



Salem-Hope Creek
Nuclear Generating Stations
Lower Alloways Creek Township, NJ
After Action Report/Improvement Plan
Exercise Date – April 28, 2021
Radiological Emergency Preparedness (REP) Program



Published July 22, 2021

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EXECUTIVE SUMMARY

On April 28, 2021, a full participation Plume Exposure Pathway exercise was conducted and evaluated for the 10-Mile Emergency Planning Zone (EPZ) around the Salem-Hope Creek Nuclear Generating Stations (SHCNGS) by the U.S. Department of Homeland Security (DHS) Federal Emergency Management Agency (FEMA), Region 3. This exercise was postponed from May 19, 2020 in accordance with the FEMA Technological Hazards Relief from Frequency Framework due to the COVID-19 Pandemic. The exercise was conducted using a hybrid method consisting of a combination of in-person evaluation and limited virtual evaluation via Microsoft Teams. The previous full participation exercise at this site was evaluated on May 22, 2018.

Out-of-Sequence demonstrations were conducted during the week of April 26, 2021. The purpose of the Exercise and Out-of-Sequence demonstrations was to assess the capabilities of the State and counties to implement Radiological Emergency Response Plans (RERP) and procedures to protect the property and lives of residents and transients in the event of an emergency at the SHCNGS. The findings in this report are based on the evaluations of the Federal evaluation team, with final determinations made by the FEMA Region 3 Regional Assistance Committee (RAC) Chairperson and approved by FEMA Headquarters. These reports are provided to the Nuclear Regulatory Commission (NRC) and participating States. State and local governments utilize the findings contained in these reports for the purposes of planning, training, and improving emergency preparedness.

The evaluation of this exercise determined that there were no Level 1 Findings, one Level 2 Finding was assessed related to Public Information, and there were no Plan Issues. One prior Level 2 Finding was successfully resolved on June 5, 2018.

A Level 1 Finding is defined by the FEMA Radiological Emergency Preparedness Program Manual as follows: "An observed or identified inadequacy of organizational performance in an exercise that could cause a determination that offsite emergency preparedness is not adequate to provide reasonable assurance that appropriate protective measures can be taken in the event of a radiological emergency to protect the health and safety of the public living in the vicinity of a Nuclear Power Plant (NPP)."

A Level 2 Finding is defined as: "An observed or identified inadequacy of organizational performance in an exercise that is not considered, by itself, to adversely impact public health and safety."

Finally, a Plan Issue is: "An observed or identified inadequacy in the ORO's emergency plan/implementing procedures, rather than that of the ORO's performance."

FEMA wishes to acknowledge the efforts of the many individuals in the State of Delaware and the two risk Counties of New Castle and Kent. 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 the exercise.

Section 1 of this report entitled "Exercise Overview" presents the "Exercise Planning Team" and the "Participating Organizations."

Section 2 of this report entitled "Exercise Design Summary" includes the "Exercise Purpose and Design," "Exercise Objectives, Capabilities and Activities," and the "Scenario Summary."

Section 3 of this report entitled "Analysis of Capabilities" presents detailed "Exercise Evaluation and Results" information on the demonstration for each jurisdiction or functional entity evaluated in a jurisdiction-based, issue-only format (Criteria Evaluation Summaries).

Section 4 of this report entitled "Demonstrated Strengths" includes exemplary performances that were demonstrated during the exercise and information on best practices that were observed.

Section 5 of this report entitled "Conclusion" presents a summary of the findings and performance of the evaluated agencies.

The appendices present supplementary information that is relevant to the exercise:

- Appendix A – Exercise Timeline. A table that depicts the times when an event or notifications were noted at participating agencies and locations.
- Appendix B – Exercise Evaluators and Team Leaders. A table listing the evaluator names, organizations, and responsibilities of the evaluators and management.
- Appendix C – Acronyms and Abbreviations. An alphabetized table defining the formal names used in this report.
- Appendix D – Extent-of-Play Agreement.

SECTION 1: EXERCISE OVERVIEW

1.1 Exercise Details

Exercise Name

Plume 2021-04-28

Type of Exercise

Plume

Exercise Date

April 28, 2021

Program

Department of Homeland Security/FEMA Radiological Emergency Preparedness Program

Scenario Type

Radiological Release/Plume Exposure Pathway

1.2 Exercise Planning Team Leadership

Daniel Rose

Technological Hazards Program Specialist

DHS/FEMA Region 3

One Independence Mall, 6th Floor

615 Chestnut Street

Philadelphia, PA 19106-4404

202-679-8140 (cell)

daniel.rose@fema.dhs.gov

Wilbert Hayes

Technical Hazards Planning Supervisor

Delaware Emergency Management Agency

165 Brick Store Landing Road

Smyrna, DE 19977

wilbert.hayes@delaware.gov

302-659-2350 (office)

302-222-7226 (cell)

Stephen Stasolla

Consultant

stephen.stasolla@delaware.gov

stasolla@comcast.net

267-573-4208 (office)

David Burgin
Manager, Emergency Preparedness Offsite & Response Programs
PSEG Nuclear LLC
david.Burgin@pseg.com
856-339-1595 (office)
609-670-8969 (cell)

1.3 Participating Organizations

Agencies and organizations of the following jurisdictions participated in the SHCNGS exercise:

State Jurisdictions

State of Delaware

- Delaware Department of Agriculture
- Delaware Department of Education
- Delaware Department of Health and Social Services
- Delaware Department of Natural Resources and Environmental Control
- Delaware Department of Safety and Homeland Security
- Delaware Department of Services for Children, Youth and Families
- Delaware Department of Transportation
- Delaware Division of Public Health
- Delaware Emergency Management Agency
- Delaware Hospital for the Chronically Ill
- Delaware Information Analysis Center
- Delaware National Guard
- Delaware State Fire School
- Delaware State Police

Risk Counties

New Castle County

- New Castle County Department of Public Safety
- New Castle County Office of Emergency Management

Kent County

- Kent County Department of Public Safety
- Kent County Division of Emergency Management

Private Organizations

- American Red Cross
- Christiana Hospital
- Delaware Volunteer Organizations Active in Disaster
- PSEG Nuclear
- Radio Amateur Civil Emergency Service / Amateur Radio Emergency Service

Federal Organizations

- Federal Emergency Management Agency
- United States Coast Guard

SECTION 2: EXERCISE DESIGN SUMMARY

2.1 Exercise Purpose and Design

On December 7, 1979, the President directed 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 REP Program that was established following the Three Mile Island Nuclear Generating Station accident in March 1979.

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

- A. 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;
- B. Determining whether such plans and procedures can be implemented based on observation and evaluation of exercises conducted by State and local governments;
- C. Responding to requests by the U.S. Nuclear Regulatory Commission (NRC) pursuant to the Memorandum of Understanding between the NRC and FEMA dated December 7, 2015 (Federal Register, Vol. 81, No. 57, March 24, 2016); and
- D. 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
 - U.S. Food and Drug Administration

Representatives of these agencies serve on the Region 3 Regional Assistance Committee (RAC), which is Chaired by FEMA. A REP Plume Exposure Pathway Exercise was conducted during the week of April 26, 2021 to assess the capabilities of State and local emergency preparedness organizations in implementing their RERPs and procedures to protect the public health and safety during a radiological emergency involving the SHCNGS. The purpose of this exercise report is to present the exercise results and findings on the performance of the off-site response organizations (ORO) during a simulated radiological emergency. The findings presented in this report are based on the evaluations of the Federal evaluation team, with final determinations made by the FEMA Region 3 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
- Radiological Emergency Preparedness Program Manual, January 2016

Emergency Planning Zone Description:

The SHCNGS site is located on the east bank of the Delaware River in Lower Alloways Creek Township, Salem County, New Jersey, about 20 miles south of Wilmington, Delaware. The 700-acre site is on the southern end of Artificial Island, a 3-mile-long, 1-mile-wide, man-made peninsula. The peninsula is connected to the mainland by a strip of tideland formed by hydraulic fill from dredging operations on the Delaware River. The tideland was constructed by the U.S. Army Corps of Engineers. The coordinates of the site are latitude 39°27'46" north and longitude 75°32'08" west. Two pressurized water reactors (Salem) and one boiling water reactor (Hope Creek) are located on the island. Each Salem unit generates a maximum output of 1,106 megawatts (MW); Unit 1 commenced commercial operations in June 1977 and Unit 2 in October 1981. The Hope Creek Unit, which generates a maximum output of 1,031 MW, became operational in December 1986.

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

The nearest major population center (more than 25,000 people) is Wilmington, Delaware, which has a population of 70,166 and lies 20 miles north of SHCNGS. The maximum population distribution in Delaware, including residents and transients, is 0 within the 2-mile EPZ, 6,515 within the 5-mile EPZ, and a total of 40,943 (including the 5-mile EPZ) inside the 10-mile EPZ. There are 37 early warning sirens in the Delaware portion of the EPZ.

The Ingestion Pathway Zone (IPZ) is approximately 7,850 square miles in area, which is equivalent to a 50-mile radius around the plant site. The States of Delaware, Maryland, and New Jersey, and the Commonwealth of Pennsylvania have jurisdictions within the IPZ. The largest city within the IPZ is Philadelphia, Pennsylvania, with a population of 1,584,064, about 40 miles from the plant site.

2.2 Exercise Objectives, Capabilities and Activities

The objectives of the 2021 SHCNGS Plume Exercise were to demonstrate the capabilities of State and local emergency management agencies to mobilize emergency management and emergency response personnel, to activate emergency operations centers and support facilities, and to protect the health, lives, and property of the citizens residing within the 10-mile Emergency Planning Zone (EPZ).

To demonstrate the ability to communicate between multiple levels of government and provide timely, accurate, and sufficiently detailed information to the public, the emergency management agencies use a variety of resources, including radios, telephones, the Internet, the media, the Emergency Alert System (EAS), and the utility Alert and Notification System (ANS) Sirens. All these communication resources were employed and evaluated. The EAS and ANS were simulated and media information was prepared but not actually released.

An essential capability of the Radiological Emergency Preparedness Program (REPP) is to evacuate, monitor and decontaminate, if necessary, and provide temporary care and shelter to displaced residents from the EPZ. The ability of the risk/support counties to mobilize personnel and resources to establish reception, monitoring and decontamination, and mass care centers was demonstrated.

The protection of school children is also a vital mission of the REPP. School districts and selected schools demonstrated the capability to communicate and coordinate the collection, evacuation, transportation, and shelter of students attending schools within the EPZ. Provisions for students who live within the EPZ but attend school outside were also evaluated.

2.3 Scenario Summary

The Plume Exposure Pathway exercise scenario began with Salem Units 1 & 2 and Hope Creek operating at 100% power. Meteorological conditions were as follows: wind direction from 135 degrees with a wind speed of 16 miles per hour (mph) and a "B" stability class. The wind direction stability class varied throughout the exercise.

At 1605 hours, the Electrical System Operator requested that the Control Room reduce power on Salem Unit 2 to 950 MWE due to grid instabilities.

At 1630 hours, the reactor trip signal was generated from a main generator protection relay failure; the reactor failed to trip by all manual actions from the Control Room.

At 1635 hours, opening the Unit 2 Reactor Trip breaker locally tripped the reactor, resulting in reactor shutdown. An Alert Emergency Classification Level (ECL) was declared at 1636 hours and notifications were made to offsite response organizations.

At 1800 hours, a 500 gallon-per-minute tube rupture occurred on the steam generator and an unmonitored release to the atmosphere began. A Site Area Emergency ECL was declared at 1811 hours due to loss of reactor coolant system and containment.

At 1843 hours, the State of Delaware and offsite response organizations took appropriate initial precautionary / protective actions for all ERPAs based on plant and meteorological conditions: evacuation of schools and special populations; placement of livestock on stored feed and water; advising the public to monitor and prepare; initiation of access control at 10-miles for all modes of transportation; initiation of river alerting; and opening of relocation centers, readiness centers, shelters and emergency worker monitoring / decontamination station.

At 2000 hours, Chemistry reported that the reactor coolant system Dose Equivalent Iodine concentration indicated the loss of the third fission product barrier (fuel cladding). A General Emergency ECL was declared at 2002 hours. A wind shift occurred with winds from 210 degrees at 12 mph at an "E" stability class.

