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

FEMA

AUG 16 2010

Nuclear Regulatory Commission Headquarters
Office of Nuclear Security and Incident Response
Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, D. C. 20555-0001

Enclosed is the final report for the Salem/Hope Creek Nuclear Generating Stations (S/HCNGS) Radiological Emergency Preparedness Plume Exercise that was held on May 18, 2010.

Based on the results of the exercise, the offsite radiological emergency response plans and preparedness for the State of Delaware and the affected local jurisdictions, site-specific to S/HCNGS are adequate to protect the public health and safety in the event of a radiological emergency at the Site.

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

Sincerely,

Robert P. Welch
Acting Regional Administrator

Enclosure

NSIR01
AXUS

NSIR

Salem/Hope Creek Nuclear Generating Stations

After Action Report/ Improvement Plan

Exercise Date - May 18, 2010

Radiological Emergency Preparedness (REP) Program

FEMA

Published August 11, 2010

This page is intentionally blank.

Salem/Hope Creek Nuclear Generating Stations
After Action Report/Improvement Plan

Published August 11, 2010

Contents

This page is intentionally blank.

EXECUTIVE SUMMARY

On May 18, 2010, a full-scale exercise was evaluated in the 10-mile plume exposure pathway, emergency planning zone (EPZ) around the Salem/Hope Creek Nuclear Generating Stations (S/HCNGS) by the Federal Emergency Management Agency (FEMA), Region III. Out-of-sequence demonstrations were conducted on May 5-6, 2010. The purpose of the exercise and the out-of-sequence demonstrations was to assess the level of State and local preparedness in responding to a radiological emergency. The exercise and out-of-sequence demonstrations were held in accordance with FEMA's policies and guidance concerning the exercise of State and local radiological emergency response plans (RERP) and procedures.

The most recent prior full-scale exercise at this site was evaluated on May 20, 2008.

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

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

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

• Congregate Care/Reception Center: On May 6, 2010, an Out of Sequence demonstration for the Salem/Hope Creek Nuclear Generating Stations was conducted at the Smyrna Readiness Center, 103 Artisan Drive, Smyrna, Delaware 19977-3752.

• Schools: On May 5, 2010, an Out of Sequence demonstration for the Salem/Hope Creek Nuclear Generating Stations was conducted at the State Emergency Operations Center for Smyrna County School District and New Castle County School District and Schools.

The State and local organizations demonstrated knowledge of their emergency response plans and procedures and adequately implemented them.

One Deficiency and one Area Requiring Corrective Action (ARCA) were identified as a result of this exercise; both of the issues were demonstrated successfully during the remedial exercise on June 3, 2010. One new planning issue was identified and was successfully re-demonstrated on the remedial exercise on July 29, 2010. Also, one planning issue from a previous exercise is resolved.

SECTION 1: EXERCISE OVERVIEW

1.1 Exercise Details

Exercise Name
Salem/Hope Creek Nuclear Generating Stations

Type of Exercise
Plume

Exercise Date
May 18, 2010

Program
Department of Homeland Security/FEMA Radiological Emergency Preparedness Program

Scenario Type
Radiological Emergency

1.2 Exercise Planning Team Leadership

Janet Chomiszak
Offsite Emergency Planner
DEMA
Planner IV
165 Brick Store Landing Road
Smyrna, Delaware, 19977
302-659-2229
janet.chomiszak@state.de.us

Tina Lai
Project Officer
FEMA RIII
Technological Hazards Program Specialist
615 Chestnut Street, 6th Floor

Philadelphia, Pennsylvania, 19106
215-931-5680
tina.lai@dhs.gov

Richard Kinard
Backup Project Officer
FEMA RIII
Sr. technological Hazards Program Specialist
615 Chestnut Street, 6th Floor
Philadelphia, Pennsylvania, 19106
215-931-5558
richard.kinard@dhs.gov

Martin Vyenielo
Technical Team Leader
FEMA RIII
Technological Hazards Program specialist
615 Chestnut Street, 6th Floor
Philadelphia, Pennsylvania, 19106
215-931-5670
martin.vyenielo@dhs.gov

Reggie Rogers
Scenario Reviewer
ICF Consulting
Technical Evaluator
9300 Lee Highway
Fairfax, Virginia, 22031
860-992-3040
rodgersgroup@juno.com

Steve Stasolla
Scenario Developer

DEMA
Emergency Planner
165 Brick Store Landing Road
Smyrna , Delaware, 19977
302-659-3362
stasolla@comcast.net

1.3 Participating Organizations

Agencies and organizations of the following jurisdictions participated in the Salem/Hope Creek Nuclear Generating Stations exercise:

State Jurisdictions

- Delaware Alcohol and Tobacco Enforcement (DATE)
- Delaware Department of Transportation (DelDOT)
- Delaware Emergency Management (DEMA)
- Delaware National Guard
- Delaware River and Bay Authority
- Delaware State Police (DSP)
- Department of Natural Resources and Environmental Control (DNREC)
- Department of Safety and Homeland Security
- Department of Services for Children, Youth, and Families (DSCYF)
- Division of Fish and Wildlife (DFW)
- Division of Public Health (DPH)
- Division of Social Services (DSS)
- New Jersey Department of Environmental Protection
- New Jersey Department of Health
- New Jersey State Police/Office of Emergency Management
- New Bureau of Nuclear Engineering
- University of Delaware

Risk Jurisdictions

- Kent County
- New Castle County
- Salem County Emergency Services
- Sussex County

Private Organizations

- American Red Cross (ARC)
- Civil Air Patrol
- Delaware Volunteer Organization Active in Disaster (DEVOAD)
- Public Services Enterprise Group (PSE&G)
- Radio Amateur Civil Emergency Services (RACES)

Federal Jurisdictions

- Department of Energy (DOE)
- United States Army Corps of Engineers (USACE)
- United States Coast Guard (USCG)
- United States Department of Agriculture

SECTION 2: EXERCISE DESIGN SUMMARY

2.1 Exercise Purpose and Design

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

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

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

• Taking the lead in offsite emergency planning and in the review and evaluation of Radiological Emergency Response Plans (RERPs) and procedures developed by State and local governments;

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

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

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

- U.S. Department of Commerce,
- U.S. Nuclear Regulatory Commission,
- U.S. Environmental Protection Agency,

- U.S. Department of Energy,
- U.S. Department of Health and Human Services,
- U.S. Department of Transportation,
- U.S. Department of Agriculture,
- U.S. Department of the Interior, and
- U.S. Food and Drug Administration.

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

A REP exercise was conducted on May 18, 2010, to assess the capabilities of State and local emergency preparedness organizations in implementing their RERPs and procedures to protect the public health and safety during a radiological emergency involving Salem/Hope Creek Nuclear Generating Stations (S/HCNGS). The purpose of this exercise report is to present the exercise results and findings on the performance of the off-site response organizations (OROs) during a simulated radiological emergency.

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

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

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

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

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

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

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

• 67 FR 20580, "FEMA Radiological Emergency Preparedness: Exercise Evaluation Methodology," April 25, 2002.

Section 3 of this report, entitled "Ananlysis of Capabilities" presents basic information and data relevant to the exercise. the section of the report contains a Table 3.1 Summary of Exercise Evaluation and Summary Results of Exercise Evaluation.

Section 4 of this report, entitled "Conclusion" presents detailed information on the demonstration of applicable exercise evaluation areas at each jurisdiction or functional entity evaluated in a jurisdiction-based, issues-only format. This section also contains: (1) descriptions of all Deficiencies and Areas Requiring Corrective Action (ARCAs) assessed during this exercise, recommended corrective actions, and the Tribal, State, and local governments' schedule of corrective actions for each identified exercise issue and (2) descriptions of ARCAs assessed during previous exercises and resolved at this exercise, including the corrective action demonstrated, as well as ARCAs assessed during previous exercises and scheduled for demonstration at this exercise which remain unresolved.

The final section of the report is comprised of the appendices, which present the following supplementary information: Best Practices, Exercise Timeline, Exercise Evaluators and Team Leaders.

2.2 Exercise Objectives, Capabilities and Activities

Exercise objectives and identified Capabilities/REP Criteria selected to be exercised are discussed in Appendix D "Exercise Plan".

2.3 Scenario Summary

An accident occurred at the Salem Nuclear Generating Station Unit 2 on May 18, 2010 resulting in the release of radioactive material to the environment. The following is a summary of the incident.

0835 The Control Room receives a report from the field that the 65-ton crane was being used to remove the divers gang box that was located adjacent to Unit #2 AFWST when the crane toppled and struck the Unit #2 AFWST approximately 5 feet below the top of the tank. Water, from the AFWST penetration, is streaming out into the surrounding area and a Unit 2 AFWST Level alarm is received in the Control Room. There are no injuries reported.

