARCA(s) assessed, but successfully redemonstrated
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M* Out-of-sequence demonstration, March 2, 2004

TABLE 2. SUMMARY RESULTS OF 2004 EMERCISE EVALUATION (Continued)

DATE AND SITE: *March 2 and 16, 2004, 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			
COLONIAL SCHOOL DISTRICT	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
SOUTHERN ELEMENTARY SCHOOL ('02)																															
GUNNING BEDFORD MIDDLE SCHOOL ('00)																															
INGESTION 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 EMERGENCY OPERATIONS CENTER																															
NEW CASTLE COUNTY EMERGENCY OPERATIONS CENTER																															
SUSSEM COUNTY EMERGENCY OPERATIONS CENTER																															
COMMONWEALTH OF PENNSYLVANIA	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
BERKS COUNTY EMERGENCY OPERATIONS CENTER																															
BUCKS COUNTY EMERGENCY OPERATIONS CENTER																															
CHESTER COUNTY EMERGENCY OPERATIONS CENTER																															
DELAWARE COUNTY EMERGENCY OPERATIONS CENTER																															
LANCASTER COUNTY EMERGENCY OPERATIONS CENTER																															
MONTGOMERY COUNTY EMERGENCY OPERATIONS CENTER																															

Legend

M = Met (no Deficiency or ARCA(s) assessed)
D[1] =Deficiency(ies) assessed, but successfully redemonstrated
A = ARCA(s) assessed (not affecting health and safety of public)
A[1] = ARCA(s) assessed, but successfully redemonstrated
N = Not demonstrated as scheduled (reason explained in Section IV.B.)
Blank = Not scheduled for demonstration

M[*]Out-of-sequence demonstration, March 2, 2004

TABLE 2. SUMMARY RESULTS OF 2004 EMERCISE EVALUATION (Continued)

DATE AND SITE: ***March 2 and 16, 2004, 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			
COMMONWEALTH OF PENNSYLVANIA	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
PHILADELPHIA CITY EMERGENCY OPOERATIONS CENTER																															
YORK COUNTY EMERGENCY OPERATIONS CENTER																															
STATE OF MARYLAND	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
CARROLL COUNTY EMERGENCY OPERATIONS CENTER																															
CECIL COUNTY EMERGENCY OPERATIONS CENTER																															
HARTFORD COUNTY EMERGENCY OPERATIONS CENTER																															
KENT COUNTY EMERGENCY OPERATIONS CENTER																															
QUEEN ANNE'S COUNTY EMERGENCY OPERATIONS CENTER																															

Legend

M = Met (no Deficiency or ARCA(s) assessed)

D^1 =Deficiency(ies) assessed, but successfully redemonstrated

A = ARCA(s) assessed (not affecting health and safety of public)

A^1 = ARCA(s) assessed, but successfully redemonstrated

N = Not demonstrated as scheduled (reason explained in Section IV.B.)

Blank = Not scheduled for demonstration

M^*Out-of-sequence demonstration, March 2, 2004

B. Status of Jurisdictions Evaluated

This subsection provides information on the evaluation of each participating jurisdiction and functional entity, in a jurisdiction-based, issues-only format. Presented below 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 Actions** – 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 which were scheduled to be demonstrated during this exercise and the reason they were not demonstrated.

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

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

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

- A **Deficiency** is defined 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 …"

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. STATE OF DELAWARE

1.1 EMERGENCY OPERATIONS CENTER

a. MET:

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

b. DEFICIENCY: None

c. AREAS REQUIRING CORRECTIVE ACTION: None

d. NOT DEMONSTRATED: 1.b.1; Criterion 1.b.1 was successfully demonstrated during the Delaware Ingestion Exercise in October 2003 for Calvert Cliffs.

e. PRIOR ISSUES — RESOLVED: N/A

f. PRIOR ISSUES — UNRESOLVED: N/A

1.2 EMERGENCY NEWS CENTER

a. MET:

1.a.1	5.b.1
1.b.1	
1.d.1	

b. DEFICIENCY: None

c. AREAS REQUIRING CORRECTIVE ACTION: None

Issue No.: 02-04-1.d.1-A-01

Condition: There was a long delay in receiving press releases from Delaware Emergency Management Agency (DEMA) Emergency Operation Center (EOC) by the Emergency News Center (ENC) representative at the ENC.

Possible Cause: This may be because there was a problem with the facsimile machine at the ENC in the Delaware ENC room.

Reference: NUREG-0654, F.1, 2

Effect: While this delay did not severely hamper the initial joint press briefing at the ENC by the DEMA ENC representative, there could have

been a significant impact had the plume been blowing into the State of Delaware by causing a delay in the release of information to the media concerning protective action decisions.

Recommendation: (1) Upon arrival at the ENC the DEMA Representative should test communication equipment (telephone, fax machine) and inform the ENC manager if the equipment is inoperable, in accordance with SOP 505. (2) Provide a computer at the ENC to allow immediate access to the DEMA website. This capability should permit prompt printing of the press releases and EAS messages issued by the DEMA Public Information Officer (PIO).