At 2038 hours, the State of Delaware and offsite response organizations took appropriate secondary precautionary / protective actions for all ERPAs based on plant and meteorological conditions: evacuation of ERPA A; monitor and prepare in ERPAs B & C; no recommendation to ingest KI or to shelter-in-place due to wind shift.

The exercise was terminated at 2143 hours.

SECTION 3: ANALYSIS OF CAPABILITIES

3.1 Exercise Evaluation and Results

Contained in this section are the results and findings of the evaluations of all jurisdictions and locations that participated in the April 28, 2021 biennial Plume Exposure Pathway 10-mile EPZ REP Exercise. The exercise was conducted to demonstrate the ability of the offsite response organizations to protect the health and safety of the public in the 10-mile EPZ surrounding the SHCNGS.

Each jurisdiction and functional entity were evaluated based on its demonstration of the Exercise Evaluation Area Criteria contained in the REP Exercise Evaluation Methodology. One Level 2 Finding was assessed during this exercise related to Public Information. Detailed information on the exercise evaluation area criteria and the Extent-of-Play Agreement can be found in the Exercise Plan.

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 Program Manual that was 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 using the following letters:

- (D) Demonstrated Strength: an observed action, behavior, procedure, and/or practice that is worthy of special notice and positive recognition.
- (L1) Level 1 Finding: an observed or identified inadequacy or organizational performance in an exercise that could cause a determination that offsite emergency preparedness is not adequate to provide reasonable assurance that appropriate protective measures can be taken in event of a radiological emergency to protect the health and safety of the public living near a Nuclear Power Plant (NPP).
- (L2) Level 2 Finding: an observed or identified inadequacy of organizational performance in an exercise that is not considered, by itself, to adversely impact public health and safety.
- (P) Plan Issue: an observed or identified inadequacy in the offsite response organizations' (OROs) emergency plan/implementation procedures, rather than that of the ORO's performance.
- (N) Not Demonstrated: term applied to the status of a REP exercise Evaluation Area Criterion indicating that the ORO, for a justifiable reason, did not demonstrate the Evaluation Area Criterion, as required in the Extent-of-Play Agreement or at the two-year or eight-year interval required in the FEMA REP Program Manual.
- (M) Met: The jurisdiction or functional entity performed all activities under the Demonstration Criterion to the level required in the Extent-of-Play Agreement, with no Level 1 or Level 2 Findings assessed under that criterion in the current exercise and no unresolved prior Level 2 Findings.

Tables 3.1 - Summary of Exercise Evaluation

Table 3.1a - Exercise Evaluation by Classification

Date: April 28, 2021 Site: Salem-Hope Creek Nuclear Generating Stations			
Location	Criteria Title	Criteria	Classification
Delaware Joint Information Center at the State EOC	Emergency Information and Instructions for the Public and the Media	5b1	L2

Table 3.1b – Exercise Credit Granted for the Offsite Response Organizations response during the COVID-19 Public Health Emergency (PHE)

Date: April 28, 2021 Site: Salem-Hope Creek Nuclear Generating Stations		
Location	Criteria Title	Criteria
Delaware State EOC	Mobilization	1a1
Delaware State EOC	Communications Equipment	1d1
Kent County EOC	Mobilization	1a1
New Castle County EOC	Mobilization	1a1
Christiana Hospital	Transportation / Treatment of Contaminated Injured Individuals	6d1

Table 3.1c – Exercise Evaluation – Criteria Met

Date: April 28, 2021 Site: Salem-Hope Creek Nuclear Generating Stations		
Location	Criteria Title	Criteria
State EOC	Direction and Control	1c1
State EOC	Equipment and Supplies to Support Operations	1e1
State EOC	Dose Assessment & PARs & PADs for the Emergency Event	2b2
State EOC	PADs for the Protection of Persons with Disabilities and Access / Functional Needs	2c1
State EOC	Implementation of Emergency Worker Exposure Control	3a1
State EOC	Implementation of KI Decision for Institutionalized Individuals and the Public	3b1
State EOC	Impediments to Evacuation are Identified and Resolved	3d2
State EOC	Activation of the Prompt Alert and Notification System	5a1
Technical Assessment Center (TAC) at State EOC	Direction and Control	1c1
TAC at State EOC	Communications Equipment	1d1
TAC at State EOC	Equipment and Supplies to Support Operations	1e1
TAC at State EOC	Emergency Worker Exposure Control	2a1
TAC at State EOC	Dose Assessment & PARs & PADs for the Emergency Event	2b1
TAC at State EOC	Plume Phase Field Measurement and Analyses	4a2
New Castle County EOC	Direction and Control	1c1
New Castle County EOC	Communications Equipment	1d1
New Castle County EOC	Equipment and Supplies to Support Operations	1e1
New Castle County EOC	PADs for the Protection of Persons with Disabilities and Access	2c1

	/ Functional Needs	
New Castle County EOC	Implementation of Emergency Worker Exposure Control	3a1
New Castle County EOC	Implementation of KI Decision for Institutionalized Individuals and the Public	3b1
New Castle County EOC	Implementation of Traffic and Access Control	3d1
New Castle County EOC	Impediments to Evacuation are Identified and Resolved	3d2
Kent County EOC	Direction and Control	1c1
Kent County EOC	Communications Equipment	1d1
Kent County EOC	Equipment and Supplies to Support Operations	1e1
Kent County EOC	PADs for the Protection of Persons with Disabilities and Access / Functional Needs	2c1
Kent County EOC	Implementation of Emergency Worker Exposure Control	3a1
Kent County EOC	Implementation of KI Decision for Institutionalized Individuals and the Public	3b1
Kent County EOC	Implementation of Traffic and Access Control	3d1
Kent County EOC	Impediments to Evacuation are Identified and Resolved	3d2
Delaware Traffic / Access Control Points (TACP)	Communications Equipment	1d1
Delaware TACP	Equipment and Supplies to Support Operations	1e1
Delaware TACP	Implementation of Emergency Worker Exposure Control	3a1
Delaware TACP	Implementation of Traffic and Access Control	3d1
Christiana Hospital	Equipment and Supplies to Support Operations	1e1
Christiana Hospital	Implementation of Emergency Worker Exposure Control	3a1
State Field Monitoring Team 1	Mobilization	1a1
State Field Monitoring Team 1	Communications Equipment	1d1
State Field Monitoring Team 1	Equipment and Supplies to Support Operations	1e1
State Field Monitoring Team 1	Implementation of Emergency Worker Exposure Control	3a1
State Field Monitoring Team 1	Plume Phase Field Measurement and Analyses	4a3
State Field Monitoring Team 2	Mobilization	1a1
State Field Monitoring Team 2	Communications Equipment	1d1
State Field Monitoring Team 2	Equipment and Supplies to Support Operations	1e1
State Field Monitoring Team 2	Implementation of Emergency Worker Exposure Control	3a1
State Field Monitoring Team 2	Plume Phase Field Measurement and Analyses	4a3

Table 3.1d – 2018 Prior Issues Resolved Following the 2018 SHCNGS Exercise

Site: Salem-Hope Creek Nuclear Generating Stations			
Location	Criteria Title	Criteria	Classification
State Field Monitoring Team 1	Equipment and Supplies to Support Operations	1e1	L2 (corrected 06/05/18)

3.3 Criteria Evaluation Summaries

3.3.1 State Jurisdictions

In summary, the status of DHS / FEMA criteria for the State jurisdictions are as follows:

3.3.1.1 State of Delaware Emergency Operations Center

- a. Met: 1.c.1, 1.e.1, 2.b.2, 2.c.1, 3.a.1, 3.b.1, 3.d.2, 5.a.1
- b. Level 1 Findings: NONE
- c. Level 2 Findings: NONE
- d. Plan Issues: NONE
- e. Prior Issues – Resolved: NONE
- f. Prior Issues – Unresolved: NONE

3.3.1.2 Joint Information Center at the State of Delaware EOC

- a. Evaluated: 5.b.1
 - b. Level 1 Findings: NONE
 - c. Level 2 Findings: ONE
- ISSUE NO:** 002-21-5.b.1-L2-01

CRITERION: 5.b.1 - OROs provide accurate subsequent emergency information and instructions to the public and the news media in a timely manner.

CONDITIONS:

1. The Public Information Officer (PIO) and SEOC Command staff failed to issue a media release after the Salem Unit 2 Station declared an ALERT.
2. The Site Area Emergency Media Release issued at 6:48 p.m. instructed parents of school children to listen to the Emergency Alert System broadcasts for instructions for uniting with their children and to not report to the relocation center until instructed to do so through an official EAS broadcast. No follow-up EAS broadcast message was released that instructed parents on how to unite with their children.
3. Although the decision was made to evacuate special populations and in ERPAs A, B, and C, the Site Area Emergency Media Release failed to mention this action.
4. After the Protective Action Decision was made to evacuate ERPA A and for ERPAs B and C to monitor & prepare, the General Emergency Media Release issued at 8:42 p.m. did not provide instructions for the public in ERPAs B and C.

POSSIBLE CAUSE: The public information team and command staff did not thoroughly review and approve media releases prior to dissemination.

REFERENCE:

NUREG-0654/FEMA-REP-1, E.5, 7; G.3.a, G.4.a, c
Delaware Radiological Emergency Plan, SOP 505 – Public Information Procedure

EFFECT: Without the proper instructions provided to the public on protective actions, confusion could ensue and delay protective action response from the public.

RECOMMENDATION: Ensure that the PIO team and DEMA leadership follow procedures on issuing media releases and EAS broadcast messages and confirm that messages are thoroughly reviewed and approved prior to release to the public.

CORRECTIVE ACTION: A redemonstration will be negotiated at a future exercise.

- d. Plan Issues: NONE
- e. Prior Issues – Resolved: NONE
- f. Prior Issues – Unresolved: NONE

3.3.1.3 Technical Assessment Center at the State of Delaware EOC

- a. Met: 1.c.1, 1.d.1, 1.e.1, 2.a.1, 2.b.1, 4.a.2
- b. Level 1 Findings: NONE
- c. Level 2 Findings: NONE
- d. Plan Issues: NONE
- e. Prior Issues – Resolved: NONE
- f. Prior Issues – Unresolved: NONE

3.3.1.4 Delaware State Traffic and Access Control Points (Virtual / OOS)

- a. Met: 1.d.1, 1.e.1, 3.a.1, 3.d.1
- b. Level 1 Findings: NONE
- c. Level 2 Findings: NONE
- d. Plan Issues: NONE
- e. Prior Issues – Resolved: NONE
- f. Prior Issues – Unresolved: NONE

3.3.1.5 Delaware State Field Monitoring Team 1

- a. Observed: 1.a.1, 1.d.1, 1.e.1, 3.a.1, 4.a.3
- b. Level 1 Findings: NONE
- c. Level 2 Findings: NONE
- d. Plan Issues: NONE
- e. Prior Issues – Resolved: ONE
- f. Prior Issues – Unresolved: NONE

3.3.1.6 Delaware State Field Monitoring Team 2

- a. Observed: 1.a.1, 1.d.1, 1.e.1, 3.a.1, 4.a.3
- b. Level 1 Findings: NONE
- c. Level 2 Findings: NONE
- d. Plan Issues: NONE
- e. Prior Issues – Resolved: NONE
- f. Prior Issues – Unresolved: NONE

3.3.2 Risk Jurisdictions

In summary, the status of DHS / FEMA criteria for the Risk jurisdictions are as follows:

3.3.2.1 New Castle County Emergency Operations Center

- a. Met: 1.c.1, 1.d.1, 1.e.1, 2.c.1, 3.a.1, 3.b.1, 3.d.1, 3.d.2
- b. Level 1 Findings: NONE
- c. Level 2 Findings: NONE
- d. Plan Issues: NONE
- e. Prior Issues – Resolved: NONE
- f. Prior Issues – Unresolved: NONE

3.3.2.2 Kent County Emergency Operations Center

- a. Met: 1.c.1, 1.d.1, 1.e.1, 2.c.1, 3.a.1, 3.b.1, 3.d.1, 3.d.2
- b. Level 1 Findings: NONE
- c. Level 2 Findings: NONE
- d. Plan Issues: NONE
- e. Prior Issues – Resolved: NONE
- f. Prior Issues – Unresolved: NONE

3.3.3 Support Organizations

In summary, the status of DHS / FEMA criteria for the Support Organizations are as follows:

3.3.3.1 Christiana Hospital (Virtual / OOS)

- a. Met: 1.e.1, 3.a.1
- b. Level 1 Findings: NONE
- c. Level 2 Findings: NONE
- d. Plan Issues: NONE
- e. Prior Issues – Resolved: NONE
- f. Prior Issues – Unresolved: NONE

SECTION 4: DEMONSTRATED STRENGTHS

4.1 Risk Counties

4.1.1 New Castle County Emergency Operations Center

New Castle County and Kent County were using new video-teleconferencing (VTC) technology to talk with one and another. By doing so they were able to help each other with WebEOC issues and discuss information coming from the state. Showed outstanding teamwork between the two counties.