0850 An Alert was declared based on:

ALERT

EAL 9.8.2,
Vehicle Crash / Missile Impact is of magnitude that it specifically results in Damage to a Plant Vital Structure which renders the structure incapable of performing its Design Function
AND
The Plant Vital Structure is required for the present Mode of Operation

1010 A small unidentified Primary Leak of 15 gpm occured at the flange of a Control Rod Drive Mechanism (CRDM) increasing containment airborne activity and humidity and activating alarms in the Control Room.

1030 A rod ejection occurs that results in a small break LOCA (4" opening). The ejected rod(s) individual rod position indication (IRPI) will indicate that one rod which was not fully withdrawn now shows full out and that an adjacent rod also shows full out. When the reactor is tripped, two rod bottom lights will not be lit. The ejected control rod will damage surrounding fuel rods by both exceeding local core thermal limits and through mechanical interaction. Containment radiation levels rose sharply above normal levels to > 300 R/hr.

1045 A SITE AREA EMERGENCY is declared by the Emergency Coordinator (EDO/ERM) based on:

SITE AREA EMERGENCY

EAL 3.1.5, R44A or R44B > 300R/hr

AND

EAL 3.2.2.b, Subcooling is 0o as a result of RCS leakage.
OR
EAL 3.2.4, Valid Containment Radiation level which exceeds ANY one of the following Containment Rad Monitors values:
R2 >1 R/hr
R44A > 10 R/hr
R44B > 10 R/hr

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

1110 The 22 Containment Spray Pump develops a dead short in the motor resulting in an overcurrent trip of the pump motor. Attempts are made to close the associated pump's discharge valve (22CS2) which are not successful.

1135 RHR is lined up for Cold Leg Recirculation.

1145 During the investigation of a fire alarm (false), an O2 / Acetylene bottle torch rig which was left free standing in the 84' area near the Containment Spray Pumps was accidentally knocked over by one of the firefighters. The neck of the bottle breaks off making the bottle a missile which ricochets a few times before striking and cracking the piping between 22 Containment Spray Pump and its associated discharge valve, 22CS2. Water begins to spray out of the crack. None of the fire fighters are injured. The spraying water is observed by the OSC team and reported to the Control Room when they exit the area.

1200 The cracked Containment Spray Piping ruptures. This event represents a loss of Containment. The Containment atmosphere is now vented via reverse flow through the Containment spray nozzles to the spray discharge piping past two stuck open check valves and out the spray line break located in Auxiliary Building. This results in the start of a Radiological

Release through the Aux Bldg Ventilation and out from the Plant Vent. The radiological release results in effluent alarms to both the 2R41 and 2R45. (NOTE: Both discharge check valves fail open (22CS4 and 22CS48) along with the failure to close of 22CS2, the 22 Containment Spray Pump discharge valve).

1215 A GENERAL EMERGENCY is declared by the EC (ERM) based on a loss of all 3 fission product barriers:

GENERAL EMERGENCY

EAL 3.1.5, R44A or R44B > 300R/hr

AND

EAL 3.2.2.b, Subcooling is 0°F as a result of RCS leakage
OR
EAL 3.2.4, Valid Containment Radiation Level which exceeds ANY one of the following Containment Rad Monitors values:
R2 > 1 R/hr
R44A > 10 R/hr
R44B > 10 R/hr

AND

EAL 3.3.2.c, A Rapid Unexplained Containment Pressure Drop following an initial Rise to > 4 psig
OR
EAL 3.3.3.b, 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 or system isolation is required due to any one of the following:
• Safety Injection

• Containment pressure greater than 4 psig
• Valid CNTMT Vent Isol Signal
AND
Cannot be ISOLATED from the Main Control Room
OR
EAL 3.3.6.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.)

1230 PSEG issued the following Protective Action Recommendations:

Evacuate: 0 to 5 miles - All sectors
5 to 10 miles - S, SSE and SSW sectors

Shelter in place: Remaining sectors

Use KI in accordance with state procedures.

1253 The Governor of the State of Delaware declared a State of Emergency and issued the following Protective Actions:

Evacuate: ERPAs A and B

Shelter in place: ERPA C

KI for emergency workers and general public

Place animals on stored feed and water

1315 The Governor of the State of Delaware requested assistance from the federal government to support monitoring and assessment.

1530 The radiological release from Containment was terminated when the 22 Containment Spray Pump Discharge Valve, 22CS2 is closed. The release rate slowly decreased over the next few hours.

Meteorological Conditions (8 am, May 18)

Wind from 355 degrees at 15 mph
Stability Class D

Note: For all other time periods use real weather conditions as determined from available sources

SECTION 3: ANALYSIS OF CAPABILITIES

3.1 Exercise Evaluation and Results

Contained in this section are the results and findings of the evaluation of all jurisdictions and functional entities that participated in the May 18, 2010 biennial Radiological Emergency Preparedness (REP) exercise. The exercise was held to test the offsite emergency response capabilities of local governments in the 10-mile Emergency Planning Zone (EPZ) surrounding the Salem/Hope Creek Nuclear Generating Stations.

Each jurisdiction and functional entity was evaluated on the basis of its demonstration of the exercise evaluation area criteria contained in the REP Exercise Evaluation Methodology. Detailed information on the exercise evaluation area criteria and the extent-of-play agreement used in this exercise are found in Appendix D of this report.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

3.2 Summary Results of Exercise Evaluation

The matrix presented in Table 3.1, on the following pages, presents the status of the exercise evaluation area criteria from the REP Exercise Evaluation Methodology that were scheduled for demonstration during this exercise by all participating jurisdictions and functional entities. Exercise evaluation area criteria are listed by number and the demonstration status of the criteria is indicated by the use of the following letters:

M Met (No Deficiency or ARCAs assessed and no unresolved ARCAs from prior exercises)
A ARCA(s) assessed
D Deficiency
P Plan Issue
N Not Demonstrated

Table 3.1 - Summary of Exercise Evaluation (3 pages)

DATE: 2010-05-18 SITE: Salem/Hope Creek Nuclear Generating Stations, NJ M: Met, A: ARCA, D: Deficiency, P: Plan Issue, N: Not Demonstrated		DEMA EOC	DE EOC TAC	SHC EOF	SFMT #1	SFMV	SHC ENC (NJ)	STAAC/DSP	KCo EOC	KCo DNGRC SRC	KCo DNGRC SMDC	NCC EOC	NCC BuRA
Emergency Operations Management													
Mobilization	1a1	M	M		M	M	M		M			M	
Facilities	1b1									M			
Direction and Control	1c1	M							M			M	
Communications Equipment	1d1	M	M	M	M	M		M	M			M	M
Equip & Supplies to support operations	1e1	M		M	M	M		M	M	M		M	M
Protective Action Decision Making													
Emergency Worker Exposure Control	2a1		M		M	M		M			M		M
Radiological Assessment and PARs	2b1	M	M										
Decisions for the Plume Phase -PADs	2b2	M											
PADs for protection of special populations	2c1	M											
Rad Assessment and Decision making for the Ingestion Exposure Pathway	2d1												
Rad Assessment and Decision making concerning Relocation, Reentry, and Return	2e1												
Protective Action Implementation													
Implementation of emergency worker exposure control	3a1	M			M	M		M			M		M
Implementation of KI decision	3b1	M			M	M		M					M
Implementation of protective actions for special populations - EOCs	3c1	M							M			M	
Implementation of protective actions for Schools	3c2	M										M	
Implementation of traffic and access control	3d1	M						M					
Impediments to evacuation are identified and resolved	3d2	M						M					
Implementation of ingestion pathway decisions - availability/use of info	3e1												
Materials for Ingestion Pathway PADs are available	3e2												
Implementation of relocation, re-entry, and return decisions.	3f1												
Field Measurement and Analysis													
Adequate Equipment for Plume Phase Field Measurements	4a1				M	M							
Field Teams obtain sufficient information	4a2		M										
Field Teams Manage Sample Collection Appropriately	4a3				M	M							
Post plume phase field measurements and sampling	4b1												
Laboratory operations	4c1												
Emergency Notification and Public Info													
Activation of the prompt alert and notification system	5a1	M							M			M	M
Activation of the prompt alert and notification system - Fast Breaker	5a2												
Activation of the prompt alert and notification system - Exception areas	5a3	M										M	M
Emergency information and instructions for the public and the media	5b1	M					M						
Support Operations/Facilities													
Mon / decon of evacuees and emergency workers, and registration of evacuees	6a1										M		
Mon / decon of emergency worker equipment	6b1												
Temporary care of evacuees	6c1												
Transportation and treatment of contaminated injured individuals	6d1												