State's Response: DEMA feels this should not be an ARCA, as the PIO at the News Center did receive the information from the Press Releases via telephone in a timely manner. Receiving of the information via telephone did not hamper the press briefing or cause any delays in getting the information out to the media on protective action decisions. A computer has been placed at the Emergency News Center (ENC) for the Delaware PIO to receive press releases via email or from the DEMA website. If this issue remains an ARCA, placing the computer at the ENC should correct this ARCA.

FEMA Response: The condition that existed at the time of the exercise has been corrected and should alleviate any long delays in receiving press releases from the DEMA EOC. This ARCA is corrected.

d. NOT DEMONSTRATED: None

e. PRIOR ISSUES — RESOLVED: N/A

f. PRIOR ISSUES — UNRESOLVED: N/A

1.3 TECHNICAL ASSESSMENT CENTER (TAC-EOC)

a. MET: 1.a.1 2.b.1
1.b.1 2.b.1
1.c.1

b. DEFICIENCY: None

c. AREAS REQUIRING CORRECTIVE ACTION: None

d. NOT DEMONSTRATED: None

e. PRIOR ISSUES — RESOLVED: N/A

f. PRIOR ISSUES — UNRESOLVED: N/A

1.4 EMERGENCY OPERATIONS FACILITY (EOF)

a. MET: 1.b.1
1.d.1

b. DEFICIENCY: None

c. AREAS REQUIRING CORRECTIVE ACTION: None

d. NOT DEMONSTRATED: None

e. PRIOR ISSUES — RESOLVED: N/A

f. PRIOR ISSUES — UNRESOLVED: N/A

1.5 STATE FIELD MONITORING TEAM 1

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

b. DEFICIENCY: None

c. AREAS REQUIRING CORRECTIVE ACTION: None

d. NOT DEMONSTRATED: None

e. PRIOR ISSUES — RESOLVED: N/A

f. PRIOR ISSUES — UNRESOLVED: N/A

1.6 STATE FIELD MONITORING TEAM 2

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

b. DEFICIENCY: None

d. AREAS REQUIRING CORRECTIVE ACTION: None

Issue No.: 02-04-4.a.1-A-02

Condition: Twice during the pre-deployment demonstration of donning

and removal of anti-contamination clothing the worker created possible contamination of his forehead and pant leg of personal clothing without self-identifying the possible contamination and requesting a survey.

Possible Cause: Inattention to detail by the worker. Also, these instances were not noticed by other team members assisting the individual in the removal of anti-contamination clothing.

Reference:

- NUREG-0654, I.7
- State of Delaware, SOP 801 Revision 7, Attachment E1

Effect: Possible spread of contamination from potentially contaminated hands to forehead or pant leg.

Recommendation: Emergency workers and team members should be more attentive during the removal of anti-contamination clothing so as not to spread contamination.

Corrective Action Demonstrated: The emergency worker successfully re-demonstrated the removal of the anti-contamination clothing without possible contamination of person or personal clothing. The worker and team members discussed the procedures and techniques for removal of anti-contamination clothing to prevent possible contamination of person or personal clothing.

d. NOT DEMONSTRATED: None

e. PRIOR ISSUES — RESOLVED: N/A

f. PRIOR ISSUES — UNRESOLVED: N/A

1.7 STATE TRAFFIC AND ACCESS CONTROL (State Police Troop 9 — Odessa)

a. MET: 1.d.1 1.e.1 2.a.1 3.a.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 ISSUES — RESOLVED: N/A

f. PRIOR ISSUES — UNRESOLVED: N/A

1.8 ROUTE ALERTING (Volunteer Hose Fire Company (Middletown))

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 ISSUES — RESOLVED: 5.a.3

Issue No.: 02-02-10-A-02 (5.a.3)

Description of Issue: The Delaware City Fire Department did not complete backup route alerting and notification within the required 45 minutes. Notification to initiate route alerting was received at 2002 and the route was completed at 2114, for a total time of one hour and twelve minutes from notification to completion. However, the actual route alerting, which was initiated at 2029, was completed within the required 45-minute time period. The resulting additional time to complete this activity was caused by the decision of the staff to don anti-contamination clothing prior to beginning the route-alerting run. (NUREG-0654, E.6)

Corrective Action Demonstrated: The Volunteer Hose Fire Company (Middletown) completed its backup route alerting and notification within the required 45 minutes. Notification to initiate route alerting was received and verified at 2005, route alert was initiated when the emergency personnel were deployed at 2010; and the route was completed at 2027, for a total time of 22 minutes.

f. PRIOR ISSUES — UNRESOLVED: N/A

1.9 CONGREGATE CARE

a. MET: 1.e.1 6.c.1

b. DEFICIENCY: None

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

d. **NOT DEMONSTRATED:** None

e. **PRIOR ISSUES — RESOLVED:** N/A

f. **PRIOR ISSUES — UNRESOLVED:** N/A

2. RISK JURISDICTIONS

2.1 KENT COUNTY EMERGENCY OPERATIONS CENTER

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

b. DEFICIENCY: None

c. AREAS REQUIRING CORRECTIVE ACTION: None

d. NOT DEMONSTRATED: 1.b.1, 3.c.2; Criteria 1.b.1 and 3.c.2 were successfully demonstrated during the Delaware Ingestion Exercise in October 2003 for Calvert Cliffs.

e. PRIOR ISSUES — RESOLVED: N/A

f. PRIOR ISSUES — UNRESOLVED: N/A

2.2 NEW CASTLE COUNTY EMERGENCY OPERATIONS CENTER

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

b. DEFICIENCY: None

Issue No.: 02-04-1.c.1-D-01

Condition: There was an approximate one hour and fifteen minute delay in implementing route alert procedures.