4.1.2 Kent County Emergency Operations Center

The Acting Director of the Kent County Department of Public Safety activated the previously unused “Virtual Tele-Conference System” quickly connecting with the New Castle County Office of Emergency Management Coordinator which allowed face to face discussions during the exercise.

The Acting Director of the Kent County Department of Public Safety did an outstanding job of managing the Kent County Emergency Operations Center. As the sole representative during the exercise, he effortlessly addressed and responded to all actions necessary to protect the public.

4.2 Support Organizations

4.2.1 Kent County Amateur Radio Club

The Kent County Amateur Radio Club (RACES) should be commended for their show of force. No less than five (5) members were present for the exercise. This dedication to their craft should not go unrecognized and only reinforces the County’s reliance on their expertise during any emergency situation.

SECTION 5: CONCLUSION

The State of Delaware and county jurisdictions, except where noted in this report, demonstrated knowledge of their Radiological Emergency Response Plans (RERP) and adequate implementation of their procedures during the SHCNGS Plume Exposure Pathway exercise evaluated on April 28, 2021.

FEMA evaluators assessed 47 evaluation criteria in six Assessment Areas:

- Evaluation Area 1: Emergency Operations Management
- Evaluation Area 2: Protective Action Decision Making
- Evaluation Area 3: Protective Action Implementation
- Evaluation Area 4: Field Measurement and Analysis
- Evaluation Area 5: Emergency Notification and Public Information
- Evaluation Area 6: Support Operation / Facilities

These analyses resulted in a determination of no Level 1 Findings, one Level 2 Finding, and no new Plan Issues.

Based on the results of the exercise and a review of the offsite radiological emergency response plans and procedures submitted, FEMA Region 3 has determined they are adequate (meet the planning and preparedness standards of NUREG-0654/FEMA-REP-1, Revision 1, November 1980, as referenced in 44 CFR 350.5) and there is reasonable assurance they can be implemented, as demonstrated during this exercise.

An After-Action Improvement Plan (IP) will be developed as part of this report.

SHCNGS APPENDIX A: EXERCISE TIMELINE

This section contains the Exercise Timeline, which depicts the times when an event or notifications were noted at participating agencies and locations.

SALEM-HOPE CREEK NUCLEAR GENERATING STATIONS EXERCISE TIMELINE April 28, 2021

Emergency Classification Level or Event	Time Utility Declared	(Time that notification was received at the listed location)						
		Delaware State EOC	Technical Assessment Center	PIO / Virtual JIC	Kent County EOC	New Castle County EOC	Field Monitoring Team 1	Field Monitoring Team 2
Unusual Event								
Alert	1636	1651	1656	1705	1705	1653	1657	1657
Site Area Emergency	1811	1828	1828	1837	1833	1837	1829	1829
General Emergency	2002	2023	2023	2035	2027	2021	2023	2023
Start of Simulated Radiation Release	1811	1828	1828	1837	1833	1837	N/A	N/A
Termination of Simulated Radiation Release	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing
Facility Declared Operational		1710	1713	1710	1715	1615	1704	1704
Governor's Declaration of State of Emergency		1845	1845	1845	1845	1910	N/A	N/A
Exercise Terminated		2143	2142	2143	2145	2146	2152	2152
First Precautionary / Protective Actions <i>Describe: Evacuate schools & special populations (all ERPAs); livestock on stored feed and water (all ERPAs); monitor and prepare (all ERPAs); initiate access control at 10-miles for all modes of transportation; initiate river alerting; open relocation centers, readiness centers, shelters and EW decon station; no KI; no shelter-in-place; request Governor to sign Declaration of State of Emergency.</i>		1843	1843	1843	1844	1838	N/A	N/A
Siren Sounding		1851	1851	1851	1851	1851	N/A	N/A
EAS Message Broadcast		1856	1856	1856	1856	1856	N/A	N/A
Second Precautionary / Protective Actions <i>Describe: Evacuate (ERPA A); monitor & prepare (ERPAs B & C); relocation of schools and special pops complete; river alerting complete; no KI recommended (wind shifted into New Jersey); no shelter in place</i>		2038	2037	2035	2036	2037	N/A	N/A
Siren Sounding		2048	2048	2048	2048	2048	N/A	N/A
EAS Message Broadcast		2052	2052	2052	2052	2052	N/A	N/A
KI Decision - Emergency Workers		N/A	N/A	N/A	N/A	N/A	N/A	N/A
KI Decision - General Public		N/A	N/A	N/A	N/A	N/A	N/A	N/A
KI Decision - Persons with Disabilities or Access Functional Needs		N/A	N/A	N/A	N/A	N/A	N/A	N/A

APPENDIX B: EXERCISE EVALUATORS

The following is the list of Evaluators for the SHCNGS 2021 REP Plume Exposure Pathway Exercise evaluated on April 28, 2021. The following constitutes the managing staff for the Exercise Evaluation:

- Thomas Scardino, DHS / FEMA, Regional Assistance Committee (RAC) Chairman
- Daniel Rose, DHS / FEMA, Project Officer and Site Specialist

Salem-Hope Creek Nuclear Generating Stations

LOCATION	Evaluator	AGENCY
State EOC	Lee Torres	FEMA R3
State EOC	Daniel Rose	FEMA R3
Joint Information Center at the State EOC	Joseph Suders	FEMA R3
Technical Assessment Center at the State EOC	Kenneth Wierman	FEMA HQ
Delaware Traffic and Access Control Points (Virtual / OOS)	Joseph Suders	FEMA R3
State Field Monitoring Team 1	Larry Broockerd	FEMA HQ
State Field Monitoring Team 2	Nicholas Buls	FEMA R3
New Castle County Emergency Operations Center	Christopher Nemcheck	FEMA R3
Kent County Emergency Operations Center	Kathryn Duran	FEMA R3
Christiana Hospital (Virtual / OOS)	Joseph Suders	FEMA R3

APPENDIX C: ACRONYMS AND ABBREVIATIONS

Acronym	Meaning
ACP	Access Control Point
ALC	Annual Letter of Certification
ANS	Alert and Notification System
ARC	American Red Cross
ARES	Amateur Radio Emergency Services
COVID-19	Coronavirus Disease 2019
CFR	Code of Federal Regulations
CPM	Counts per Minute
DEMA	Delaware Emergency Management Agency
DHS	Department of Homeland Security
EAL	Emergency Action Level
EAS	Emergency Alert System
ECL	Emergency Classification Level
EMS	Emergency Medical Services
EOC	Emergency Operations Center
EOP	Extent-of-Play
EPZ	Emergency Planning Zone
ERPA	Emergency Response Planning Area
EW	Emergency Workers
FBI	Federal Bureau of Investigation
FEMA	Federal Emergency Management Agency
FMT	Field Monitoring Team
FPE	Full Participation Exercise
FTC	Field Team Coordinator
GE	General Emergency
GIS	Geographic Information Systems
HAB	Hostile Action Based
HazMat	Hazardous Materials
IPAWS	Integrated Public Alert & Warning System
IPZ	Ingestion Pathway Zone
JIC	Joint Information Center
KI	Potassium Iodide
LOA	Letter of Agreement
MOU	Memorandum of Understanding
MPH	Miles per Hour
MW	Megawatts
NPP	Nuclear Power Plant

NRC	Nuclear Regulatory Commission
OOS	Out-of-Sequence
ORO	Offsite Response Organization
PAD	Protective Action Decision
PAG	Protective Action Guide
PAR	Protective Action Recommendation
PDAFN	Persons with Disabilities / Access Functional Needs
PHE	Public Health Emergency
PI	Planning Issue
PIO	Public Information Officer
PPE	Personal Protective Equipment
RAC	Regional Assistance Committee
RACES	Radio Amateur Civil Emergency Services
REA	Radiation Emergency Area
REP	Radiological Emergency Preparedness
REPP	Radiological Emergency Preparedness Program
RERP	Radiological Emergency Response Plan
RO	Radiological Officer
SAE	Site Area Emergency
SAV	Staff Assistance Visit
SEOC	State Emergency Operations Center
TAC	Technical Assessment Center
TCP	Traffic Control Point
VTC	Video-Teleconference

APPENDIX D: EXTENT-OF-PLAY AGREEMENT

The 2021 SHCNGS Plume Exposure Pathway Exercise Extent-of-Play (EOP) Agreement is a document created by DEMA that sets the parameters for exercise demonstration. The EOP agreement was signed by the FEMA Region 3 and DEMA planning team members.

<p>Radiological Emergency Preparedness (REP)/ Homeland Security Exercise and Evaluation Program (HSEEP)</p>	
<p><u>ExPlan</u></p>	<p><u>Salem Hope Creek</u></p>
<p>STATE OF DELAWARE</p> <p>EXERCISE PLAN</p> <p>AND</p> <p>EXTENT-OF-PLAY</p> <p>Salem-Hope Creek NGS Plume Exercise</p> <p>April 28, 2021</p>	
<p>Approved</p>	<p> Delaware Emergency Management Agency</p>
<p>Approved</p>	<p> Federal Emergency Management Agency – Region 3</p>
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<p>Salem Hope Creek</p>	

Extent-of-Play by Evaluation Area

The following evaluation areas, sub-elements and evaluation criterion are consistent with FEMA's exercise evaluation methods. Extent-of-Play text from the REP Manual is quoted verbatim for each evaluation criterion. All activities will be demonstrated in accordance with established plans and procedures, except as indicated in the negotiated Extent-of-Play for each evaluation criterion.

ASSESSMENT AREA 1: EMERGENCY OPERATIONS MANAGEMENT

Sub-element 1.a – Mobilization

Intent

This Sub-element is derived from NUREG-0654/FEMA-REP-1, which requires that OROs have the capability to alert, notify, and mobilize emergency personnel, and activate and staff emergency facilities.

Criterion 1.a.1: OROs use effective procedures to alert, notify, and mobilize emergency personnel and activate facilities in a timely manner. (NUREG-0654/FEMA-REP-1, A.1.a, e; A.3, 4; C.1,4, 6; D.4; E.1, 2; G.3.a; H.3, 4)

Assessment / Extent-of-Play

Assessment of this Demonstration Criterion may be accomplished during a full-scale or functional exercise, an actual event, or by means of drills conducted at any time.

Responsible OROs must demonstrate the capability to receive notification of an incident from the licensee; verify the notification; and contact, alert, and mobilize key emergency personnel in a timely manner and demonstrate the ability to maintain and staff 24-hour operations. Twenty-four-hour operations can be demonstrated during the exercise via rosters or shift changes or otherwise in an actual activation. Local responders must demonstrate the ability to receive and/or initiate notification to the licensees or other respective emergency management organizations of an incident in a timely manner, when they receive information from the licensee or alternate sources. Responsible OROs must demonstrate the activation of facilities for immediate use by mobilized personnel upon their arrival. Activation of facilities and staff, including those associated with the Incident Command System, must be completed in accordance with ORO plans/procedures. The location and contact information for facilities included in the incident command must be available to all appropriate responding agencies and the NPP after these facilities have been activated.