Table 3.1 - Summary of Exercise Evaluation (Continued. page 2/3)

DATE: 2010-05-18 SITE: Salem/Hope Creek Nuclear Generating Stations, NJ M: Met, A: ARCA, D: Deficiency, P: Plan Issue, N: Not Demonstrated		NCC MCC DHS	ASD NCC	NCC ASD APHS	NCC ASD AGWMS	NCC ASD AECC	NCC ASD BMES	NCC ASD BHES	NCC ASD SLES	NCC ASD TECC	NCC ASD TES	NCC CSD
Emergency Operations Management												
Mobilization	1a1											
Facilities	1b1	M										
Direction and Control	1c1											
Communications Equipment	1d1											
Equip & Supplies to support operations	1e1	M										
Protective Action Decision Making												
Emergency Worker Exposure Control	2a1											
Radiological Assessment and PARs	2b1											
Decisions for the Plume Phase -PADs	2b2											
PADs for protection of special populations	2c1											
Rad Assessment and Decision making for the Ingestion Exposure Pathway	2d1											
Rad Assessment and Decision making concerning Relocation, Reentry, and Return	2e1											
Protective Action Implementation												
Implementation of emergency worker exposure control	3a1											
Implementation of KI decision	3b1											
Implementation of protective actions for special populations - EOCs	3c1											
Implementation of protective actions for Schools	3c2		M	M	M	M	M	M	M	M	M	M
Implementation of traffic and access control	3d1											
Impediments to evacuation are identified and resolved	3d2											
Implementation of ingestion pathway decisions - availability/use of info	3e1											
Materials for Ingestion Pathway PADs are available	3e2											
Implementation of relocation, re-entry, and return decisions.	3f1											
Field Measurement and Analysis												
Adequate Equipment for Plume Phase Field Measurements	4a1											
Field Teams obtain sufficient information	4a2											
Field Teams Manage Sample Collection Appropriately	4a3											
Post plume phase field measurements and sampling	4b1											
Laboratory operations	4c1											
Emergency Notification and Public Info												
Activation of the prompt alert and notification system	5a1											
Activation of the prompt alert and notification system - Fast Breaker	5a2											
Activation of the prompt alert and notification system - Exception areas	5a3											
Emergency information and instructions for the public and the media	5b1											
Support Operations/Facilities												
Mon / decon of evacuees and emergency workers, and registration of evacuees	6a1											
Mon / decon of emergency worker equipment	6b1											
Temporary care of evacuees	6c1	M										
Transportation and treatment of contaminated injured individuals	6d1											

Table 3.1 - Summary of Exercise Evaluation (Continued. page 3/3)

DATE: 2010-05-18 SITE: Salem/Hope Creek Nuclear Generating Stations, NJ M: Met, A: ARCA, D: Deficiency, P: Plan Issue, N: Not Demonstrated		NCC CSD WPHS	NCC CSD SES	NCC CSD DECC/DCEC	NCC SSD	NCC SSD SES	NCC SSD SHS	NCC SSD SMS	NCC SSD SSES	NCC SSD CES	NCC SSD JBMIS	NCC SDD NSES
Emergency Operations Management												
Mobilization	1a1											
Facilities	1b1											
Direction and Control	1c1											
Communications Equipment	1d1											
Equip & Supplies to support operations	1e1											
Protective Action Decision Making												
Emergency Worker Exposure Control	2a1											
Radiological Assessment and PARs	2b1											
Decisions for the Plume Phase -PADs	2b2											
PADs for protection of special populations	2c1											
Rad Assessment and Decision making for the Ingestion Exposure Pathway	2d1											
Rad Assessment and Decision making concerning Relocation, Reentry, and Return	2e1											
Protective Action Implementation												
Implementation of emergency worker exposure control	3a1											
Implementation of KI decision	3b1											
Implementation of protective actions for special populations - EOCs	3c1											
Implementation of protective actions for Schools	3c2	M	M	M	M	M	M	M	M	M	M	M
Implementation of traffic and access control	3d1											
Impediments to evacuation are identified and resolved	3d2											
Implementation of ingestion pathway decisions - availability/use of info	3e1											
Materials for Ingestion Pathway PADs are available	3e2											
Implementation of relocation, re-entry, and return decisions.	3f1											
Field Measurement and Analysis												
Adequate Equipment for Plume Phase Field Measurements	4a1											
Field Teams obtain sufficient information	4a2											
Field Teams Manage Sample Collection Appropriately	4a3											
Post plume phase field measurements and sampling	4b1											
Laboratory operations	4c1											
Emergency Notification and Public Info												
Activation of the prompt alert and notification system	5a1											
Activation of the prompt alert and notification system - Fast Breaker	5a2											
Activation of the prompt alert and notification system - Exception areas	5a3											
Emergency information and instructions for the public and the media	5b1											
Support Operations/Facilities												
Mon / decon of evacuees and emergency workers, and registration of evacuees	6a1											
Mon / decon of emergency worker equipment	6b1											
Temporary care of evacuees	6c1											
Transportation and treatment of contaminated injured individuals	6d1											

3.3 Criteria Evaluation Summaries

3.3.1 Delaware Jurisdictions

3.3.1.1 Delaware Emergency Operations Center

a. MET: 1.a.1, 1.c.1, 1.d.1, 1.e.1, 2.b.1, 2.b.2, 2.c.1, 3.a.1, 3.b.1, 3.c.1, 3.c.2, 3.d.1, 3.d.2, 5.a.1, 5.a.3, 5.b.1.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.1.2 Delaware Emergency Operations Center, Technical Assessment Center

a. MET: 1.a.1, 1.d.1, 2.a.1, 2.b.1, 4.a.2.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: 2.b.1.

ISSUE NO.: 02-10-2b1-D-01

CRITERION: Appropriate PARs are based on available information on plant conditions, field monitoring data, and licensee and ORO dose projections, as well as knowledge of on and off site environmental conditions.

CONDITION: The time involved in developing a PAR took longer than would be appropriate for a General Emergency with a release in progress and delayed the issuance of a protective action decision (PAD).

POSSIBLE CAUSE: After the TAC received radiation release data, calculations were redundantly made instead of taking known data to develop a protective action recommendation to state decision makers.

REFERENCE: NUREG-0654, I.8, 10 and Supplement 3
SOP 302, Rev 10, June 2008.

EFFECT: The delay in developing a PAR delayed the PAD. The radiation release started at 1900 hours. The utility issued a PAR at 1913 hours, which was received by the Delaware EOC at 1921 hours. Based on wind direction and speed, the radiological plume would have made landfall in Delaware at approximately 1935 hours. The process to develop the PAR to make a recommendation for the PAD occurred from 1927 hours to 2030 hours. The public was notified via EAS message of a radiation release at 2050. The elapsed time from radiation release to public action was 1 hour 50 minutes. With the evacuation time estimate for ERPA A and B at 2 hours, evacuation of the public and ingestion of KI was delayed and public health and safety could be adversely affected.

CORRECTIVE ACTION DEMONSTRATED: On 6/3/2010 this criteria was re-demonstrated. The Technical Assessment Center (TAC) at the Delaware State EOC was staffed by the following personnel:

- TAC Chairperson
- Data Analysis Coordinator (2)
- MIDAS/RASCAL Operators (3)
- TAC Incident Messaging/Charts (2)

The staff met the procedural requirements for declaring the TAC operational. All Command and Control information and communication was simulated, which had no impact on the re-demonstraton.

Upon arrival of necessary staff, the TAC was declared operational at 0910. The staff was then informed that a Site Area Emergency had been declared at 0900. The utility PARs were provided, along with communicating that no radiological release was in progress. MIDAS radiological data was supplied and dose assessments were calculated. The results verified that a release was not in progress. After reviewing the data, discussing that the plant had lost RCS and fuel barriers, and using the DE PAR flowchart, at 0933 the following PARs were recommended: Shelter Emergency Response Planning Areas (ERPAs) A, B and C; evacuate special populations and school children; clear the river in the vicinity of the Salem Hope Creek area. These PARs were accepted by the simulated Command and Control cell.

The TAC staff was then informed from simulated staff at the Emergency Operations Facility that at 0950 a release was in progress. This was followed by receipt of the declaration of a General Emergency at 1000. A briefing was held, led by the TAC Chairperson and based on the DE EP Plan, the PAR flowchart, and dose assessments showing PAGS for child thyroid and TEDE exceeded at 5 miles; updated PARs were then developed. At 1008 the following PARs were made: distribute KI to the General Public and Emergency Workers; evacuate ERPAs A, B. C. The simulated Command and Control cell accepted these PARs.