Possible Cause: Limited management of message traffic.

Reference:

- NUREG 0654, A.1.d, A.2.a, b; E.5, 6, 7
- New Castle County Operations Plan, 6.1.5.2, 6.2.2.2, 6.2.2.4, and 6.2.3.1

Effect: Residents in affected area did not receive important protective action information and emergency instructions in a timely manner.

Recommendation: Provide additional training in dealing with critical message acknowledgement and response. Implement a quality control mechanism, which ensures that critical messages are personally reviewed by Emergency Operations Center (EOC) leadership.

Corrective Action Demonstrated: On March 25, 2004, this Deficiency was redemonstrated and evaluated by FEMA staff. At 1044, a phone call was received by the New Castle County Communicator from the Delaware Emergency Management Agency (DEMA) EOC that a Site Area Emergency had been declared at the Salem Hope Creek Nuclear Generating Stations and that an indication was received that siren #220 had failed to operate. The message from DEMA instructed New Castle County to implement Route Alerting. The New Castle County Communicator passed the message to the New Castle County Emergency Management Coordinator (EMC). At 1045, the EMC directed the communicator to call the Volunteer Hose Company, Middletown, to dispatch their Route Alerting Team. The message was accurately received by the Volunteer Hose Company at 1046. This Deficiency was satisfactorily redemonstrated and is resolved.

State Response: New Castle County received a Deficiency under Direction and Control for failure to dispatch the Volunteer Hose Fire Department for Route Alerting in a timely manner. After reviewing the data we [feel] this should be considered an ARCA, not a deficiency. Direction and Control activities were carried out as they would have been in an actual emergency. The problem is that some parts of the exercise are simulated and some are actual (and this was brought up at the National Radiological Emergency Preparedness Conference). Simulating in some areas cause confusion to participants in other areas. Participants simply fulfill exercise objectives instead of training as if the situation were a real event. If this exercise had been real time and not partially simulated, the 911 dispatcher would have dispatched the fire company at the initial request. The definition of a deficiency is " …an observed or identified inadequacy of organizational performance…[that affects] the health and safety of the public living in the vicinity of a nuclear power plant." Under the exercise scenario, there was not an evacuation ordered for the Middletown area and there was no release of radiation at the time of the failed siren. In light of these facts, there was no threat to the health or safety of the residents in the Middletown area; therefore, this should not be considered a deficiency. No individual special populations were identified in this area. However, the definition of an ARCA is an observed inadequacy of organizational performance that, by itself, is not considered to adversely impact public health and safety. Following the arguments above, the State of Delaware and New Castle County feel that an ARCA should have been issued, not a deficiency.

FEMA Response: This issue remains identified as a Deficiency. The fact remains that there was a very long delay in implementing route alerting procedures, that (as defined by Interim REP Program Manual, Appendix B) " --- 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." However, as stated in the Corrective Action Demonstrated above, this issue was satisfactorily re-demonstrated and is resolved.