The REP program does not evaluate Incident Command System tactical operations, only coordination among the incident command, the utility, and all appropriate OROs, pursuant to plans/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. This includes the staggered release of resources from an assembly

area. Additionally, pre-positioning of staff for Out-of-Sequence demonstrations may be used in accordance with the Extent-of-Play Agreement.

Initial law enforcement, fire service, HAZMAT, and emergency medical response to the NPP site may impact the ability to staff REP functions. The ability to identify and request additional resources or identify compensatory measures must be demonstrated. Exercises must also address the role of mutual aid in the incident, as appropriate. An integral part of the response to an HAB scenario at an NPP may also be within the auspices of the Federal Government (e.g., FBI, NRC, or DHS). Protocols for requesting Federal, state, local, and tribal law enforcement support must be demonstrated, as appropriate. Any resources identified through LOA/MOUs must be on the ORO's mobilization list so they can be contacted during an incident, if needed. All activities must be based on the ORO's plans/procedures and completed as they would be in an actual emergency, unless noted above or otherwise specified in the Extent-of-Play Agreement.

Negotiated Extent-of-Play: All players will be permitted to pre-position prior to the Exercise. Actual incident credit for this criterion has been granted to the State EOC, Kent County EOC and New Castle County EOC based on activation status in response to COVID-19. Mobilization will be simulated at these facilities and responders will pre-position or will meet virtually as necessary. Both Field Monitoring Teams will be evaluated on this criterion at the Delaware National Guard Smyrna Readiness Center.

Outstanding Issues: None

Sub-element 1.b – Facilities

Intent

This Sub-element is derived from NUREG-0654/FEMA-REP-1, which requires that OROs have facilities to support the emergency response.

Criterion 1.b.1: Facilities are sufficient to support the emergency response. (NUREG-0654/FEMA-REP-1, G.3.a; H.3; J.10.h; J.12; K.5.b)

Assessment / Extent-of-Play

1. 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).

Facilities must be set up based on the ORO's plans and procedures and demonstrated as they would be used in an actual emergency, unless noted above or otherwise indicated in the Extent-of-Play Agreement.

Negotiated Extent-of-Play: This criterion will not be evaluated for this Exercise because there are no new facilities and no facilities have undergone substantial changes in structure or mission.

Outstanding Issues: None

Sub-element 1.c – Direction and Control

Intent

This Sub-element is derived from NUREG-0654/FEMA-REP-1, which requires that OROs have the capability to control their overall response to an emergency.

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/FEMA-REP-1, A.1.d; A.2.a, b; A.3; C.4, 6)

Assessment / Extent-of-Play

Assessment of this Demonstration Criterion may be accomplished in a full scale, functional, or tabletop exercise.

Leadership personnel must demonstrate the ability to carry out the essential management functions of the response effort (e.g., keeping staff informed through periodic briefings and/or other means, coordinating with other OROs, and ensuring completion of requirements and requests.) Leadership must demonstrate the ability to prioritize resource tasking and replace/supplement resources (e.g., through MOUs or other agreements) when faced with competing demands for finite resources. Any resources identified through LOA/MOUs must be on the ORO's mobilization list so they may be contacted during an incident, if needed.

All activities must be based on the ORO's plans/procedures and completed as they would be in an actual emergency, unless noted above or otherwise specified in the Extent-of-Play Agreement.

Negotiated Extent-of-Play: All activities will be performed in accordance with the ORO's plans / procedures and completed as they would be in an actual emergency. This criterion will be evaluated at the State EOC, TAC, New Castle County EOC and Kent County EOC.

Outstanding Issues: None

Sub-element 1.d – Communications Equipment

Intent

This Sub-element is derived from NUREG-0654/FEMA-REP-1, which requires that OROs establish and operate reliable primary and backup communication systems to ensure communications with key emergency personnel at locations such as contiguous governments within the EPZ, Federal emergency response organizations, the licensee and its facilities, EOCs, Incident Command Posts, and FMTs.

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/FEMA-REP-1, F.1, 2)

Assessment / Extent-of-Play

Assessment of this Demonstration Criterion is accomplished initially in a baseline evaluation and subsequently in periodic testing and drills. System familiarity and use must be demonstrated as applicable in full scale, functional and tabletop exercises, or if their use would be required, during an actual event.

OROs must demonstrate that a primary system, and at least one backup system for fixed facilities, is fully functional at all times. Communications systems are maintained and tested on a recurring basis throughout the assessment period and system status is available to all operators. Periodic test results and corrective actions are maintained on a real-time basis. If a communications system or systems are not functional, but exercise performance is not affected, no exercise issue will be assessed.

Communications equipment and procedures for facilities and field units are used as needed for transmission and receipt of exercise messages. All facilities, FMTs, and incident command must have the capability to access at least one communication system that is independent of the commercial telephone system. Responsible OROs must demonstrate the capability to manage the communication systems and ensure that all message traffic is handled without delays that might disrupt emergency operations. OROs must ensure that a coordinated communication link for fixed and mobile medical support facilities exists. Exercise scenarios may require the failure of a communication system and use of an alternate system, as negotiated in the Extent-of-Play Agreement. All activities must be based on the ORO's plans/procedures and completed as they would be in an actual emergency, unless noted above or otherwise specified in the Extent-of-Play Agreement.

Negotiated Extent-of-Play: Actual incident credit has been granted to the State EOC for this criterion based on COVID-19 response; 1.d.1 will not be evaluated at the State EOC but will be evaluated at the following:

- Traffic and Access Control evaluation (virtual / interview / Out-of-Sequence on April 26)
- Delaware Technical Assessment Center (TAC)
- New Castle County EOC
- Kent County EOC
- State Field Monitoring Teams 1 & 2

Outstanding Issues: None

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

Intent

This Sub-element is derived from NUREG-0654/FEMA-REP-1, which requires that OROs have emergency equipment and supplies adequate to support the emergency response.

Criterion 1.e.1: Equipment, maps, displays, monitoring instruments, dosimetry, potassium iodide (KI) and other supplies are sufficient to support emergency operations (NUREG-0654/FEMA-REP-1, H.7, 10; I.7, 8, 9; J.10.a, b, e; J.11, 12; K.3.a; K.5.b)

Assessment / Extent-of-Play

Assessment of this Demonstration Criterion is accomplished primarily through a baseline evaluation and subsequent periodic inspections.

A particular facility's equipment and supplies must be sufficient and consistent with that facility's assigned role in the ORO's emergency operations plans. Use of maps and other displays is encouraged. For non-facility-based operations, the equipment and supplies must be sufficient and consistent with the assigned operational role. At locations where traffic and access control personnel are deployed, appropriate equipment (e.g., vehicles, barriers, traffic cones, and signs) must be available, or their availability described.

Specific equipment and supplies that must be demonstrated under this criterion include KI inventories, dosimetry, and monitoring equipment, as follows:

KI: Responsible OROs must demonstrate the capability to maintain inventories of KI sufficient for use by: (1) emergency workers; (2) institutionalized individuals, as indicated in capacity lists for facilities; and (3) where stipulated by the plans/procedures, members of the general public (including transients) within the plume pathway EPZ. In addition, OROs must demonstrate provisions to make KI available to specialized response teams (e.g., civil support team, Special Weapons and Tactics Teams, urban search and rescue, bomb squads, HAZMAT, or other ancillary groups) as identified in plans/procedures). The plans/procedures must include the forms to be used for documenting emergency worker ingestion of KI, as well as a mechanism for identifying emergency workers that have declined KI in advance. Consider carefully the placement of emergency workers that have declined KI in advance.

ORO quantities of dosimetry and KI available and storage locations(s) will be confirmed by physical inspection at the storage location(s) or through documentation of current inventory submitted during the exercise, provided in the ALC submission, and/or verified during an SAV. Available supplies of KI must be within the expiration date indicated on KI bottles or blister packs. As an alternative, the ORO may produce a letter from a certified private or state laboratory indicating that the KI supply remains potent, in accordance with U.S. Pharmacopoeia standards.

Dosimetry: Sufficient quantities of appropriate direct-reading and permanent record dosimetry and dosimeter chargers must be available for issuance to all emergency workers who will be dispatched to perform an ORO mission. In addition, OROs must demonstrate provisions to make dosimetry available to specialized response teams (e.g., civil support team, Special Weapons and Tactics Teams, urban search and rescue, bomb squads, HAZMAT, or other ancillary groups) as identified in plans/procedures).

Appropriate direct-reading dosimetry must allow an individual(s) to read the administrative reporting limits and maximum exposure limits contained in the ORO's plans/procedures.

Direct-reading dosimeters must be zeroed or operationally checked prior to issuance. The dosimeters must be inspected for electrical leakage at least annually and replaced when necessary. Civil Defense Victoreen Model 138s (CD V-138s) (0-200 mR), due to their documented history of electrical leakage problems, must be inspected for electrical leakage at least quarterly and replaced when necessary. This leakage testing will be verified during the exercise, through documentation submitted in the ALC and/or through an SAV.

Operational checks and testing of electronic dosimeters must be in accordance with the manufacturer's instructions and be verified during the exercise, through documentation submitted in the ALC and/or through an SAV.

Mutual Aid Resources: If the incoming resources arrive with their own equipment (i.e., monitors and/or dosimetry), they will be evaluated by REP Program standards. FEMA will not inventory equipment that is not part of the REP Program. If an agency has a defined role in the REP Plan, they are subject to the planning process and standards, as well as the guidance of this Manual.

Monitoring Instruments: All instruments must be inspected, inventoried, and operationally checked before each use. Instruments must be calibrated in accordance with the manufacturer's recommendations. Unmodified CDV-700 series instruments and other instruments without a manufacturer's recommendation must be calibrated annually. Modified CDV-700 instruments must be calibrated in accordance with the recommendation of the modification manufacturer. A label indicating such calibration must be on each instrument or calibrated frequency can be verified by other means. In addition, instruments being used to measure activity must have a sticker-affixed to their sides indicating the effective range of the readings. The range of readings documentation specifies the acceptable range of readings that the meter should indicate when it is response-checked using a standard test source.

For FMTs, the instruments must be capable of measuring gamma exposure rates and detecting beta radiation. These instruments must be capable of measuring a range of activity and exposure, including radiological protection/exposure control of team members and detection of activity on air sample collection media, consistent with the intended use of the instrument and the ORO's plans/procedures. An appropriate radioactive check source must be used to verify proper operational response for each low-range radiation measurement instrument (less than 1R/hr) and for high-range instruments when available. If a source is not available for a high-range instrument, a procedure must exist to operationally test the instrument before entering an area where only a high-range instrument can make useful readings. In areas where portal monitors are used, the OROs must set up and operationally check the monitor(s). The monitor(s) must conform to the standards set forth in the *Contamination Monitoring Standard for a Portal Monitor Used for Emergency Response*, FEMA-REP-21 (March 1995) or in accordance with the manufacturer's recommendations.

All activities must be based on the ORO's plans/procedures and completed as they would be in an actual emergency, unless noted above or otherwise specified in the Extent-of-Play Agreement.

Negotiated Extent-of-Play: All activities will be performed in accordance with the ORO's plans / procedures and completed as they would be in an actual emergency. This criterion will be evaluated at the following locations:

- Traffic and Access Control evaluation (virtual / interview / Out-of-Sequence on April 26)
- Christiana Hospital MS-1
- State EOC
- Delaware TAC
- New Castle County EOC
- Kent County EOC
- State Field Monitoring Teams (FMTs) 1 & 2

Evaluators will evaluate the Field Monitoring Teams beginning at 3 pm on April 28th at the Smyrna Readiness Center to observe equipment inventory / checkout / operational checks. FMTs will play in sequence with the scenario thereafter.

Christiana Hospital MS-1: To fulfill this requirement, an updated list of medical equipment and supplies that support the Radiation Emergency Area (REA) for the hospital will be provided to FEMA Region 3 by May 5, 2021.

Outstanding Issues: None

ASSESSMENT AREA 2: PROTECTIVE ACTION DECISION-MAKING

Sub-element 2.a – Emergency Worker Exposure Control

Intent

This Sub-element is derived from NUREG-0654/FEMA-REP-1, which requires that OROs 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/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 TEDE or organ-specific limits) identified in the ORO's plans/procedures.