This concluded a successful re-demonstration of the TAC staff's timely development and communication of appropriate PARs.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.1.3 Salem/Hope Creek Emergency Operations Facility

a. MET: 1.d.1, 1.e.1.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.1.4 State Field Monitoring Team #1

a. MET: 1.a.1, 1.d.1, 1.e.1, 2.a.1, 3.a.1, 3.b.1, 4.a.1, 4.a.3.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. PLAN ISSUES: None

e. NOT DEMONSTRATED: None

f. PRIOR ISSUES - RESOLVED: 2.a.1.

ISSUE NO.: 02-06-2a1-P-01

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

CORRECTIVE ACTION DEMONSTRATED: Section 3.4.1 of the Delaware Radiological Emergency Plan (rev. 9) still indicates that the emergency workers should not exceed a total dose of 1.25 rem [TEDE], without permission from the Division of Public Health representative in the Technical Assessment Center (TAC) through the Delaware Emergency Management Agency (DEMA) Director. Electronic dosimeters are set to alarm at an accumulated exposure of 1.25 roentgens. The Plan does not provide a corresponding exposure limit in units of roentgens.

DEMA Updated Plan dated October 2009, REV 10.

g. PRIOR ISSUES - UNRESOLVED: None

3.3.1.5 State Field Monitoring Vehicle

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

b. AREAS REQUIRING CORRECTIVE ACTION: 1.e.1.

ISSUE NO.: 02-10-1e1-A-01

CRITERION: Equipment, maps, displays, dosimetry, potassium iodide (KI), and other supplies are sufficient to support emergency operations.

CONDITION: This was the first evaluated exercise using the Radiological Emergency Monitoring Vehicle (REMV). The REMV has an equipment skid within the vehicle for sampling radioiodine and particulate concentrations in air using a scintillator detector and an air flow indicator. The ADM 606 Multi Function Digital Ratemeter with the scintillator detector was calibrated. The Air Flow Indicator which provides the flow rate to a lap top computer for calculating radioiodine and/or particulate concentrations had a calibration date of December 7, 2000.

POSSIBLE CAUSE: There was no evidence of the calibration of the air sampler pump available and the flow rate indicator calibration was ten years old.

REFERENCE: Delaware SOP 306: Field Monitoring and Sampling for the Plume Phase
NUREG-0654: H.10, I 7, 8, 9.

EFFECT: Without calibration of the air sampling pump or with an outdated calibration of the air flow indicator there can be no assurance of the reliability of the radioiodine or particulate concentrations. This could result in erroneous Protective Action Recommendations.

CORRECTIVE ACTION DEMONSTRATED: Have the air sampling pump and the air flow indicator calibrated annually, include the calibration of these instruments in the annual calibration cycle, and address the calibration cycle within the appropriate procedures.

On 5/20/10 DE EMA obtained a letter from Canberra stating the air flow indicator should be calibrated at least every 18 months. On 6/3/10 documentation was provided to the FEMA evaluator that the air flow indicator was calibrated on 5/25/2010. The calibration due date is 5/25/2011. A label was placed on the air flow indicator listing both the calibration date and the calibration due date. The air flow indicator has been added to the devices requiring calibration.

c. DEFICIENCY: None
d. PLAN ISSUES: 1.e.1.

ISSUE NO.: 02-10-1e1-P-02

CRITERION: Equipment, maps, displays, dosimetry, potassium iodide (KI), and other supplies are sufficient to support emergency operations.

CONDITION: Procedures do not exist for performing an operability check or a source check on the Radiological Emergency Monitoring Vehicle (REMV)

equipment for sampling radioiodine and particulate concentrations in air, and the gamma detector mounted on the roof of the vehicle.

POSSIBLE CAUSE: Procedures were not developed to address the performance of an operability check or a source check on the REMV instruments.

REFERENCE: Delaware SOP 306: Field Monitoring and Sampling for the Plume Phase NUREG-0654: H.10; I 7, 8, 9.

EFFECT: Without the operability check or source check on the instruments, there can be no assurance on the reliability of count rate or exposure rate obtained with these instruments. These readings are used in the determination of the radioiodine concentrations and ambient radiation measurements. This could result in erroneous Protective Action Recommendations (PARs) being made.

CORRECTIVE ACTION DEMONSTRATED: On 7/29/2010 a FEMA Evaluator went to Delaware Emergency Management Agency (DEMA) and reviewed revision 12 of SOP 306 "Field Monitoring and Sampling for the Plume Phase". Section 10, pages 36-37 now addresses the source checks for the Iodine Detector and the roof mounted GP-110 radiation detector. Note: since this issue was written it was identified the wrong detector was installed in the air sampling system. It was an alpha-beta detector and is now a single channel analyzer (NAI) for the purpose of measuring Iodine concentrations in the air. The roof mounted detector source check was demonstrated successfully using a Cs-137 source and a label was available indicating the proper source and the range of acceptable readings. The Iodine detector source check procedure is completed as part of this revision; however, Delaware is still awaiting the arrival of the solenoid operated source and holder for installation into the vehicle. A site visit sometime after the arrival of the Iodine detector source and installation would be beneficial for source check performance observation. Since the procedure is now complete, this issue is closed.

e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.1.6 Salem/Hope Creek Emergency News Center, Woodstown, NJ

a. MET: 1.a.1, 5.b.1.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.1.7 State Traffic and Access Control, Delaware State Police

a. MET: 1.d.1, 1.e.1, 2.a.1, 3.a.1, 3.b.1, 3.d.1, 3.d.2.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.2 Risk Jurisdictions

3.3.2.1 Kent County Emergency Operations Center

a. MET: 1.a.1, 1.c.1, 1.d.1, 1.e.1, 3.c.1, 5.a.1.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.2.2 Kent County, Delaware National Guard Readiness Center, Smyrna Reception Center

a. MET: 1.b.1, 1.e.1.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. PLAN ISSUES: None

e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.2.3 Kent County, Delaware National Guard Readiness Center, Smyrna Monitoring and Decontamination Center

a. MET: 2.a.1, 3.a.1, 6.a.1.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.2.4 New Castle County Emergency Operations Center

a. MET: 1.a.1, 1.c.1, 1.d.1, 1.e.1, 3.c.1, 3.c.2, 5.a.1, 5.a.3.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.2.5 New Castle County, Back-up Route Alerting

a. MET: 1.d.1, 1.e.1, 2.a.1, 3.a.1, 3.b.1, 5.a.1, 5.a.3.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.2.6 New Castle County Mass Care Center, Dickinson High School

a. MET: 1.b.1, 1.e.1, 6.c.1.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.2.7 New Castle County, Appoquinimink School District

a. MET: 3.c.2.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.2.8 New Castle County, Appoquinimink School District, Appoquinimink High School

a. MET: 3.c.2.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.2.9 New Castle County, Appoquinimink School District, Alfred G. Waters Middle School

a. MET: 3.c.2.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None

g. PRIOR ISSUES - UNRESOLVED: None

3.3.2.10 New Castle County, Appoquinimink School District, Appoquinimink Early Childhood Center

a. MET: 3.c.2.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.2.11 New Castle County, Appoquinimink School District, Brick Mill Elementary School

a. MET: 3.c.2.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.2.12 New Castle County, Appoquinimink School District, Bunker Hill Elementary School

a. MET: 3.c.2.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.2.13 New Castle County, Appoquinimink School District, Silver Lake Elementary School

a. MET: 3.c.2.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.2.14 New Castle County, Appoquinimink School District, Townsend Early Childhood Center

a. MET: 3.c.2.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.2.15 New Castle County, Appoquinimink School District, Townsend Elementary School

a. MET: 3.c.2.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.2.16 New Castle County, Colonial School District

a. MET: 3.c.2.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None

f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.2.17 New Castle County, Colonial School District, William Penn High School

a. MET: 3.c.2.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.2.18 New Castle County, Colonial School District, Southern Elementary School

a. MET: 3.c.2.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.2.19 New Castle County, Colonial School District, Delaware Early Childhood Center/Deleware City Early Choices

a. MET: 3.c.2.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.2.20 New Castle County, Smyrna School District

a. MET: 3.c.2.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.2.21 New Castle County, Smyrna School District, Smyrna Elementary School

a. MET: 3.c.2.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.2.22 New Castle County, Smyrna School District, Smyrna High School

a. MET: 3.c.2.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.2.23 New Castle County, Smyrna School District, Smyrna Middle School

a. MET: 3.c.2.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.2.24 New Castle County, Smyrna School District, Sunnyside Elementary School

a. MET: 3.c.2.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.2.25 New Castle County, Smyrna School District, Clayton Elementary School

a. MET: 3.c.2.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.2.26 New Castle County, Smyrna School District, John Bassett Moore Intermediate School

a. MET: 3.c.2.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.2.27 New Castle County, Smyrna School District, North Smyrna Elementry School

a. MET: 3.c.2.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None

g. PRIOR ISSUES - UNRESOLVED: None

SECTION 4: CONCLUSION

The State of Delaware and local organizations, except where noted in this report, demonstrated knowledge of their emergency response plans and procedures and adequately implemented them. One Deficiency and one Area Requiring Corrective Action (ARCA) were identified as a result of this exercise; both of the issues were demonstrated successfully during the remedial exercise on June 3, 2010. One new planning issue was identified and was successfully re-demonstrated at the remedial exercise on July 29, 2010. Also, one planning issue from a previous exercise is resolved.