c. AREAS REQUIRING CORRECTIVE ACTION: None

d. NOT DEMONSTRATED: None

e. PRIOR ISSUES — RESOLVED: N/A

f. PRIOR ISSUES — UNRESOLVED: N/A

3. SCHOOL DISTRICTS

3.1 APPOQUINIMINK SCHOOL DISTRICT (Brick Mill Elementary School)

a. **MET:** 3.c.2

b. **DEFICIENCY:** None

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

d. **NOT DEMONSTRATED:** None

e. **PRIOR ISSUES — RESOLVED:** N/A

f. **PRIOR ISSUES — UNRESOLVED:** N/A

3.2 COLONIAL SCHOOL DISTRICT (Commodore MacDonough School)

a. **MET:** 3.c.2

b. **DEFICIENCY:** None

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

d. **NOT DEMONSTRATED:** None

e. **PRIOR ISSUES — RESOLVED:** N/A

f. **PRIOR ISSUES — UNRESOLVED:** N/A

APPENDICES

APPENDIX 1
ACRONYMS AND ABBREVIATIONS

A&N	Alert and Notification
ALARA	As Low As Reasonably Achievable
ALC	Annual Letter of Certification
ARCA	Area Requiring Corrective Action
ARI	Alternate Rod Insertion
ATL	Assistant Team Leader
ATWS	Anticipated Transient without SCRAM
CFR	*Code of Federal Regulations*
DAPA	Drywell Atmosphere Post Accident
DBA LOCA	Design Based Loss of Coolant Accident
DelDOT	Delaware Department of Transportation
DEMA	Delaware Emergency Management Agency
DH	Division of Highways
DNG	Delaware National Guard
DOE	Department of Education
DSP	Delaware State Police
EAL	Emergency Action Level
EAS	Emergency Alerting System
EBS	Emergency Broadcast System
EC	Emergency Coordinator
ECL	Emergency Classification Level
EDO	Emergency Duty Officer
ENC	Emergency News Center
EOC	Emergency Operations Center
EOF	Emergency Operations Facility
EPA	Environmental Protection Agency
EPZ	Emergency Planning Zone
ERF	Emergency Response Facility
ERM	Emergency Response Manager
ERO	Emergency Response Organization
FDA	Food and Drug Administration
FEMA	Federal Emergency Management Agency
FMT	Field Monitoring Team
FRERP	Federal Radiological Emergency Response Plan
FRVS	Filtration Recirculation Ventilation System
GE	General Emergency
HCODCM	Hope Creek Offsite Dose Calculation Manual

ACRONYMS AND ABBREVIATIONS (CONT'D)

ICF	ICF Consulting
IPZ	Ingestion Planning Zone
KI	Potassium Iodide
MW	Megawatts
μR/h	MicroRoentgen per Hour
mR/h	MilliRoentgen per Hour
NEOs	Nuclear Equipment Operators
NRC	U.S. Nuclear Regulatory Commission
NJOEM	New Jersey Office of Environmental Management
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 Guide
PAR	Protective Action Recommendation
PIO	Public Information Officer
RAC	Regional Assistance Committee
RACES	Radio Amateur Civil Emergency Service
REP	Radiological Emergency Preparedness
RERP	Radiological Emergency Response Plan
RHR	Residual Heat Removal
R	Roentgen
R/h	Roentgens per Hour
RPS	Reactor Protection System
S/HCNGS	Salem/Hope Creek Nuclear Generating Stations (formerly Artificial Island)
SM	Shift Manager
SOP	Standard Operation Procedure
SRD	Self-Reading Dosimeter
TAC	Technical Assessment Center
TAF	Top of Active Fuel
TBD	To Be Determined
TL	Team Leader
TSC	Technical Support Center

APPENDIX 2
EXERCISE EVALUATORS AND TEAM LEADERS

The following is a list of the personnel who evaluated the Salem/Hope Creek Nuclear Generating Stations (S/HCNGS) REP exercise on March 16, 2004 and the out-of-sequence activities on March 2, 2004. Evaluator Team Leaders are indicated by the following "(TL)" after their organization's name. The organization that each evaluator represents is indicated by the following abbreviations:

FEMA	Federal Emergency Management Agency
EPA	Environmental Protection Agency
NRC	Nuclear Regulatory Commission
ICF	ICF Consulting

POSITION	NAME	ORGANIZATION
RAC Chairperson	Darrell Hammons	FEMA
Project Officer	Al Henryson	FEMA
ICF Coordinator	Roger Koweiski	ICF

1. Biennial Plume Exercise – March 16, 2004

EVALUATION SITE	EVALUATOR	ORGANIZATION
STATE OF DELAWARE		
State Emergency Operations Center	Yvette Porter	FEMA (TL)
	Cedric Cherry	FEMA
	Alejandro Fernandez	ICF
State Traffic and Access Control (Odessa-Troop 9) (interview at State EOC)	Roger Kowieski	ICF
Emergency News Center	John Price	FEMA
Technical Assessment Center (EOC-TAC)	Ken Wierman	FEMA
Emergency Operations Facility (TAC)	Debra Schneck	NRC
State Field Monitoring Team 1	Jon Fox	ICF
State Field Monitoring Team 2	Rowena Argall	ICF
Route Alerting (Volunteer Hose Fire Company (Middletown))	Etta Sims	FEMA
Congregate Care Facility (Mount Pleasant High School, Wilmington)	Sheri Minnick	EPA
RISK COUNTIES		
KENT COUNTY EOC	Al Lookabaugh	ICF (TL)
	Laurel Ryan	FEMA (ATL)
	Bart Freeman	FEMA

NEW CASTLE COUNTY EOC	Roman Helo	FEMA (TL)
	Tom Blosser	FEMA (ATL)
	Landton Malone	FEMA

2. Out-of-Sequence Activities (March 2, 2004)

EVALUATION SITE	EVALUATOR	ORGANIZATION
SCHOOLS		
State Emergency Operations Center	Yvette Porter	FEMA
Appoquinimink S. D. (New Castle Co.) - Brick Mill Elementary School	Angela Hough	FEMA
Colonial S. D. (New Castle Co.) - Commodore MacDonough School	John Price	FEMA

APPENDIX 3
EXERCISE EVALUATION AREA CRITERIA AND EXTENT OF PLAY AGREEMENT

This appendix lists the exercise evaluation area criteria that were scheduled for demonstration in the Salem/Hope Creek Nuclear Generating Stations (S/HCNGS) REP exercise on March 16, 2004 and the extent of play agreement approved by FEMA Region III on February 6, 2004.

The exercise evaluation area criteria, contained in the "FEMA Radiological Emergency Preparedness Exercise Evaluation Methodology", 66 FR 47525, September 12, 2001, 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.

A. Exercise Evaluation Area Criteria

Listed below are the specific radiological emergency preparedness (REP) evaluation area criteria scheduled for demonstration during this exercise.