Criterion 2.a.1: OROs use a decision-making process, considering relevant factors and appropriate coordination, to ensure that an exposure control system, including the use of KI, is in place for emergency workers, including provisions to authorize radiation exposure in excess of administrative limits or protective action guides. (NUREG-0654/FEMA-REP-1, C.6; J.10. e, f; K.3.a; K.4)

Assessment / Extent-of-Play

Assessment of this Demonstration Criterion must be assessed concurrently with a licensee exercise and may be demonstrated in a biennial or tabletop exercise.

OROs authorized to send emergency workers into the plume exposure pathway EPZ must demonstrate a capability to comply with emergency worker exposure limits based on their emergency plans/procedures.

Participating OROs must also demonstrate the capability to make decisions concerning authorization of exposure levels in excess of pre-authorized levels and the number of emergency workers receiving radiation doses above pre-authorized levels. This would include providing KI and dosimetry in a timely manner to emergency workers dispatched onsite to support plant incident assessment and mitigating actions, in accordance with respective plans/procedures.

As appropriate, OROs must demonstrate the capability to make decisions on the distribution and administration of KI as a protective measure for emergency workers, based on their plans / procedures or projected thyroid dose compared with the established PAGs for KI administration.

All activities must be based on the ORO's plans / procedures and completed as they would be in an actual emergency, unless noted above or otherwise specified in the Extent-of-Play Agreement.

Negotiated Extent-of-Play: This criterion will be evaluated at the Delaware Technical Assessment Center (TAC) in the State EOC. All activities will be performed in accordance with the ORO's plans / procedures and completed as they would be in an actual emergency.

Outstanding Issues: None

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

Intent

This Sub-element is derived from NUREG-0654/FEMA-REP-1, which requires that OROs have the capability to independently project integrated dose from projected or actual dose rates and compare these estimates to the PAGs.

OROs must have the capability to choose, among a range of protective actions, those most appropriate in a given emergency. OROs base these choices on PAGs from their plans/procedures or EPA's *Manual of Protective Action Guides and Protective Actions for Nuclear Incidents* and other criteria, such as plant conditions, licensee PARs, coordination of PADs with other political jurisdictions (e.g., other affected OROs and incident command), availability of in-place shelter, weather conditions, and situations, to include HAB incidents, the threat posed by the specific hostile action, the affiliated response, and the effect of an evacuation on the threat response effort, that create higher than normal risk from general population evacuation.

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

Assessment / Extent-of-Play

Assessment of this Demonstration Criterion must be accomplished concurrently with a licensee exercise and may be demonstrated in a biennial or tabletop exercise.

During the initial stage of the emergency response, following notification of plant conditions that may warrant offsite protective actions, the ORO must demonstrate the capability to use appropriate means, described in the plans/procedures, to develop PARs for decision-makers based on available information and recommendations provided by the licensee as well as field monitoring data, if available. The ORO must also consider any release and meteorological data provided by the licensee.

The ORO must 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 must be appropriate to the scenario. In all cases, calculation of projected dose must be demonstrated. Projected doses must be related to quantities and units of the PAG to which they will be compared. PARs must be promptly transmitted to decision-makers in a pre-arranged format.

When the licensee and ORO projected doses differ by more than a factor of 10, the ORO and licensee must determine the source of the difference by discussing input data and assumptions, using different models, or exploring possible reasons. Resolution of these differences must be incorporated into the PARs if timely and appropriate. The ORO must demonstrate the capability to use any additional data to refine projected doses and exposure rates and revise the associated PARs.

All activities must be based on the ORO's plans / procedures and completed as they would be in an actual emergency, unless noted above or otherwise specified in the Extent-of-Play Agreement.

Negotiated Extent-of-Play: This criterion will be evaluated at the Delaware Technical Assessment Center (TAC) in the State EOC. All activities will be performed in accordance with the ORO's plans / procedures and completed as they would be in an actual emergency.

Outstanding Issues: None

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/FEMA-REP-1,A.3; C.4, 6; D.4; J.9; J.10.f, m)

Assessment / Extent-of-Play

Assessment of this Demonstration Criterion must be accomplished concurrently with a licensee exercise and may be demonstrated in a full-scale, functional or tabletop exercise.

OROs must have the capability to make both initial and subsequent PADs. OROs must demonstrate the capability to make initial PADs in a timely manner appropriate to the incident,

based on information from the licensee, assessment of plant status and potential or actual releases, other available information related to the incident, input from appropriate ORO authorities (e.g., incident command), and PARs from the utility and ORO staff. In addition, a subsequent or alternate PAD may be appropriate if various conditions (e.g., an HAB incident, weather, release timing and magnitude) pose undue risk to an evacuation, or if evacuation may disrupt the efforts to respond to a hostile action.

OROs must demonstrate the ability to obtain supplemental resources (e.g., mutual aid) necessary to implement a Precautionary and/or Protective Action Decision if local law enforcement, fire service, HAZMAT, and emergency medical resources are used to augment response to the NPP site or other key infrastructure.

Dose assessment personnel may provide additional PARs based on the subsequent dose projections, field monitoring data, or information on plant conditions. In addition, incident command must provide input regarding considerations for subsequent PARs based on the magnitude of the ongoing threat, the response, and/or site conditions. The decision-makers must demonstrate the capability to change protective actions based on the combination of all these factors.

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

If more than one ORO is involved in decision making, all appropriate OROs must communicate and coordinate PADs with each other. In addition, decisions must be coordinated/communicated with incident command. OROs must demonstrate the capability to communicate the results of decisions to all the affected locations.

The OROs must demonstrate how the decision-making process takes those with disabilities and access/functional needs (e.g., nursing homes, correctional facilities, licensed day cares, mobility-impaired individuals, and transportation-dependent individuals) into account.

All activities must be based on the ORO's plans/procedures and completed as they would be in an actual emergency, unless noted above or otherwise specified in the Extent-of-Play Agreement.

Negotiated Extent-of-Play: This criterion will be evaluated at the State EOC. All activities will be performed in accordance with the ORO's plans / procedures and completed as they would be in an actual emergency. FEMA evaluator(s) will be provided access to Leads Briefings to observe activities related to this criterion and will be provided access to the State's WebEOC event for the Exercise.

Outstanding Issues: None

Sub-element 2.c – Precautionary and/or Protective Action Decisions Consideration for the Protection of Persons with Disabilities and Access/Functional Needs

Intent

This Sub-element is derived from NUREG-0654/FEMA-REP-1, which requires that OROs have the capability to determine Precautionary and/or Protective Action Decisions including evacuation, sheltering, and use of KI, if applicable, for groups of persons with disabilities and access/functional needs (e.g., hospitals, nursing homes, correctional facilities, schools, licensed daycare centers, mobility-impaired individuals, and transportation-dependent individuals). The focus is on those groups of persons with disabilities and access/functional needs that are, or potentially will be, affected by a radiological release from an NPP.

Criterion 2.c.1: Precautionary and / or Protective action decisions are made, as appropriate, for groups of persons with disabilities and access / functional needs. (NUREG-0654/FEMA-REP-1,D.4; J.9; J.10.d, e)

Assessment / Extent-of-Play

Assessment of this Demonstration Criterion must be accomplished concurrently with a licensee exercise and may be demonstrated in a full-scale, functional or tabletop exercise that would include the use of plant conditions transmitted from the licensee.

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 incidents where there is a high-risk environmental condition or where high-risk groups (e.g., the immobile or infirm) are involved. In these cases, factors that must be considered include weather conditions, shelter availability, availability of transportation assets, risk of evacuation versus risk from the avoided dose, and precautionary school evacuations. In addition, decisions must be coordinated/communicated with the incident command. In situations where an institutionalized population cannot be evacuated, the ORO must consider use of KI.

Applicable OROs must demonstrate the capability to alert and notify all public-school systems / districts of emergency conditions that are expected to or may necessitate protective actions for students. Demonstration requires that the OROs contact public school systems / districts during the exercise.

In accordance with plans / procedures, OROs and / or officials of public-school systems / districts must demonstrate the capability to make prompt decisions on protective actions for students. The decision-making process, including any preplanned strategies for protective actions for that ECL, must consider the location of students at the time (e.g., whether the students are still at home, en-route to school, or at school).

All activities must be based on the ORO's plans / procedures and completed as they would be in an actual emergency, unless noted above or otherwise specified in the Extent-of-Play Agreement.

Negotiated Extent-of-Play:

This criterion will be evaluated at the State EOC, New Castle County EOC, and Kent County EOC. Players at the County EOCs will be prepared to discuss the precautionary and / or protective action decision-making process in accordance with decisions made at the State EOC as dictated by the exercise scenario. All activities will be performed in accordance with the ORO's plans / procedures and completed as they would be in an actual emergency.

Outstanding Issues: None

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

Intent

This Sub-element is derived from NUREG-0654/FEMA-REP-1, which requires that OROs have the means to assess the radiological consequences for the ingestion exposure pathway, relate them to the appropriate PAGs, and make timely, appropriate PADs to mitigate exposure from the pathway.

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

Criterion 2.d.1: Radiological consequences for the ingestion pathway are assessed and appropriate protective action decisions are made based on the ORO's planning criteria. (NUREG-0654/FEMA-REP-1, A.3; C.1, 4; D.4; J.9,11)

Assessment / Extent-of-Play

Assessment of this Demonstration Criterion must be accomplished concurrently with a licensee exercise and may be demonstrated in a full-scale, functional or tabletop exercise that would include the use of plant conditions transmitted from the licensee.

ORO's are expected to take precautionary actions to protect food and water supplies, or to minimize exposure to potentially contaminated water and food, in accordance with their respective plans/procedures. Often ORO's initiate such actions based on criteria related to the facility's ECLs. Such actions may include recommendations to place milk animals on stored feed and use protected water supplies.

The ORO must use its procedures to assess the radiological consequences of a release on the food and water supplies, such as the development of a sampling plan. The ORO's assessment must include evaluation of the radiological analyses of representative samples of water, food, and other ingestible substances of local interest from potentially impacted areas; characterization of the releases from the facility; and the extent of areas potentially impacted by the release. During this assessment, ORO's must consider use of agricultural and watershed data within the 50-mile EPZ. The radiological impacts on the food and water must then be compared to the

appropriate ingestion PAGs contained in the ORO's plans/procedures. The plans/procedures contain PAGs based on specific dose commitment criteria or on criteria as recommended by current Food and Drug Administration (FDA) guidance. Timely and appropriate recommendations must be provided to the ORO decision-makers group for implementation decisions. OROs may also include a comparison of taking or not taking a given action on the resultant ingestion pathway dose commitments.

The ORO must demonstrate timely decisions to minimize radiological impacts from the ingestion pathway, based on the given assessments and other information. Any such decisions must be communicated and, to the extent practical, coordinated with neighboring OROs. These decisions include tracking agricultural products entering and leaving the EPZ. Demonstration of plans and procedures which use traffic access control points to track agricultural products entering and leaving the EPZ may be conducted through interview.

ORO's will use Federal resources, as identified in the Nuclear / Radiological Incident Annex of the NRF and other resources (e.g., compacts or nuclear insurers). Evaluation of this criterion will take into consideration the level of Federal and other participating resources.

All activities must be based on the ORO's plans/procedures and completed as they would be in an actual emergency, unless noted above or otherwise specified in the Extent-of-Play Agreement.

Negotiated Extent-of-Play: This criterion will not be evaluated during this Exercise because this criterion was demonstrated successfully at the 2017 Calvert Cliffs Post-Plume Exercise, satisfying the minimum evaluation frequency requirement for the current exercise cycle.

Outstanding Issues: None

Sub-element 2.e. – Radiological Assessment and Decision Making Concerning Post-Plume Phase Relocation, Reentry, and Return

Intent

This Sub-element is derived from NUREG-0654/FEMA-REP-1, which requires that OROs have the capability to make decisions on post-plume phase *relocation*, *reentry*, and *return* of the general public. These decisions are essential for protection of the public from direct long-term exposure to deposited radioactive materials from a severe incident at an NPP.