APPENDIX A: BEST PRACTICES

1. State Traffic and Access Control, Delaware State Police (DSP), Delaware Department of Transportation (DelDOT)

Summary: The material contained in the Salem/Hope Creek Nuclear Generating Stations Emergency Evacuation Operations Manual and SOP 700 (Attachment 700-B1)were demonstrated strengths for Traffic and Access Control for the state of Delaware.

Description: The Salem/Hope Creek Nuclear Generating Stations Emergency Evacuation Traffic Operations Manual is an extremely detailed manual which contains information on: five & ten mile access control points, summary of equipment needs for each point, north & south detour maps, traffic management points (with equipment needs) and signage plans. The detailed drawings contained in this manual make it an excellent resource for DSP and DelDOT staff even it they have no knowledge of their assigned location. It will also aid DSP for replacing a trooper when their shift is over.

SOP 700 (Attachment 700-B1) is a very useful form for DSP troopers in providing directions to evacuees regarding their evacuation route and Attachment 700-B7 (Evacuation Instruction Sheet) provides directions to the nearest Reception Center. This information will decrease the time of implementing an effective evacuation.

APPENDIX B: EXERCISE TIMELINE

Table 1 - Exercise Timeline
DATE: 2010-05-18, SITE: Salem/Hope Creek Nuclear Generating Stations, NJ

Emergency Classification Level or Event	Time Utility Declared	DEMA EOC	DE EOC TAC	SHC EOF	SHC ENC (NJ)	KCo EOC	NCC EOC
Unusual Event	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Alert	1544	1550	1630	1544	1549	1620	1611
Site Area Emergency	1738	1749	1742	1738	1808	1750	1750
General Emergency	1913	1921	1927	1913	1923	1932	1925
Simulated Rad. Release Started	1900	1921	1927	1900	1932	1932	1925
Simulated Rad. Release Terminated	2234	N/A	N/A	2234	2239	N/A	N/A
Facility Declared Operational		1615	1630	1803	1705	1638	1619
Declaration of State of Emergency		1845	1845	1845	1847	1849	1845
Exercise Terminated		2244	2244	2244	2249	2150	2210
Early Precautionary Actions:		1749	N/A	1749	1808	N/A	1749
1st Protective Action Decision:		1835	N/A	N/A	1910	1849	1845
1st Siren Activation		1905	1905	1905	N/A	N/A	N/A
1st EAS or EBS Message		1910	1910	1910	N/A	N/A	N/A
2nd Protective Action Decision:		2024	2024	N/A	2100	2027	2027
2nd Siren Activation		2045	N/A	N/A	N/A	N/A	N/A
2nd EAS or EBS Message		2050	N/A	N/A	N/A	N/A	N/A
3rd Protective Action Decision:		2132	2132	N/A	2224	2132	2132
3rd Siren Activation		2150	N/A	N/A	N/A	N/A	N/A
3rd EAS or EBS Message		2155	N/A	N/A	N/A	N/A	N/A
4th Protective Action Decision:		N/A	N/A	N/A	N/A	N/A	N/A
4th Siren Activation		N/A	N/A	N/A	N/A	N/A	N/A
4th EAS or EBS Message		N/A	N/A	N/A	N/A	N/A	N/A
5th Protective Action Decision:		N/A	N/A	N/A	N/A	N/A	N/A
5th Siren Activation		N/A	N/A	N/A	N/A	N/A	N/A
5th EAS or EBS Message		N/A	N/A	N/A	N/A	N/A	N/A
6th Protective Action Decision:		N/A	N/A	N/A	N/A	N/A	N/A
6th Siren Activation		N/A	N/A	N/A	N/A	N/A	N/A
6th EAS or EBS Message		N/A	N/A	N/A	N/A	N/A	N/A
KI Administration Decision:		2024	2024	2030	2100	2027	2027

APPENDIX C: EXERCISE EVALUATORS AND TEAM LEADERS

DATE: 2010-05-18, SITE: Salem/Hope Creek Nuclear Generating Stations, NJ

LOCATION	EVALUATOR	AGENCY
Delaware Emergency Operations Center	DeeEll Fifield Scott Hallett Andrew Hower Roy Smith Denise Solomon	ICF FEMA HQ FEMA RIII ICF ICF
Delaware Emergency Operations Center, Technical Assessment Center	Stephen Chambers Reggie Rogers *Martin Vyenielo	ICF ICF FEMA RIII
Salem/Hope Creek Emergency Operations Facility	*Kenneth Wierman	FEMA HQ NP/REP
State Field Monitoring Team #1	Alan Bevan	ICF
State Field Monitoring Vehicle	Richard Grundstrom	ICF
Salem/Hope Creek Emergency News Center, Woodstown, NJ	William Vocke	ICF
State Traffic and Access Control, Delaware State Police	William Palmer	ICF
Kent County Emergency Operations Center	Mark Dalton Robert Neff Richard Smith	ICF FEMA RIII ICF
Kent County, Delaware National Guard Readiness Center, Smyrna Reception Center	*Joseph Suders	FEMA RIII
Kent County, Delaware National Guard Readiness Center, Smyrna Monitoring and Decontamination Center	*Joseph Suders	FEMA RIII
New Castle County Emergency Operations Center	Gary Goldberg Danny Loomis Michael Shuler	ICF ICF FEMA RIII
New Castle County, Back-up Route Alerting	Chris Thompson	FAA
New Castle County Mass Care Center, Dickinson High School	Andrew Hower	FEMA RIII
New Castle County, Appoquinimink School District	Tina Lai	FEMA RIII
New Castle County, Appoquinimink School District, Appoquinimink High School	Richard Kinard	FEMA RIII
New Castle County, Appoquinimink School District, Alfred G. Waters Middle School	Barton Freeman	FEMA RIII
New Castle County, Appoquinimink School District, Appoquinimink Early Childhood Center	Andrew Hower	FEMA RIII
New Castle County, Appoquinimink School District, Brick Mill Elementary School	Tina Lai	FEMA RIII
New Castle County, Appoquinimink School District, Bunker Hill Elementary School	Richard Kinard	FEMA RIII
New Castle County, Appoquinimink School District, Silver Lake Elementary School	Daniel Lerch	FEMA RIII
New Castle County, Appoquinimink School District, Townsend Early Childhood Center	Robert Neff	FEMA RIII
New Castle County, Appoquinimink School District, Townsend Elementary School	Robert Neff	FEMA RIII
New Castle County, Colonial School District	Martin Vyenielo	FEMA RIII
New Castle County, Colonial School District, William Penn High School	Martin Vyenielo	FEMA RIII
New Castle County, Colonial School District, Southern Elementary School	Joseph Suders	FEMA RIII
New Castle County, Colonial School District, Delaware Early Childhood Center/Deleware City Early Choices	John Price	FEMA RIII

New Castle County, Smyrna School District	Michael Shuler	FEMA RIII
New Castle County, Smyrna School District, Smyrna Elementary School	Michael Shuler	FEMA RIII
New Castle County, Smyrna School District, Smyrna High School	Michael Shuler	FEMA RIII
New Castle County, Smyrna School District, Smyrna Middle School	Michael Shuler	FEMA RIII
New Castle County, Smyrna School District, Sunnyside Elementary School	Michael Shuler	FEMA RIII
New Castle County, Smyrna School District, Clayton Elementary School	Michael Shuler	FEMA RIII
New Castle County, Smyrna School District, John Bassett Moore Intermediate School	Michael Shuler	FEMA RIII
New Castle County, Smyrna School District, North Smyrna Elementry School	Michael Shuler	FEMA RIII
*Team Leader		

APPENDIX D: EXERCISE PLAN

STATE OF DELAWARE

EXERCISE CRITERIA AND EXTENT-OF-PLAY

Salem Exercise May 2010

Revision 3

March 1, 2010

Approved Director, Delaware Emergency Management Agency / Date

Real Life Emergencies Take Priority over Exercise Play

Extent of Play - State of Delaware
Salem Exercise - May 2010

TABLE OF CONTENTS

Extent of Play - State of Delaware
Salem Exercise - May 2010

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 graded exercise to be conducted on May 18, 19, and 20, 2010. The plume portion of the exercise will be conducted on May 18th and the Ingestion Pathway portion will be conducted on May 19th and 20th.