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)

Sub-element 1.b – Facilities

Criterion 1.b.1: Facilities are sufficient to support the emergency response. (NUREG-0654, H.3)

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)

Sub-element 1.d – Communications Equipment

Criterion 1.d.1: At least two communications systems are available, at least one operates properly, and communication links are established and maintained with appropriate locations. Communications capabilities are managed in support of emergency operations. (NUREG-0654, F.1, 2)

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

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

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 ensure that an exposure control system, including the use of KI, is in place for emergency workers including provisions to authorize radiation exposure in excess of administrative limits or protective action guides. (NUREG-0654, J.10.e, f; K.4)

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 onsite and offsite environmental conditions. (NUREG-0654, I.8, 10; Supp. 3)

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.f, m)

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

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

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.a, b)

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, J.10.e)

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, J.10.c, d, g)

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

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)

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

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.7, 8, 9)

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; H.12)

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

EVALUATION AREA 5: EMERGENCY NOTIFICATION AND 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.IV.D; NUREG-0654, E.5, 6, 7)

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)

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

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

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)

B. Extent of Play Agreement

The extent of play agreement on the following pages was submitted by the State of Delaware, and was approved by FEMA Region III on February 6, 2004, in preparation for the Salem/Hope Creek Nuclear Generating Stations (S/HCNGS) REP exercise on March 16, 2004. The extent of play agreement includes any significant modification or change in the level of demonstration of each exercise evaluation area criterion listed in Subsection A of this appendix.

Final

STATE OF DELAWARE

EXERCISE CRITERIA
AND
EXTENT OF PLAY

Approved **Director, Delaware Emergency Management Agency/Date**

Real Life Emergencies Take Priority over Exercise Play

REVISION 4.1

Revision 1

TABLE OF CONTENTS

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 March 16, 2004.

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 of March 1st. These locations will be designated with an (*) with the associated objective. The activities to be demonstrated are:

- Special Facilities – Schools. March 2, 2004 (10:00 a.m.)
- Congregate Care – Interview the Red Cross Shelter Manager. March 16, 2004 (time **TBD**)
- Delaware National Guard (DNG) Field Teams – DNG pre-demonstrate equipment checkout, ambient radiation monitoring procedures and airborne radioiodine procedures. DNG Headquarters March 16, 2004 (3:00 p.m.)

The full-scale graded plume phase exercise will be conducted on March 16, 2004 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 must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent of play agreement.

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.

Per the FEMA letter of 12/9/03, 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.

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

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.3)

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:
Facilities will be set up based on the ORO's plans and procedures and demonstrated, as they would be in an actual emergency.

Per FEMA letter of 12/9/03, since State and County EOCs baselines have not been established under the new evaluation criteria, it will be necessary to evaluate those facilities during the exercise.

Locations Evaluated:
State EOC, Kent County EOC, and New Castle County EOC

Outstanding Issues:
None

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 associated with direction and control will be performed based on the ORO's plans and procedures and completed, as they would be in an actual emergency.

Locations Evaluated:

State EOC, Kent County EOC, and New Castle County EOC

Outstanding Issues:

None

Sub-element 1.d – Communications Equipment

Criterion 1.d.1: At least two communications systems are available, at least one operates properly, and communication links are established and maintained with appropriate locations. Communications capabilities are managed in support of emergency operations. (NUREG-0654, F.1, 2)

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 associated with the management of communications capabilities will be demonstrated based on the ORO's plans and procedures and completed as they would be in an actual emergency.

Locations Evaluated:
State EOC, TAC, DNG Field Teams, Kent County EOC, and New Castle County EOC, Traffic and Access Control - Delaware State Police and Department of Transportation (Division of Highways), and Route Alerting – Volunteer Hose Fire Company (Middletown).

Outstanding Issues:
None

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

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

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 location(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. 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.

Traffic equipment will be simulated and not deployed for Traffic and Access Control.

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 – Volunteer Hose Fire Company (Middletown), Traffic and Access Control - Delaware State Police, and Department of Transportation (Division of Highways).

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 ensure that an exposure control system, including the use of KI, is in place for emergency workers including provisions to authorize radiation exposure in excess of administrative limits or protective action guides. (NUREG-0654, J.10.e, f; K.4)

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. The taking of KI by emergency workers will be simulated.

Locations Evaluated:
DNG Field Teams (plume), Delaware State Police, Department of Transportation (Division of Highways), and the Volunteer Hose Fire Company (Middletown).

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.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 onsite and offsite environmental conditions. (NUREG-0654, I.8, 10; Supp. 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 associated with the management of communications capabilities will be demonstrated based on the ORO's plans and procedures and completed as they would be in an actual emergency.

Locations Evaluated:
State EOC
Technical Assessment Center (TAC)

Outstanding Issues:
None

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.f, 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. The process for the making KI available to the general public will be described to the evaluator.

Locations Evaluated:
State EOC
Technical Assessment Center (TAC)

Outstanding Issues:
None

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

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

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 where an institutionalized population cannot be evacuated, the administration of KI should be considered by the OROs.