Criterion 2.e.1: Timely post-plume phase relocation, reentry, and return decisions are made and coordinated as appropriate, based on assessments of the radiological conditions and criteria in the ORO's plan and/or procedures. (NUREG-0654/FEMA-REP-1, I.10; J.9; K.3.a; M.1)

Assessment / Extent-of-Play

Assessment of this Demonstration Criterion must be accomplished concurrently with a licensee exercise and may be demonstrated in a full-scale, functional or tabletop exercise that would include the use of plant conditions transmitted from the licensee.

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

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

Examples of control procedures are the assignment of, or checking for, direct-reading and permanent record dosimetry for emergency workers; questions regarding an individual's objectives, locations expected to be visited, and associated timeframes; availability of maps and plots of radiation exposure rates; and advice on areas to avoid. Control procedures also include monitoring of individuals, vehicles, and equipment; the implementation of decision criteria regarding decontamination; and proper disposition of emergency worker dosimetry and maintenance of emergency worker radiation exposure records.

Responsible OROs must demonstrate the capability to develop a strategy for authorized reentry of individuals into the restricted zone(s), based on established decision criteria. OROs must demonstrate the capability to modify those policies for security purposes (e.g., police patrols), maintenance of essential services (e.g., fire protection and utilities), and other critical functions. They must demonstrate the capability to use decision-making criteria in allowing access to the restricted zone by the public for various reasons, such as to maintain property (e.g., to care for farm animals or secure machinery for storage) or retrieve important possessions. Coordinated policies for access and exposure control must be developed among all agencies with roles to perform in the restricted zone(s). OROs must demonstrate the capability to establish policies for provision of dosimetry to all individuals allowed to reenter the restricted zone(s). The extent to which OROs need to develop policies on reentry will be determined by scenario events.

Return: OROs must demonstrate the capability to implement policies concerning return of members of the public to areas that were evacuated during the plume phase (i.e., permitting populations that were previously evacuated to reoccupy their homes and businesses on an unrestricted basis). OROs must base decisions on environmental data and political boundaries or physical/ geological features, which allow identification of the boundaries of areas to which members of the general public may return. Return is permitted to the boundary of the restricted area(s) that is based on the relocation PAG.

Other factors that the ORO must consider in decision-making include conditions that permit cancellation of the ECL and relaxation of associated restrictive measures. OROs must base

return recommendations on measurements of radiation from ground deposition. OROs must have the capability to identify services and facilities that require restoration within a few days and to identify the procedures and resources for their restoration. Examples of these services and facilities are medical and social services, utilities, roads, schools, and intermediate-term housing for relocated persons.

All activities must be based on the ORO's plans/procedures and completed as they would be in an actual emergency, unless noted above or otherwise specified in the Extent-of-Play Agreement.

Negotiated Extent-of-Play:

This criterion will not be evaluated during this Exercise because this criterion was demonstrated successfully at the 2017 Calvert Cliffs Post-Plume Exercise, satisfying the minimum evaluation frequency requirement for the current exercise cycle.

Outstanding Issues: None

ASSESSMENT AREA 3: PROTECTIVE ACTION IMPLEMENTATION

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

Intent

This Sub-element is derived from NUREG-0654/FEMA-REP-1, which requires that OROs have the capability to provide for the following: distribution, use, collection, and processing of direct-reading dosimetry and permanent record dosimetry; reading of direct-reading dosimetry by emergency workers at appropriate frequencies; maintaining a radiation dose record for each emergency worker; establishing a decision chain or authorization procedure for emergency workers to incur radiation exposures in excess of the PAGs, and the capability to provide KI for emergency workers, always applying the "as low as is reasonably achievable" principle as appropriate.

Criterion 3.a.1: The OROs issue appropriate dosimetry, KI, and procedures, and manage radiological exposure to emergency workers in accordance with the plans / 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. OROs maintain appropriate record-keeping of the administration of KI to emergency workers. (NUREG-0654/FEMA-REP-1, J.10.e; K.3.a, b; K.4)

Assessment / Extent-of-Play

Assessment of this Demonstration Criterion may be accomplished during a full-scale, functional or tabletop exercise. Other means may include drills, seminars or training activities that would fully demonstrate technical proficiency.

ORO must demonstrate the capability to provide emergency workers (including supplemental resources) with the appropriate direct-reading and permanent record dosimetry, dosimeter

chargers, KI, and instructions on the use of these items. For evaluation purposes, appropriate direct-reading dosimetry is defined as dosimetry that allows an individual(s) to read the administrative reporting limits that are pre-established at a level low enough to consider subsequent calculation of TEDE and maximum exposure limits, for those emergency workers involved in lifesaving activities, contained in the ORO's plans/procedures.

Each emergency worker must have basic knowledge of radiation exposure limits as specified in the ORO's plans/procedures. If supplemental resources are used, they must be provided with just-in-time training to ensure basic knowledge of radiation exposure control. Emergency workers must demonstrate procedures to monitor and record dosimeter readings and manage radiological exposure control.

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

Although it is desirable for all emergency workers to each have a direct-reading dosimeter, there may be situations where team members will be in close proximity to each other during the entire mission. In such cases, adequate control of exposure can be achieved for all team members using one direct-reading dosimeter worn by the team leader. Emergency workers assigned to low-exposure rate fixed facilities (e.g., EOCs and communications center within the EPZ, reception centers, and counting laboratories) may have individual direct-reading dosimeters or they may be monitored using group dosimetry (i.e., direct-reading dosimeters strategically placed in the work area). Each team member must still have his or her own permanent record dosimetry. Individuals authorized by the ORO to reenter an evacuated area during the plume (emergency) phase, must be limited to the lowest radiological exposure commensurate with completing their missions.

ORO's may have administrative limits lower than EPA-400-R-92-001 dose limits for emergency workers performing various services (e.g., lifesaving, protection of valuable property, all activities). OROs must ensure that the process used to seek authorization for exceeding dose limits does not negatively impact the capability to respond to an incident where lifesaving and/or protection of valuable property may require an urgent response.

ORO's must demonstrate the capability to accomplish distribution of KI to emergency workers consistent with decisions made. OROs must have the capability to develop and maintain lists of emergency workers who have ingested KI, including documentation of the date(s) and time(s) they did so. Ingestion of KI recommended by the designated ORO health official is voluntary. For evaluation purposes, the actual ingestion of KI shall not be performed. OROs must demonstrate the capability to formulate and disseminate instructions on using KI for those

advised to take it. Emergency workers must demonstrate basic knowledge of procedures for using KI whether the scenario drives the implementation of KI use. This can be accomplished by an interview with the evaluator.

All activities must be based on the ORO's plans / procedures and completed as they would be in an actual emergency, unless noted above or otherwise specified in the Extent-of-Play Agreement.

Negotiated Extent-of-Play:

This criterion will be evaluated at the following locations:

- Traffic and Access Control evaluation (virtual / interview / Out-of-Sequence on April 26)
- Christiana Hospital MS-1 (virtual / interview / Out-of-Sequence on April 28)
- State EOC
- New Castle County EOC
- Kent County EOC
- State Field Monitoring Teams 1 & 2

All activities will be performed in accordance with the ORO's plans / procedures and completed as they would be in an actual emergency. If participants are directed to take KI, the actual ingestion of pills will be simulated. Participants will be prepared to discuss the process with the evaluator.

Evaluation of this criterion with respect to personnel establishing and manning Traffic and Access Control Points will occur on April 26, 2021, Out-of-Sequence with the exercise. Demonstration will be conducted virtually via Microsoft Teams. Evaluation of this criterion for the Out-of-Sequence MS-1 drill at Christiana Hospital on April 28, 2021 will be conducted via a virtual presentation on Microsoft Teams of a Radiological Officer Briefing to medical staff, which would include issuing of dosimetry and interview by a FEMA evaluator.

Outstanding Issues: None

Sub-element 3.b – Implementation of KI Decision for Institutionalized Individuals and the General Public

Intent

This Sub-element is derived from NUREG-0654/FEMA-REP-1, which requires that OROs have the capability to provide KI for institutionalized individuals, and, if in the plans/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 institutionalized individuals, providing KI to the general public is an ORO option and must be reflected as such in ORO plans/procedures. Provisions must include the availability of adequate quantities, storage, and means of distributing KI.

Criterion 3.b.1: KI and appropriate instructions are available if a decision to recommend use of KI is made. Appropriate record-keeping of the administration of KI for institutionalized individuals and the general public is maintained. (NUREG-0654/FEMA-REP-1, J.10.e, f)

Assessment / Extent-of-Play

Assessment of this Demonstration Criterion may be accomplished during a full-scale, functional or tabletop exercise. Other means may include drills, seminars or training activities that would fully demonstrate technical proficiency.

OROs must demonstrate the capability to make KI available to institutionalized individuals, and, where provided for in their plans/procedures, to members of the general public. OROs must demonstrate the capability to accomplish distribution of KI consistent with decisions made. OROs must have the capability to develop and maintain lists of institutionalized individuals who have ingested KI, including documentation of the date(s) and time(s) they were instructed to ingest KI. Ingestion of KI recommended by the designated ORO health official is voluntary. For evaluation purposes, the actual ingestion of KI shall not be performed. OROs must demonstrate the capability to formulate and disseminate instructions on using KI for those advised to take it.

If a recommendation is made for the general public to take KI, appropriate information must be provided to the public by the means of notification specified in the ORO's plans / procedures.

All activities must be based on the ORO's plans / procedures and completed as they would be in an actual emergency, unless noted above or otherwise specified in the Extent-of-Play Agreement.

Negotiated Extent-of-Play: This criterion will be evaluated at the State EOC, New Castle County EOC, and Kent County EOC. All activities will be performed in accordance with the ORO's plans / procedures and completed as they would be in an actual emergency. If participants are directed to take KI, the actual ingestion of pills will be simulated. Players will be prepared to discuss the process with the evaluator.

Outstanding Issues: None

Sub-element 3.c – Implementation of Protective Actions for Persons with Disabilities and Access/Functional Needs

Intent

This Sub-element is derived from NUREG-0654/FEMA-REP-1, which requires that OROs have the capability to implement PADs, including evacuation and/or sheltering, for all persons with disabilities and access/functional needs. The focus is on those persons with disabilities and access/functional needs that are (or potentially will be) affected by a radiological release from an NPP.

Criterion 3.c.1: Protective action decisions are implemented for persons with disabilities and access / functional needs other than schools within areas subject to protective actions. (NUREG-0654/FEMA-REP-1, J.10.c, d, e, g)

Assessment / Extent-of-Play

Assessment of this Demonstration Criterion may be accomplished during a full-scale or functional exercise, an actual event, or by means of drills conducted at any time.

Applicable OROs must demonstrate the capability to alert and notify (i.e., provide PARs and emergency information and instructions to) persons with disabilities and access/functional needs, including hospitals/medical facilities, nursing homes, correctional facilities, and mobility-impaired and transportation-dependent individuals. OROs must demonstrate the capability to provide for persons with disabilities and access/functional needs in accordance with plans/procedures.

Contact with persons with disabilities and access/functional needs and reception facilities may be actual or simulated, as agreed to in the Extent-of-Play. Some contacts with transportation providers must be actual, as negotiated in the Extent-of-Play. All actual and simulated contacts must be logged.

All activities must be based on the ORO's plans/procedures and completed as they would be in an actual emergency, unless noted above or otherwise specified in the Extent-of-Play Agreement.

Negotiated Extent-of-Play:

This criterion will not be demonstrated or evaluated during this Exercise; this criterion was successfully demonstrated during the 2016 and 2018 Plume Exercises, satisfying the minimum evaluation frequency requirement for the current exercise cycle.

Outstanding Issues: None

Criterion 3.c.2: OROs / School officials implement protective actions for schools. (NUREG-0654/FEMA-REP-1, J.10.c, d, e, g)

Assessment / Extent-of-Play

Assessment of this Demonstration Criterion may be accomplished during a full-scale or functional exercise, an actual event, or by means of drills conducted at any time.

Public school systems/districts must demonstrate the ability to implement PADs for students. The demonstration must be made as follows: Each school system/district within the 10-mile EPZ must demonstrate implementation of protective actions. At least one school per affected system/district must participate in the demonstration. Canceling the school day, dismissing early, or sheltering in place must 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 be demonstrated or accomplished through an interview process.