As it is difficult to fully demonstrate both plume and ingestion objectives for both States with a single scenario, the scenarios for the Plume and Ingestion portions of the exercise will be disconnected. Also, the scenario for the ingestion portion of the exercise will be adjusted to allow the participating States (New Jersey and Delaware) to fully demonstrate their respective exercise objectives. A simulated plume scenario will be produced to drive activities for the ingestion portion of the exercise.

As the objectives for the plume and ingestion portions are being demonstrated separately, the objectives and Extent of Play for the Ingestion Pathway portion of the exercise have been developed as a separate section of this document.

This exercise is being conducted in close cooperation with the State of New Jersey. The New Jersey 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 indicated for specific exercise evaluation areas described herein.

There were no exercise issues for either the plume or ingestion phase that will require corrective action by the State of Delaware during this exercise.

Extent of Play - State of Delaware
Salem Exercise - May 2010

The following locations will be activated for this exercise

State

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

County Jurisdictions

New Castle County EOC
Kent County EOC
Sussex County EOC (Ingestion only)

Other Locations

Teledyne-Brown (laboratory analysis) – Knoxville, TN

Out of Sequence Demonstrations

Some demonstrations will be conducted out of sequence. Dates and times for all out of sequence demonstrations have been finalized and are noted. These demonstrations have been noted in the applicable evaluation area(s) objective and extent of play and are summarized below.

Plume Phase

- **Criterion 1.b.1 Facilities**

  Demonstrations – May 6, 2010 – Out of Sequence
  Congregate Care – Dickinson High School

  Demonstrations – May 6, 2010 – Out of Sequence
  Reception Center – Smyrna Readiness Center/Delaware National Guard (DNG)

Extent of Play - State of Delaware
Salem Exercise - May 2010

- **Criterion 1.e.1 Equipment**

  Demonstrations – May 6, 2010 – Out of Sequence
  Reception Center – Smyrna Readiness Center/Delaware National Guard (DNG)

  Demonstrations – May 18, 2010
  Traffic and Access Control – DE State Police and DE Department of Transportation
  Route Alerting – Delaware City Fire Company

- **Criterion 2.a.1 Emergency Worker Exposure Control**

Demonstrations – May 6, 2010 – Out of Sequence

  Reception Center – Smyrna Readiness Center/Delaware National Guard (DNG)

  Demonstrations – May 18, 2010
  Traffic and Access Control – DE State Police and DE Department of Transportation
  Route Alerting – Delaware Fire Department

- **Criterion 3.a.1 Emergency Worker Exposure Control**

Demonstrations – May 6, 2010 – Out of Sequence
  Reception Center – Smyrna Readiness Center/Delaware National Guard (DNG)

  Demonstrations – May 18, 2010
  Traffic and Access Control – DE State Police and DE Department of Transportation
  Route Alerting – Delaware City Fire Company

- **Criterion 3.b.1 KI**

Demonstrations – May 6, 2010 – Out of Sequence
  Reception Center – Smyrna Readiness Center/Delaware National Guard (DNG)

  Demonstrations – May 18, 2010
  Traffic and Access Control – DE State Police and DE Department of Transportation
  Route Alerting – Delaware City Fire Company

- **Criterion 3.c.2 Schools**

Demonstrations – May 5, 2010 – Out of Sequence

  Colonial School District: Southern Elementary School, Delaware Early Childhood Center/Delaware City Early Choices, William Penn High School (outside EPZ)

Extent of Play - State of Delaware
Salem Exercise - May 2010

Appoquinimink School District: Alfred G. Waters Middle School, Townsend Elementary School, Townsend Early Childhood Center, Brick Mill Elementary School, Silver Lake Elementary School, Bunker Hill Elementary (outside EPZ), Appoquinimink Early Childhood Center, Appoquinimink High School (outside EPZ)

Smyrna School District (outside EPZ): Smyrna High School, Smyrna Middle School, John Bassett Moore Intermediate School, Smyrna Elementary School, North Smyrna Elementary School, Clayton Elementary School and Sunnyside Elementary School.

- **Criterion 4.a.1 Field Team Equipment**

Delaware National Guard (DNG) Field Teams – DNG will pre demonstrate equipment checkout, ambient radiation monitoring procedures and air sampling procedures for the plume portion of the exercise - DNG Headquarters May 18, 2010 (3:00 p.m.)

- **Criterion 6.a.1**

Demonstration – May 6, 2010 – Out of Sequence
Reception Center – Smyrna Readiness Center/Delaware National Guard (DNG)

- **Criterion 6.c.1 Congregate Care**

Demonstration – May 6, 2010 – Out of Sequence
Interview the Red Cross/Division of Social Services Shelter Manager at the site. – Dickinson High School

- **Criterion 6.d.1 Support Operations/Facilities/Transportation and Treatment of Contaminated Injured Individuals**

Demonstrated – May 13, 2009 – Next scheduled evaluated exercise is 2011.
Christiana Health Care Services (Christiana Hospital) New Castle County Communication 911, New Castle County Paramedics, Port Penn Fire Company/Emergency Medical Services

Ingestion Phase

- **Criterion 4.b.1 Post Plume Sampling**

Demonstration - State ingestion sampling team
May 19, 2010
Location – DNG Headquarters

- **Criterion 4.c.1 Laboratory Operations**

51

Demonstration - FEMA will schedule
Teledyne-Brown

Extent of Play - State of Delaware
Salem Exercise - May 2010

PLUME PATHWAY

EXERCISE CRITERIA AND EXTENT-OF-PLAY

The Plume Pathway portion of the Salem Exercise will be conducted on May 18, 2010.

The following extent of play outlines the Evaluation Areas and the expected activities for objectives related to the Plume Pathway. All activities will be demonstrated in accordance with established plans and procedures, except as indicated in the State of Delaware Extent of Play for each evaluation criterion.

Extent of Play - State of Delaware
Salem Exercise - May 2010

Extent of Play by Evaluation Area

The following evaluation areas, sub-elements and evaluation criterion are consistent with FEMA's exercise evaluation methods as reflected in the Interim REP Program Manual dated August 2002. Generic extent of play text from the REP Manual is quoted verbatim for each evaluation criterion and has been placed in italics. All activities will be demonstrated in accordance with established plans and procedures, except as indicated in the State of Delaware Extent of Play for each evaluation criterion.

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.

Extent of Play - State of Delaware
Salem Exercise - May 2010

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 except as noted below.

Responders will pre-position at the following facilities:

- State EOC, Kent County EOC and New Castle County EOC
- Emergency Operations Facility (EOF) – Salem , NJ
- Emergency News Center (ENC) – Woodstown, NJ
- Field Monitoring Teams – Delaware National Guard Headquarters

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

Mobilization of the following agencies will be simulated:

Delaware Emergency Management Agency, Kent County Emergency Management, New Castle County Office of Emergency Management, 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.

Locations Evaluated

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

Outstanding Issues

None

Extent of Play - State of Delaware
Salem Exercise - May 2010

EVALUATION AREA 1: EMERGENCY OPERATIONS MANAGEMENT

Sub-element 1.b – Facilities

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

Intent

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

Extent-of-Play

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

State of Delaware Extent-of-Play

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

Baseline evaluations of the Mass Care Center/Dickinson High School and the Reception Center/Smyrna Readiness Center will be done out of sequence.