State of Delaware Extent of Play:
All decision-making activities associated with protective actions, including consideration of available resources, for special population groups will be based on the ORO's plans and procedures and completed, as they would be in an actual emergency.

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, J.9, 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 (ECLs). 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.

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, I.10; J.9; M.1)

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 policies 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.a, b)

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 effected 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. 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.

Field Monitoring Team and Volunteer Hose Fire Company (Middletown) will not be required to dress out in protective clothing in the field.

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

The FMTs will demonstrate the donning of protective clothing before the mission.

If required, the Volunteer Hose Fire Company (Middletown) will demonstrate the donning of protective clothing before or after the mission.

Locations Evaluated:
DNG State Field Teams, Volunteer Hose Fire Company (Middletown), Delaware State Police, and Department of Transportation (Division of Highways)

Outstanding Issues:
None

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, J.10.e)

INTENT

This sub-element is derived from NUREG-0654, which provides that OROs should have the capability to provide radio protective 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.

If directed, ingestion of KI will be simulated.

Locations Evaluated:

DNG Field Teams (plume), Delaware State Police, Department of Transportation (Division of Highways), and the Volunteer Hose Fire Company (Middletown).

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, 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 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.

List of individual special populations will be verified at the Kent and New Castle EOCs.

List of institutionalized special populations and daycares 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.

Locations Evaluated:
State EOC, Kent County EOC, and New Castle County EOC

Outstanding Issues:
None

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.

Will demonstrate protective actions for schools as an out-of-sequence activity during March 2, 2004 at 10:00 a.m.

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 or will the buses be driven the designated routes. The Department of Education (DOE) representative at the State EOC will demonstrate their procedures.

***Locations Evaluated:**
Brick Mill Elementary School – Appoquinimink School District
Commodore MacDonough School – Colonial School District
State EOC/Department of Education Representative

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)

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 5:00 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 Department of Transportation (Division of Highways) personnel will be interviewed on Traffic and Access Control procedures and will demonstrate communication system, as well as exposure control procedures. DSP and DelDOT (DH) personnel will simulate reporting to the Emergency Worker Decontamination Facility (National Guard Armory) in Middletown, DE.

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

Locations Evaluated:
Department of Transportation (Division of Highways)
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.

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 suit) 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 (DH) personnel will simulate reporting to the Emergency Worker Decontamination Facility (National Guard Armory) in Middletown, DE.

Locations Evaluated:

Delaware State Police and Department of Transportation (Division of Highways)
State EOC

Outstanding Issues:

None

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 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.

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

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

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.

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.7, 8, 9)

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.

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 is 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.

The FMTs will demonstrate the donning of protective clothing before the mission.

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:**
DNG 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; H.12)

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:**
DNG 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.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:

These activities will be based on the ORO's plans and procedures and completed, as they would be in an actual emergency. 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.

The FMTs will demonstrate the donning of protective clothing before the mission.

***Locations Evaluated:**
DNG Field Teams

Outstanding Issues:
None

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.

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; 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.

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.IV.D; NUREG-0654, E.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:
These activities will be based on the ORO's plans and procedures and completed, as they would be in an actual emergency. 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 the first EAS message. One siren will be simulated to fail (an inject will be provided for notification of siren failure) within the Volunteer Hose Fire Company (Middletown) 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 in Middletown, DE.

Locations Evaluated:
State EOC

Outstanding Issues:
Issue No.: 02-02-11-A-01

Description: Press Release No. 2 had missing, misleading, and confusing information. Specifically, the press release lacked clear information on evacuation routes and the relocation of school children. Although Routes 13 and 9 are referenced relative to the locations of evacuation buses for people without transportation, it is not clear whether these routes are the evacuation routes for the general population. Also, the Press Release contains a section dealing with the relocation of school children. Since schools were not in session during the exercise, the intent of State decision-makers at the State EOC was only to relocate students and members of the public who might be at the schools during off-hours for special activities. However, the wording of the pre-scripted press release clearly describes a situation in which students were in attendance during the school day. This wording was not edited prior to distribution, thereby providing emergency information to the public that was misleading and/or confusing.

Corrective Action Demonstrated: On September 20, 2002, this ARCA was redemonstrated and evaluated by FEMA staff. Three Press Releases were issued. All three were reviewed prior to release and contained information that was complete, accurate, clear and consistent with both public information brochures and previous and current information and instructions. This ARCA is corrected.

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:
These activities will be based on the ORO's plans and procedures and completed, as they would be in an actual emergency. One back-up route-alerting route will be demonstrated.

One siren will be simulated to fail (an inject will be provided for notification of siren failure) within the Volunteer Hose Fire Company (Middletown) 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 in Middletown, DE.

If required, the Volunteer Hose Fire Company (Middletown) will demonstrate the donning of protective clothing before or after the mission.

Locations Evaluated:
Volunteer Hose Fire Company (Middletown)

Outstanding Issues:
Issue No.: 02-02-10-A-02

Description of Issue: The Delaware City Fire Department did not complete backup route alerting and notification within the required 45 minutes. Notification to initiate route alerting was received at 2002 and the route was completed at 2114, for a total time of one hour and twelve minutes from notification to completion. However, the actual route alerting, which was initiated at 2029, was completed within the required 45-minute time period. The resulting additional time to complete this activity was caused by the decision of the staff to don anti-contamination clothing prior to beginning the route-alerting run. (NUREG-0654, E.5)

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

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

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:
These activities will be based on the ORO's plans and procedures and completed, as they would be in an actual emergency. 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 one (1) identifiable trend.