If accomplished through an interview, appropriate school personnel including decision-making officials (e.g., schools' superintendent/principals and transportation director/bus dispatchers), and at least one bus driver (and the bus driver's escort, if applicable) must 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 plans/procedures, must be verified.

Officials of the school system(s) must 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.

If a school facility has emergency plans as a condition of licensing, those plans may be submitted to FEMA review in place of demonstration or interview pursuant to the ORO's plans/procedures as negotiated in the Extent-of-Play Agreement.

All activities must be based on the ORO's plans/procedures and completed as they would be in an actual emergency, unless noted above or otherwise specified in the Extent-of-Play Agreement.

Negotiated Extent-of-Play:

This criterion will not be demonstrated or evaluated during this exercise; all school districts have met the minimum evaluation frequency requirement for the current exercise cycle.

Outstanding Issues: None

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

Intent

This Sub-element is derived from NUREG-0654/FEMA-REP-1, which requires that OROs have the capability to implement protective action plans/procedures, 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.

Criterion 3.d.1: Appropriate traffic and access control is established. Accurate instructions are provided to traffic and access control personnel. (NUREG-0654/FEMA-REP-1, A.3; C.1,4; J.10.g, j)

Assessment / Extent-of-Play

Assessment of this Demonstration Criterion may be accomplished during a full-scale or functional exercise, an actual event, or by means of drills conducted at any time.

OROs must demonstrate the capability to select, establish, and staff appropriate traffic and access control points consistent with current conditions and PADs (e.g., evacuating, sheltering, and relocation) in a timely manner. OROs must 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 must demonstrate accurate knowledge of their roles and responsibilities, including verifying emergency worker identification and access authorization to the affected areas, as per the Extent-of-Play Agreement. These capabilities 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 (e.g., rail, water, and air traffic), they must demonstrate the capability to contact the State or Federal agencies that have the needed authority, as agreed upon in the Extent-of-Play Agreement.

All activities must be based on the ORO's plans / procedures and completed as they would be in an actual emergency, unless noted above or otherwise specified in the Extent-of-Play Agreement.

Negotiated Extent-of-Play:

This criterion will be evaluated at the following locations:

- Traffic and Access Control evaluation (virtual / interview / Out-of-Sequence on April 26)
- New Castle County EOC on April 28 in sequence with the exercise
- Kent County EOC on April 28 in sequence with the exercise

Evaluation of this criterion and related criteria (1.d.1, 1.e.1, 3.a.1) will be conducted Out-of-Sequence on April 26, 2021. The demonstration will be conducted by interview via Microsoft Teams. 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 exposure control procedures. An emergency worker exposure briefing will be provided. If directed, suiting in anti-contamination clothing and the ingestion of KI will be simulated. A list of equipment that would be used will be available for the Evaluator. A Radiological Emergency Worker kit (dosimeters and anti-contamination suit) will be available virtually for inspection.

During the Exercise on April 28, County EOCs shall be prepared to discuss their responsibilities in support of the traffic and access control mission as outlined in plans and procedures.

Outstanding Issues: None

Criterion 3.d.2: Impediments to evacuation are identified and resolved. (NUREG-0654/FEMA-REP-1, J.10.k)

Assessment / Extent-of-Play

Assessment of this Demonstration Criterion may be accomplished during a full-scale or functional exercise, an actual event, or by means of drills conducted at any time.

ORO's must demonstrate the capability to identify and take appropriate actions concerning impediments to evacuations. In demonstrating this capability, the impediment must remain in place during the evacuation long enough that re-routing of traffic is required and must also result in demonstration of decision-making and coordination with the JIC to communicate the alternate route to evacuees. When, due to specifics of the scenario or jurisdiction, the impediment cannot be located on an evacuation route, it must be located to impact the evacuation. When not possible, actual dispatch of resources need not be physically demonstrated; however, all contacts, actual or simulated, must be logged.

All activities must be based on the ORO's plans / procedures and completed as they would be in an actual emergency, unless noted above or otherwise specified in the Extent-of-Play Agreement.

Negotiated Extent-of-Play:

This criterion will be evaluated at the State EOC, New Castle County EOC, and Kent County EOC. An exercise inject will be provided by the controller regarding a road impediment or impediments. Evaluators will be invited to all discussions regarding the impediment(s). If an evacuation is not one of the protective actions decided upon for this exercise, the demonstration will be done via interview.

County EOCs shall be prepared to discuss their roles in support of identification and resolution of traffic impediments, in conjunction with efforts undertaken by the State.

Outstanding Issues: None

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

Intent

This Sub-element is derived from NUREG-0654/FEMA-REP-1, which requires that OROs have the capability to implement protective actions, based on criteria recommended by current FDA guidance, for the ingestion exposure pathway EPZ (i.e., the area within an approximate 50-mile radius of the NPP). This Sub-element focuses on those actions required for implementation of protective actions.

Criterion 3.e.1: The ORO demonstrates the availability and appropriate use of adequate information regarding water, food supplies, milk, and agricultural production within the ingestion exposure pathway emergency planning zone for implementation of protective actions. NUREG-0654/FEMA-REP-1, A.3; C.1, 4; J.11)

Assessment / Extent-of-Play

Assessment of this Demonstration Criterion may be accomplished during a full-scale or functional exercise, an actual event, or by means of drills conducted at any time.

Applicable OROs must demonstrate the capability to secure and use current information on the locations of dairy farms, meat and poultry producers, fisheries, fruit growers, vegetable growers, grain producers, food processing plants, and water supply intake points to implement protective actions within the EPZ. OROs use Federal resources as identified in the NRF Nuclear/Radiological Incident Annex, and other resources (e.g., compacts, nuclear insurers), if available. Evaluation of this criterion will take into consideration the level of Federal and other resources participating in the exercise.

All activities must be based on the ORO's plans/procedures and completed as they would be in an actual emergency, unless noted above or otherwise specified in the Extent-of-Play Agreement.

Negotiated Extent-of-Play:

This criterion will not be evaluated for this exercise; this criterion was successfully demonstrated during the 2017 Calvert Cliffs Post-Plume Exercise, satisfying the minimum evaluation frequency requirement for the current exercise cycle.

Outstanding Issues: None

Criterion 3.e.2: Appropriate measures, strategies, and pre-printed instructional material are developed for implementing protective action decisions for contaminated water, food products, milk, and agricultural production. (NUREG-0654/FEMA-REP-1, G.1, J.9, 11)

Assessment / Extent-of-Play

Assessment of this Demonstration Criterion may be accomplished during a full-scale or functional exercise, an actual event, or by means of drills conducted at any time.

ORO must demonstrate the development of measures and strategies for implementation of ingestion exposure pathway EPZ protective actions by formulating protective action information for the general public and food producers and processors. Demonstration of this criterion includes either pre-distributed public information material in the ingestion exposure pathway EPZ or the capability for rapid reproduction and distribution of appropriate reproduction-ready information and instructions to pre-determined individuals and businesses.

ORO must also demonstrate the capability to control, restrict, or prevent distribution of contaminated food by commercial sectors. Exercise play must include demonstration of communications and coordination among organizations to implement protective actions. Field play of implementation activities may be simulated. For example, communications and coordination with agencies responsible for enforcing food controls within the ingestion exposure pathway EPZ must be demonstrated, but actual communications with food producers and processors may be simulated.

All activities must be based on the ORO's plans/procedures and completed as they would be in an actual emergency, unless noted above or otherwise specified in the Extent-of-Play Agreement.

Negotiated Extent-of-Play:

This criterion will not be evaluated for this exercise; this criterion was successfully demonstrated during the 2017 Calvert Cliffs Post-Plume Exercise, satisfying the minimum evaluation frequency requirement for the current exercise cycle.

Outstanding Issues: None

Sub-element 3.f – Implementation of Post-Plume Phase Relocation, Reentry, and Return Decisions

Intent

This Sub-element is derived from NUREG-0654/FEMA-REP-1, which requires that OROs have the capability to implement plans, procedures, and decisions for post-plume phase *relocation*, *reentry*, and *return*. Implementation of these decisions is essential for protecting the public from direct long-term exposure to deposited radioactive materials from a severe incident at a commercial NPP.

Criterion 3.f.1: Decisions regarding controlled reentry, relocation, and return of both emergency workers and the public during the post-plume phase are coordinated with appropriate organizations and implemented. (NUREG-0654/FEMA-REP-1, E.7; J.10.j; J.12; K.5.b; M.1, 3)

Assessment / Extent-of-Play

Assessment of this Demonstration Criterion may be accomplished during a full-scale or functional exercise, an actual event, or by means of drills conducted at any time.

Relocation: OROs must demonstrate the capability to coordinate and implement decisions concerning relocation of individuals located in radiologically contaminated areas who were not previously evacuated. Such individuals must be relocated to an area(s) where radiological contamination will not expose the general public to doses that exceed the relocation PAGs. OROs must also demonstrate the capability to provide for short- or long-term relocation of evacuees who lived in an area(s) that has residual radiation levels above the (first-, second-, and 50-year) PAGs.

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

Reentry: OROs must demonstrate the capability to control reentry and exit of individuals who are authorized by the ORO to temporarily reenter the restricted area during the post-plume (i.e., intermediate or late) phase to protect them from unnecessary radiation exposure. OROs must also demonstrate the capability to control exit of vehicles and other equipment to control the spread of contamination outside the restricted area(s). Individuals without specific radiological response missions, such as farmers for animal care, essential utility service personnel, or other members of the public who must reenter an evacuated area during the post-emergency phase must be limited to the lowest radiological exposure commensurate with completing their missions. Monitoring and decontamination facilities will be established as appropriate.

Examples of control procedures are: (1) assignment of, or checking for, direct-reading and permanent record dosimetry for emergency workers; (2) questions regarding the individuals' objective(s), location(s) expected to be visited, and associated timeframes; (3) maps and plots of radiation exposure rates; (4) advice on areas to avoid; (5) procedures for exit, including monitoring of individuals, vehicles, and equipment; (6) decision criteria regarding contamination; (7) proper disposition of emergency worker dosimetry, and (8) maintenance of emergency worker radiation exposure records.

Return: OROs must demonstrate the capability to implement policies concerning return of members of the public to areas that were evacuated during the plume phase. OROs must demonstrate the capability to identify and prioritize services and facilities that require restoration within a few days, and to identify procedures and resources for their restoration. Examples of these services and facilities are medical and social services, utilities, roads, and schools.

Communication among OROs for relocation, reentry, and return may be simulated. All simulated or actual contacts must be documented. These discussions may be accomplished in a group setting.

ORO must use Federal resources as identified in the NRF Nuclear/Radiological Incident Annex, and other resources (e.g., compacts or nuclear insurers), if available. Evaluation of this criterion will take into consideration the level of Federal and other resources participating in the exercise.

All activities must be based on the ORO's plans/procedures and completed as they would be in an actual emergency, unless noted above or otherwise specified in the Extent-of-Play Agreement.

Negotiated Extent-of-Play:

This criterion will not be evaluated for this exercise; this criterion was successfully demonstrated during the 2017 Calvert Cliffs Post-Plume Exercise, satisfying the minimum evaluation frequency requirement for the current exercise cycle.

Outstanding Issues: None

ASSESSMENT AREA 4: FIELD MEASUREMENTS AND ANALYSIS

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

Intent

This Sub-element is derived from NUREG-0654/FEMA-REP-1, which requires that OROs have the capability to deploy FMTs 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/FEMA-REP-1 indicates that OROs must have the capability to use FMTs within the plume exposure pathway EPZ to detect airborne radioiodine in the presence of noble gases and radioactive particulate material in the airborne plume. In an incident at an NPP, the possible release of radioactive material may pose a risk to the nearby population and environment. Although incident assessment methods are available to project the extent and magnitude of a release, these methods are subject to large uncertainties. During an incident, it is important to collect field radiological data to help characterize any radiological release. Adequate equipment and procedures are essential to such field measurement efforts.