Locations Evaluated - Out of sequence

Mass Care Center/Dickinson High School – May 6, 2010

Reception Center/Smyrna Readiness Center – May 6, 2010

Outstanding Issues

None

Extent of Play - State of Delaware
Salem Exercise - May 2010

EVALUATION AREA 1: EMERGENCY OPERATIONS MANAGEMENT

Sub-element 1.c - Direction and Control

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

Intent

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

Extent -Of-Play

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

State of Delaware Extent-of-Play

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

Locations Evaluated

State EOC, Kent County EOC and New Castle County EOC

Outstanding Issues

None

Extent of Play - State of Delaware
Salem Exercise - May 2010

EVALUATION AREA 1: EMERGENCY OPERATIONS MANAGEMENT

Sub-element 1.d – Communications Equipment

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

Intent

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

Extent-Of-Play

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

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

State of Delaware Extent-of-Play

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

Extent of Play - State of Delaware
Salem Exercise - May 2010

Locations Evaluated

State EOC
Delaware National Guard Field Teams
Kent County EOC
New Castle County EOC
Traffic and Access Control - Delaware State Police and Delaware Department of Transportation
Route Alerting – Delaware City Fire Company
Reception Center Delaware National Guard/Smyrna Readiness Center - Out of Sequence

Outstanding Issues

None

Extent of Play - State of Delaware
Salem Exercise - May 2010

EVALUATION AREA 1: EMERGENCY OPERATIONS MANAGEMENT

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

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

Extent of Play - State of Delaware
Salem Exercise - May 2010

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

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

State of Delaware Extent-of-Play

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

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

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

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

Locations Evaluated

State EOC
Delaware National Guard Field Teams
Route Alerting – Delaware City Fire Company (Delaware City)
Traffic and Access Control - Delaware State Police and Delaware Department of Transportation.

Reception Center - DNG Smyrna Readiness Center – May 6, 2010 (Out of Sequence)

Outstanding Issues: None

Extent of Play - State of Delaware
Salem Exercise - May 2010

EVALUATION AREA 2: PROTECTIVE ACTION DECISION-MAKING

Sub-element 2.a – Emergency Worker Exposure Control

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

Intent

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

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

Extent-of-Play

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

Extent of Play - State of Delaware
Salem Exercise - May 2010

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, except as noted below.

The taking of KI by emergency workers will be simulated.

Locations Evaluated

Delaware National Guard Field Teams
Route Alerting – Delaware City Fire Company (Delaware City)
Traffic and Access Control - Delaware State Police and Delaware Department of Transportation.

Reception Center - DNG Smyrna Readiness Center – May 6, 2010 Out of Sequence

Outstanding Issues

None

Extent of Play - State of Delaware
Salem Exercise - May 2010

EVALUATION AREA 2: PROTECTIVE ACTION DECISION-MAKING

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

Criterion 2.b.1: Appropriate protective action recommendations are based on available information on plant conditions, field monitoring data, and licensee and ORO dose projections, as well as knowledge of on-site and off-site environmental conditions. (NUREG-0654, I.8., 10., 11. and Supplement 3.)

Intent

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

Extent-of-Play

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

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

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

Extent of Play - State of Delaware
Salem Exercise - May 2010

capability to use any additional data to refine projected doses and exposure rates and revise the associated PARs.

State of Delaware Extent-of-Play

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

Locations Evaluated

State EOC
Technical Assessment Center (TAC)

Outstanding Issues

None

Extent of Play - State of Delaware
Salem Exercise - May 2010

EVALUATION AREA 2: PROTECTIVE ACTION DECISION-MAKING

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

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

Intent

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

Extent-Of-Play

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

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

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

Extent of Play - State of Delaware
Salem Exercise - May 2010

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.

Locations Evaluated

State EOC
Technical Assessment Center (TAC)

Outstanding Issues

None

Extent of Play - State of Delaware
Salem Exercise - May 2010

EVALUATION AREA 2: PROTECTIVE ACTION DECISION-MAKING

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

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

Intent

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

Extent-Of-Play

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

State of Delaware Extent-of-Play

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

Locations Evaluated

State EOC

Outstanding Issues

None

Extent of Play - State of Delaware
Salem Exercise - May 2010

EVALUATION AREA 3: PROTECTIVE ACTION IMPLEMENTATION

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

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

Intent

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

Extent-Of-Play

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

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

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

Extent of Play - State of Delaware
Salem Exercise - May 2010

responses.

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

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

State of Delaware Extent-of-Play

All activities will be based on the ORO's plans and procedures and completed as they would be in an actual emergency except as noted below.

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

Locations Evaluated

Delaware National Guard Field Teams
Delaware City Fire Company (Delaware City)
Delaware State Police and Delaware Department of Transportation
Emergency Operating Facility
Emergency News Center

Reception Center - DNG Smyrna Readiness Center - May 6, 2010 - Out of Sequence

Outstanding Issues

None

Extent of Play - State of Delaware
Salem Exercise - May 2010

EVALUATION AREA 3: PROTECTIVE ACTION IMPLEMENTATION

Sub-element 3.b – Implementation of KI Decision

Criterion 3.b.1: KI and appropriate instructions are available should a decision to recommend use of KI be made. Appropriate record keeping of the administration of KI for emergency workers and institutionalized individuals (not the general public) is maintained. (NUREG-0654, E. 7., J. 10. e., f.)

Intent

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

Extent-Of-Play

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

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

State of Delaware Extent-of-Play

All activities will be based on the ORO's plans and procedures and completed as they would be in an actual emergency except as noted below.

70

If directed, ingestion of KI will be simulated.

Extent of Play - State of Delaware
Salem Exercise - May 2010

Locations Evaluated

Delaware National Guard Field Teams
Delaware City Fire Company, Delaware City
Delaware State Police and Delaware Department of Transportation
Emergency Operating Facility
Emergency News Center

Reception Center - DNG Smyrna Readiness Center – May 6, 2010 - Out of Sequence

Outstanding Issues

None

Extent of Play - State of Delaware
Salem Exercise - May 2010

EVALUATION AREA 3: PROTECTIVE ACTION IMPLEMENTATION

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

Criterion 3.c.1: Protective action decisions are implemented for special populations other than schools within areas subject to protective actions. (NUREG-0654, E.7., J.9., 10.c.d.e.g.)

Intent

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

Extent-Of-Play

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

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

State of Delaware Extent-of-Play

All activities will be based on the ORO's plans and procedures and completed as they would be in an actual emergency except as noted below.

There will be no actual notification of special populations.

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

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

All actual and simulated contacts will be logged.

Extent of Play - State of Delaware
Salem Exercise - May 2010

Locations Evaluated

State EOC
Kent County EOC
New Castle County EOC

Outstanding Issues

None

Extent of Play - State of Delaware
Salem Exercise - May 2010

EVALUATION AREA 3: PROTECTIVE ACTION IMPLEMENTATION

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

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

Intent

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

Extent-Of-Play

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

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

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

Extent of Play - State of Delaware
Salem Exercise - May 2010

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 except as noted below.

Protective actions for schools will be demonstrated as an out of sequence activity – May 5, 2010.

School principals or designees, Superintendent or designees, and bus drivers will be interviewed on procedures. A bus will be available at each school, for equipment (communications and maps) observation. However, the school children will not be involved with the demonstration nor will the buses be driven to the designated routes. Interviews will be conducted at the following schools:

Colonial School District: Southern Elementary School, Delaware Early Childhood Center/Delaware City Early Choices and William Penn High School (outside EPZ)

Appoquinimink School District: Alfred G. Waters Middle School, Townsend Elementary School, Townsend Early Childhood Center, Brick Mill Elementary School and Silver Lake Elementary School, Bunker Hill Elementary (outside EPZ) and Appoquinimink High School (outside EPZ)

Smyrna School District (outside EPZ): Smyrna High School, Smyrna Middle School, John Bassett Moore Intermediate School, Smyrna Elementary School, North Smyrna Elementary School, Clayton Elementary School and Sunnyside Elementary School (all outside EPZ).

At risk schools will be evaluated at their specific locations.
The schools outside the EPZ will be evaluated at a specific location.

The Department of Education (DOE) representative at the State EOC will demonstrate their procedures for the evaluator during the exercise.

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

Extent of Play - State of Delaware
Salem Exercise - May 2010

The licensed day care notification process will be demonstrated at the State EOC on May 18, 2010. List of licensed day cares will be available at the State EOC. The process of notification procedures will be demonstrated and documented. There will be no actual notification of licensed day cares.

Locations Evaluated

State EOC	Licensed Day Care Notification Process Department of Education Representative

Outstanding Issues: None

Extent of Play - State of Delaware
Salem Exercise - May 2010

EVALUATION AREA 3: PROTECTIVE ACTION IMPLEMENTATION

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

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

Intent

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

Extent-Of-Play

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

Traffic and access control staff should demonstrate accurate knowledge of their roles and responsibilities. This capability may be demonstrated by actual deployment or by interview in accordance with the Extent-of-Play agreement.

In instances where OROs lack authority necessary to control access by certain types of traffic (rail, water, and air traffic), they should demonstrate the capability to contact the State or Federal agencies with authority to control access.