Locations Evaluated:
State EOC, Emergency News Center (ENC), Woodstown, NJ

Outstanding Issues:
None

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

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

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:
This will be evaluated in the 2006 exercise.

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:
This will be evaluated in the 2006 exercise.

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:
These activities will be based on the ORO's plans and procedures and completed, as they would be in an actual emergency.

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.

***Locations Evaluated:**
Mount Pleasant High School – Time TBD

Outstanding Issues:
None

APPENDIX 4
EXERCISE SCENARIO

PSEG NUCLEAR, LLC
Hope Creek – Evaluated Exercise
(03/16/04)

SCENARIO SYNOPSIS

The Operations crew will be reporting to the simulator at **1430**. An operations crew will be perform in the Hope Creek simulator beginning at **1600**. The simulator crew and Nuclear Equipment Operators (NEOs) will be prestaged. Other PSEG Nuclear emergency response facilities will be notified using page announcements and the callout system after **1600**.

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 on line for the past 14 months.

All Major Equipment is Operable with the following exception:

- **MIDAS** is not available in Automatic Mode due to a problem with the reliability of the automatic data collection system.

AT 1600 DRILL BEGINS

At 1615, Control Room Operators receive a Hi vibration on main turbine bearing #10, causing the reactor to be SCRAMed and the turbine tripped. The operator observes no rod motion, so he backups the scram with Reactor Protection System (RPS) with no results, and Alternate Rod Insertion (ARI) which successfully inserts all control rods.

By approximately 1616, the operations crew may attempt to start the "B" SLC pump. If they do the "B" SLC pump will immediately trip.

From approximately 1620 until 1640, the operations crew will be looking at the main turbine to determine the reason for the Hi vibration.

At 1630, or sooner, an **ALERT** should be declared by the Shift Manager (SM) who is now also the Emergency Coordinator (EC) based on:

ALERT

EAL 5.1.2.b, A Manual Reactor Scram was not successful.

(ATWS)

The **EC** will **implement ECG Attachment 2** for the Alert Declaration. The emergency response organization (ERO) callout system will be activated resulting in staffing of all emergency response facilities (ERFs).

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

At approximately 1715, a boiler will trip, which will lead the OSC controls technician to investigate the situation.

By approximately 1730, the Technical Support Center (TSC) should be activated and the Emergency Coordinator function transferred to the Emergency Duty Officer (EDO).

At 1730, the instrument air compressor will trip due to a lube oil line break. An OSC team should investigate.

At 1745, a design based loss of coolant accident (DBA LOCA) occurs. The reactor water level falls below the top of active fuel (TAF) and fuel damage occurs.

Coincident with core uncovery, the Drywell Atmosphere Post Accident (DAPA) "A" radiation monitor will be reading 2500 R/hr.

By 1746, DAPA "A" and DAPA "B" will be reading 5100R/hr, indicating a loss of fuel cladding.

By 1800 or sooner, a **SITE AREA EMERGENCY** should be declared by the Emergency Coordinator (EDO/ERM) based on:

SITE AREA EMERGENCY

3.1.2, DAPA ≥5000R/hr

AND

EAL 3.2.2.b, Valid High Drywell Pressure (≥1.68 psig)

OR

3.2.1.b Reactor Water Level reaches –161" (Top of Active Fuel)

Loss of Fuel Clad and RCS Barriers = 8pts.)

The **EC** will **implement ECG Attachment 3** for the Site Area Emergency Declaration.

Soon afterward, the EC should implement Accountability of the protected area and Evacuation of the owner controlled area. (Accountability will be limited to drill participants and evacuations will be simulated)

By 1900, if not already done, the Emergency Operations Facility (EOF) will be activated and the Emergency Response Manager (ERM) will assume the role of the EC.

At 1915, a piping line break occurs on the downstream Suction valve of B RHR pump (1BCHV-FO04B). The break location results in a radiological release pathway from the Drywell, to the Reactor Building, and out the Filtration Recirculation Ventilation System (FRVS). A filtered, monitored release above the Hope Creek Offsite Dose Calculation Manual (HCODCM)/Federal Limits is now in progress.

By 1930, a **GENERAL EMERGENCY** should be declared by the EC (ERM) based on a loss of all 3 fission product barriers:

GENERAL EMERGENCY

3.1.2, DAPA ≥5000R/hr

AND

EAL 3.2.2.b, Valid High Drywell Pressure (≥1.68 psig)

OR

3.2.1.b Reactor Water Level reaches –161" (Top of Active Fuel)

AND

EAL 3.3.4, UNISOLABLE leakage OUTSIDE Primary Containment as indicated by one of the following:

- **Downstream pathway to the environment exists**
- **Radiation monitors, area temperature, flow or sump level**

AND

Containment isolation is required as indicated by a signal for ANY one of the following systems:

- **NSSS**
- **PCIS**
- **HPCI**
- **RCIC**

AND

Cannot be ISOLATED from the main Control Room

OR

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 pts.)

The **EC** will **implement ECG Attachment 4** for the General Emergency Declaration. A 10-point keyhole type PAR must also be made.

Starting at approximately 1930, the TSC and OSC will be trying to terminate or mitigate the radiological release.

Also, the radiological assessment team in the EOF will be monitoring the meteorological conditions and will recommend PAR Upgrades to the EC based on wind direction shifts.

At 2015, a fire will break out in the Hydrogen Seal Oil Skip in the Turbine Building. The fire bridge is dispatched from the OSC to fight the fire.

At 2030, a fire protection operator is injured and will require transport to the Memorial Hospital Of Salem County. (For this exercise, the transportation of the injured person will end at the Sally Port)

At 2100, the "C" Emergency Diesel Generator will trip due to a lube oil line break and the OSC should dispatch a team.

By no later than 2200, the radiological release into the Reactor Building will be terminated by the closing of "B" RHR pump (1BCHV-FO04B) suction valve. The actual time for the termination of the radiological release prior to 2200 will be determined by when the OSC team is able to close the "B" RHR pump suction valve. The suction 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 exercise, but will continue above the HCODCM/Federal Limits until the termination of the drill. This is due to the radiological release products still bottled-up in the Reactor Building being vented at a rate of 9000 cfm.

Starting at 2230, the drill may be terminated. The time for the actual termination of the drill will be dependent on when all of the objectives have been met.

APPENDIX 5
PLANNING ISSUES

This appendix contains the Planning Issues assessed during the March 16, 2004, exercise at Salem/Hope Creek Nuclear Generating Stations (S/HCNGS). 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.

STATE FIELD MONITORING TEAM 2 (State of Delaware)

Issue No.: 02-04-3.b.1-P-01

Condition: Field team members were not aware that potassium iodide (KI) could be continued for a time period following the initial dose, nor were they aware of all the conditions for which they should not take KI.

Possible Cause: The SOP and dosimetry kit instructions did not provide the following information: Field team members were not aware that KI could be continued for a time period following the initial dose, nor were they aware of all the conditions for which they should not take KI.

Reference: NUREG-0654, E.7; J.10.e

Effect: Ingesting only a single dosage of KI may not adequately protect the worker from uptake of radioactive iodine into the thyroid, resulting in an increased dose to the thyroid. Not having more complete information available on possible side effects or contraindications may result in delayed response to possible adverse reactions to the KI by sensitive individuals.

Recommendation: More complete guidance should be provided, both in writing and in the deployment briefing. The manufactures insert should be provided to emergency workers.

State Response: The team members are instructed and screened on the use of KI and prior to assignment to the teams. Additionally, KI pertinent data is included on the Emergency Worker Card (B1) and briefed to teams by the DNG OIC at the initial team briefing. The information contained in the FDA insert is not of immediate concern and would not serve any immediate benefit to team members. [However] the manufacturers insert has been added to all emergency worker kits.

FEMA Response: Even though the Field Team members may have been "instructed and screened on the use of KI prior to assignment", as stated above in the State Response, the Federal Evaluator observed that the Field Team members were not aware that KI could be continued for a time period following the initial dose, nor aware of all conditions for which they should not take KI. Providing the manufacturers insert to the emergency workers should help correct this Planning Issue and will be re-evaluated during the next regularly scheduled federal exercise.

STATE FIELD MONITORING TEAM 2 (State of Delaware)

Issue No.: 02-04-4.a.1-P-02

Condition: State of Delaware SOP 801, Attachment 801-E1, does not contain instructions for the placement of feet outside of the potentially contaminated area after the removal of the final booties or shoe covers.

Possible Cause: Instruction missing.

Reference: NUREG-0654, I.7

Effect: Workers may potentially contaminate shoes by placing feet back on the potentially contaminated plastic floor cover that had been used during the anti-contamination clothing removal process.

Recommendation: Add step-off pad and instructions on the use of the pad to the State of Delaware SOP 801, Attachment 801-E1.

State Response: The premise for the removal [of] clothing is that a plastic sheet is placed on the ground in a "clean" area for the purpose of containing any contamination on the outside of the anti-contamination suit. The final step is to remove the over boots and suit and step out of the suit onto the ground (off the containment sheet). In short "clean" shoes stepping onto "clean ground". Presumably "clean area" not necessarily step off pads. It seems amply sufficient to simply step off the pad with "clean" shoes onto "clean" ground. The State has revised SOP 801 concerning instructions for removal of anti-contamination suit to indicate as boots are removed, step off the plastic sheet onto a clean

surface. Also, in SOP 900 [the] procedure for the Emergency Worker Decontamination Center, step off pads are referenced.

FEMA Response: For Emergency Workers removing contaminated, or potentially contaminated clothing, it is a commonly accepted practice to step off onto a step-off pad. As referenced above in the State Response, the State of Delaware REP Standard Operating Procedure 900 requires that procedure. Based on the revisions to SOP 801 referenced above, FEMA concurs with the State Response. This Planning Issue is satisfactorily corrected.