State of Delaware Extent-of-Play

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

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

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

Extent of Play - State of Delaware
Salem Exercise - May 2010

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

Locations Evaluated

Delaware Department of Transportation
Delaware State Police
State EOC

Outstanding Issues

None

Extent of Play - State of Delaware
Salem Exercise - May 2010

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 except as noted below.

Interviews will be conducted at the State EOC.

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

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

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

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

An inject will be provided by controllers regarding a road impediment.

Locations Evaluated

Delaware State Police and Delaware Department of Transportation State EOC

Outstanding Issues: None

Extent of Play - State of Delaware
Salem Exercise - May 2010

EVALUATION AREA 4: FIELD MEASUREMENT AND ANALYSIS

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

Criterion 4.a.1: The field teams are equipped to perform field measurements of direct radiation exposure (cloud and ground shine) and to sample airborne radioiodine and particulates. (NUREG-0654, H.10, I.8., 9., 11.)

Intent

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

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

Extent-Of-Play

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

Extent of Play - State of Delaware
Salem Exercise - May 2010

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 except as noted below.

Delaware National Guard (DNG) Field Teams will pre-demonstrate equipment checkout, ambient radiation monitoring procedures and air sampling procedures for the plume portion of the exercise at DNG Headquarters May 18, 2010 (3:00 p.m.)

Two (2) DNG Field Monitoring Teams (FMTs) will be evaluated. The teams will consist of one (1) Manual Team and the Radiological Emergency Monitoring Vehicle (REMV).

The DNG Field Teams will remain at the DNG Headquarters until activated. They will not be required to perform a second instrument checkout.

If the DNG State Field Monitoring Teams are requested to perform an additional air sample and count during exercise play, the FMTs will perform the tasking, but the pre-demonstration will serve as the evaluation demonstration for this criterion.

If directed, suiting in anti-contamination clothing and taking of KI will be simulated. DNG Field Monitoring Teams will simulate reporting to the Emergency Worker Decontamination Center in Middletown following completion of their assignment.

Locations Evaluated

Delaware National Guard Field Teams (DNG Headquarters)

Outstanding Issues

None

Extent of Play - State of Delaware
Salem Exercise - May 2010

EVALUATION AREA 4: FIELD MEASUREMENT AND ANALYSIS

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

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

Intent

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

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

Extent-Of-Play

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

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

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

Extent of Play - State of Delaware
Salem Exercise - May 2010

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

State of Delaware Extent-of-Play

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

Locations Evaluated

Delaware National Guard (DNG Headquarters)
Technical Assessment Center

Outstanding Issues

None

Extent of Play - State of Delaware
Salem Exercise - May 2010

EVALUATION AREA 4: FIELD MEASUREMENT AND ANALYSIS

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

Criterion 4.a.3: Ambient radiation measurements are made and recorded at appropriate locations, and radioiodine and particulate samples are collected. Teams will move to an appropriate low background location to determine whether any significant (as specified in the plan and/or procedures) amount of radioactivity has been collected on the sampling media. (NUREG-0654, I.8., 9., 11.)

Intent

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

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

Extent-Of-Play

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

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

Extent of Play - State of Delaware
Salem Exercise - May 2010

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 except as indicated below.

Procedures will be pre-demonstrated for this criterion – see Criterion 4.a.1

Delivery of samples for additional analysis will not be demonstrated. Chain of custody procedures will be described to the evaluator.

Locations Evaluated

Delaware National Guard Field Teams

Outstanding Issues

None

Extent of Play - State of Delaware
Salem Exercise - May 2010

EVALUATION AREA 5: EMERGENCY NOTIFICATION & PUBLIC INFORMATION

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

Criterion 5.a.1: Activities associated with primary alerting and notification of the public are completed in a timely manner following the initial decision by authorized offsite emergency officials to notify the public of an emergency situation. The initial instructional message to the public must include as a minimum the elements required by current FEMA REP guidance. (10 CFR Part 50, Appendix E & NUREG-0654, E. 1., 4., 5., 6., 7.)

Intent

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

Extent-Of-Play

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

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

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

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

Extent of Play - State of Delaware
Salem Exercise - May 2010

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 except as indicated below.

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

Alert and notification of the Delaware River area will be simulated.

The Emergency Alert System (EAS) will be evaluated for an EAS message.

One siren will be simulated to fail in New Castle County (an inject will be provided for notification of siren failure) within the Delaware City Fire Company (Delaware City). The message broadcast for route alerting will be played by the Fire Company prior to deployment.

A roster of special populations will be provided to the evaluator. No contact will be made during the demonstration with special populations. Upon completion of the route alerting, the fire company personnel will simulate reporting to the Emergency Worker Decontamination Center (Delaware National Guard Readiness Center) in Middletown, DE.

Locations Evaluated

State EOC
New Castle County EOC
Delaware City Fire Company (For siren failure notification to Fire Company)

Outstanding Issues

None

Extent of Play - State of Delaware
Salem Exercise - May 2010

EVALUATION AREA 5: EMERGENCY NOTIFICATION & PUBLIC INFORMATION

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

Criterion 5.a.3: Activities associated with FEMA approved exception areas (where applicable) are completed within 45 minutes following the initial decision by authorized offsite emergency officials to notify the public of an emergency situation. Backup alert and notification of the public is completed within 45 minutes following the detection by the ORO of a failure of the primary alert and notification system. (NUREG-0654, E. 6., Appendix 3.B.2.c)

Intent

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

Extent-Of-Play

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

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

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

Extent of Play - State of Delaware
Salem Exercise - May 2010

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

State of Delaware Extent-of-Play

All activities will be based on the ORO's plans and procedures and completed as they would be in an actual emergency except as indicated below.

One back-up route-alerting route will be demonstrated in New Castle County.

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

Locations Evaluated

Delaware City Fire Company (Delaware City) -

Due to the roof collapse of Townsend Fire Company during 2010 snow storm Delaware City Fire Company will be replacing them for Route Alerting.

Outstanding Issues

None

Extent of Play - State of Delaware
Salem Exercise - May 2010

EVALUATION AREA 5: EMERGENCY NOTIFICATION & PUBLIC INFORMATION

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

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

Intent

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

Extent-Of-Play

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

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

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

Extent of Play - State of Delaware
Salem Exercise - May 2010

the capability to ensure that current emergency information is repeated at pre-established intervals in accordance with the plan and/or procedures.

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

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

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

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

State of Delaware Extent-of-Play

All activities will be based on the ORO's plans and procedures and completed as they would be in an actual emergency except as indicated below.

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

Locations Evaluated

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

Outstanding Issues: None

91

Extent of Play - State of Delaware
Salem Exercise - May 2010

EVALUATION AREA 6: SUPPORT OPERATION/FACILITIES

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

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

Intent

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

Extent-Of-Play

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

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

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

to separate contaminated and uncontaminated individuals, provide changes of clothing for individuals whose clothing is contaminated, and store contaminated clothing and personal belongings to prevent further contamination of evacuees or facilities. In addition, for any individual found to be contaminated, procedures should be discussed concerning the handling of potential contamination of vehicles and personal belongings.

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

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

State of Delaware Extent-of-Play:

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

DNG Smyrna Readiness Center in Smyrna will be demonstrated out of sequence.

At least six (6) evacuees will be monitored with two simulated as contaminated.

They will process one (1) male decontamination and one (1) female decontamination.

Two (2) vehicles will be demonstrated for monitoring and decontamination. One (1) clean vehicle and one (1) contaminated.

Decontamination techniques will be simulated.

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

Extent of Play - State of Delaware
Salem Exercise - May 2010

Locations Evaluated

Reception Center - DNG Smyrna Readiness Center/Smyrna

Note: Stern Readiness Center/Reception Center was evaluated in 2006.

Outstanding Issues:

None

Extent of Play - State of Delaware
Salem Exercise - May 2010

EVALUATION AREA 6: SUPPORT OPERATION/FACILITIES

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

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

Intent

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

Extent-Of-Play

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

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

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

State of Delaware Extent-of-Play

This objective will not be evaluated for this Exercise – Middletown Emergency Worker Decontamination Center was evaluated in 2006.

Extent of Play - State of Delaware
Salem Exercise - May 2010

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., 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.

Extent of Play - State of Delaware
Salem Exercise - May 2010

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 except as indicated below.

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

Capabilities will be demonstrated through an interview process.

Availability of additional personnel will be determined by interview.

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

Locations Evaluated

Dickinson High School – May 6, 2010 - Out of Sequence

Outstanding Issues

None

This page is intentionally blank.