Criterion 4.a.1: [RESERVED]

Criterion 4.a.2: Field teams (2 or more) are managed to obtain sufficient information to help characterize the release and to control radiation exposure. (NUREG-0654/FEMA-REP-1, C.1; H.12; I.7, 8, 11; J.10.a)

Assessment / Extent-of-Play

Assessment of this Demonstration Criterion may be accomplished during a full-scale, functional, or tabletop exercise. Other means may include drills, seminars or training activities that would fully demonstrate technical proficiency.

Responsible OROs must demonstrate the capability to brief FMTs on predicted plume location and direction, plume travel speed, and exposure control procedures before deployment. During an HAB incident, the Field Team management must keep the incident command informed of field monitoring teams' activities and location. Coordination with FMTs and field monitoring may be demonstrated as Out-of-Sequence demonstrations, as negotiated in the Extent-of-Play Agreement.

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

If the responsibility for obtaining peak measurements in the plume has been accepted by licensee field monitoring teams, with concurrence from OROs, there is no requirement for these measurements to be repeated by ORO monitoring teams. If the licensee FMTs 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 FMTs (licensee, Federal, and ORO) is essential.

OROs will use Federal resources as identified in the NRF Nuclear/Radiological Incident Annex and other resources (e.g., compacts or the licensee), as necessary. Evaluation of this criterion will take into consideration the level of Federal and other resources participating in the exercise.

All activities must be based on the ORO's plans/procedures and completed as they would be in an actual emergency, unless noted above or otherwise specified in the Extent-of-Play Agreement.

Negotiated Extent-of-Play:

This criterion will be evaluated at the Delaware TAC. Evaluator(s) will be provided access to all TAC meetings and activities to observe and effectively evaluate this criterion. All activities will be performed in accordance with the ORO's plans / procedures and completed as they would be in an actual emergency.

Outstanding Issues: None

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/FEMA-REP-1, C.1; H.12: I.8, 9; J.10.a)

Assessment / Extent-of-Play

Assessment of this Demonstration Criterion may be accomplished during a full-scale, functional, or tabletop exercise. Other means may include drills, seminars or training activities that would fully demonstrate technical proficiency.

Two or more FMTs must demonstrate the capability to make and report measurements of ambient radiation to the field team coordinator, dose assessment team, or other appropriate authority. FMTs must also demonstrate the capability to obtain an air sample for measurement of airborne radioiodine and particulates, and to provide the appropriate authority with field data pertaining to measurement. If samples have radioactivity significantly above background, the authority must consider the need for expedited laboratory analyses of these samples. Coordination concerning transfer of samples, including a chain-of-custody form(s), to a radiological laboratory(ies) must be demonstrated.

OROs must share data in a timely manner with all other appropriate OROs. All methodology, including contamination control, instrumentation, preparation of samples, and a chain-of-custody form(s) for transfer to a laboratory(ies), will be in accordance with the ORO's plans/procedures.

OROs will use Federal resources as identified in the NRF Nuclear/Radiological Incident Annex and other resources (e.g., compacts or the licensee), as needed. Evaluation of this criterion will take into consideration the level of Federal and other resources participating in the exercise.

All activities must be based on the ORO's plans/procedures and completed as they would be in an actual emergency, unless noted above or otherwise specified in the Extent-of-Play Agreement.

Negotiated Extent-of-Play:

Two (2) State Field Monitoring Teams (FMTs) will be evaluated. Teams will demonstrate communications systems checks, emergency worker briefing, equipment operability checks, inventory, and one member of one each team will demonstrate don / doff procedures with anti-contamination clothing at the Smyrna Readiness Center on April 28, 2021 at 3:00 pm.

The FMTs will remain at the Smyrna Readiness Center until activated / deployed; the teams will not be required to perform a second instrument checkout when notified to deploy. If directed, suiting in anti-contamination clothing and ingestion of KI in the field will be simulated. FMTs will simulate reporting to the Emergency Worker Monitoring / Decontamination Center following completion of their assignment. If each team is not directed to take an air sample in the plume during exercise play based on the scenario and / or direction of the Technical Assessment Center (TAC), the Controller in TAC will instruct the Field Monitoring Coordinator to have one or both teams take an air sample for demonstration purposes. The sampling media used during the air sampling demonstration may not be the actual material required in the SOPs but may be a marked substitute. Delivery of samples for additional analysis will not be demonstrated. Chain of custody procedures will be described to the Evaluator.

Evaluators will follow their assigned FMT into the field upon notification to deploy; each evaluator will utilize their POV or rental car to follow their assigned FMT and will abide by all COVID-related safety protocols during evaluations, including social distancing and the wearing of masks at all times.

Outstanding Issues: None

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

Intent

This Sub-element is derived from NUREG-0654/FEMA-REP-1, which requires that OROs have the capability to assess the actual or potential magnitude and locations of radiological hazards to determine the ingestion exposure pathway EPZ and to support relocation, reentry, and return decisions. This Sub-element focuses on collecting environmental samples for laboratory analyses that are essential for decisions on protecting the public from contaminated food and water and direct radiation from deposited materials.

Criterion 4.b.1: The field teams (2 or more) demonstrate the capability to make appropriate measurements and to collect appropriate samples (e.g., food crops, milk, water, vegetation, and soil) to support adequate assessments and protective action decision making. (NUREG-0654/FEMA-REP-1, C.1; I.8; J.11)

Assessment / Extent-of-Play

Assessment of this Demonstration Criterion may be accomplished during a biennial or tabletop exercise. Other means may include drills, seminars or training activities that would fully demonstrate technical proficiency.

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

The FMTs and/or other sampling personnel must secure ingestion pathway samples from agricultural products and water. Samples in support of relocation and return must be secured from soil, vegetation, and other surfaces in areas that received radioactive ground deposition.

OROs will use Federal resources as identified in the NRF Nuclear/Radiological Incident Annex and other resources (e.g., compacts, the licensee, or nuclear insurers), as needed. Evaluation of this criterion will take into consideration the level of Federal and other resources participating in the exercise.

All activities must be based on the ORO's plans/procedures and completed as they would be in an actual emergency, unless noted above or otherwise specified in the Extent-of-Play Agreement.

Negotiated Extent-of-Play: This criterion will not be evaluated for this exercise; this criterion was demonstrated during the 2017 Calvert Cliffs Post Plume Exercise, satisfying the minimum evaluation frequency requirement for the current exercise cycle.

Outstanding Issues: None

Sub-element 4.c – Laboratory Operations

Intent

This Sub-element is derived from NUREG-0654/FEMA-REP-1, which requires that OROs have the capability to perform laboratory analyses of radioactivity in air, liquid, and environmental samples to support protective action decision making.

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

Assessment / Extent-of-Play

Assessment of this Demonstration Criterion may be accomplished during a biennial, tabletop exercise, or an actual event. Other means may include drills, seminars or training activities that would fully demonstrate technical proficiency.

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

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

The laboratory staff must be qualified in radioanalytical techniques and contamination control procedures. OROs will use Federal resources as identified in the NRF Nuclear/Radiological Incident Annex and other resources (e.g., compacts, the licensee, or nuclear insurers), as needed. Evaluation of this criterion will take into consideration the level of Federal and other resources participating in the exercise.

All activities must be based on the ORO's plans/procedures and completed as they would be in an actual emergency, unless noted above or otherwise specified in the Extent-of-Play Agreement.

Negotiated Extent-of-Play: This criterion will not be evaluated for this exercise; this criterion was demonstrated during the 2017 Calvert Cliffs Post Plume Exercise, satisfying the minimum evaluation frequency requirement for the current exercise cycle.

Outstanding Issues: None

ASSESSMENT AREA 5: EMERGENCY NOTIFICATION AND PUBLIC INFORMATION

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

Intent

This Sub-element is derived from NUREG-0654/FEMA-REP-1, which requires that OROs have the capability to provide prompt instructions to the public within the plume exposure pathway EPZ. Specific provisions addressed in this Sub-element are derived from the *Guide for the Evaluation of Alert and Notification Systems for Nuclear Power Plants*, FEMA-REP-10 (November 1985).

Demonstration Criterion:	In a Timely Manner	Within 45 minutes	Within a Reasonable Time
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Primary Alert and Notification			
5.a.1 ... covering essentially 100% of 10-mile EPZ	X		
5.a.4 ... for FEMA-approved exception areas			X
Backup Alert and Notification for All Incidents			
5.a.3 ... covering the 10-mile EPZ		X	

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 REP guidance. (NUREG-0654/FEMA-REP-1, E.5, 6, 7)

Assessment / Extent-of-Play

Assessment of this Demonstration Criterion may be accomplished during a full-scale or functional exercise, drills, or operational testing of equipment that would fully demonstrate capability.

Responsible OROs must 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 EPZ. Following the decision to activate the alert and notification system, OROs must complete system activation for primary alert/notification and disseminate the information/instructions in a timely manner. For exercise purposes, timely is defined as “with a sense of urgency and without undue delay.” If message dissemination is 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 must be fully demonstrated as they would in an actual emergency up to the point of transmission. Broadcast of the message(s) or test message(s) is not required. The procedures must be demonstrated up to the point of actual activation. The alert signal activation should be simulated, not performed. Evaluations of EAS broadcast stations may also be accomplished through SAVs.

The capability of the primary notification system to broadcast an instructional message on a 24-hour basis must be verified during an interview with appropriate personnel from the primary notification system, including verification of provisions for backup power or an alternate station.

The initial message must include at a minimum the following elements:

- Identification of the ORO responsible and the official with authority for providing the alert signal and instructional message;
- Identification of the commercial NPP and a statement that an emergency exists there;
- Reference to REP-specific emergency information (e.g., brochures, calendars, and/or information in telephone books) for use by the general public during an emergency; and
- A closing statement asking that the affected and potentially affected population stay tuned for additional information, or that the population tune to another station for additional information.

If route alerting is demonstrated as a primary method of alert and notification, it must be done in accordance with the ORO's plans/procedures and the Extent-of-Play Agreement. OROs must demonstrate the capability to accomplish the primary route alerting in a timely manner (not subject to specific time requirements). At least one route needs to be demonstrated and evaluated. The selected route(s) must vary from exercise to exercise. However, the most difficult route(s) must be demonstrated no less than once every 8 years. All alert and notification activities along the route(s) must be simulated (that is, the message that would actually be used is read for the evaluator, but not actually broadcast) as negotiated in the Extent-of-Play. Actual testing of the mobile public address system will be conducted at an agreed-upon location.

ORO's may demonstrate any means of primary alert and notification included in their plans / procedures as negotiated in the Extent-of-Play Agreement.

All activities must be based on the ORO's plans/procedures and completed as they would be in an actual emergency, unless noted above or otherwise specified in the Extent-of-Play Agreement.

Negotiated Extent-of-Play: This criterion will be evaluated at the State EOC. The actual demonstration and evaluation of the physical means to sequentially provide an alert signal, followed by an initial instructional message to populated areas through the 10-mile EPZ, will be demonstrated Out-of-Sequence at 3:00. Actual sounding of the sirens and sending of the EAS message is not required and not requested. Alert and notification of the Delaware River area will be simulated.

Coordination will occur between DEMA and the risk counties with respect to the Alert and Notification System (ANS) process in-sequence with the scenario. Sirens will be coordinated, and the sounding simulated at the appropriate time with the simulated activation of EAS taking place following the simulated activation of the sirens. Following the decision to activate the ANS, in accordance with the ORO's plan and / or procedures, ANS activation should be accomplished in a timely manner for primary alerting / notification. This action will be performed "with a sense of urgency and without undue delay" (REP Manual-January 2016). All actions to broadcast stations will be simulated. Systems that use automatic sending technology may be demonstrated by explanation during an interview. Copies of EAS messages will be provided to the FEMA evaluator.

Outstanding Issues: None

Criterion 5.a.3: Backup alert and notification of the public is completed within a reasonable time following the detection by the ORO of a failure of the primary alert and notification system. (NUREG-0654/FEMA-REP-1, E.6, Appendix 3.B.2.c)

Assessment / Extent-of-Play

Assessment of this Demonstration Criterion may be accomplished during a biennial exercise, drills, or operational testing of equipment that would fully demonstrate capability.

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 during the exercise, OROs must demonstrate

backup means of alert and notification. Backup means of alert and notification will differ from facility to facility.

Backup alert and notification procedures that would be implemented in multiple stages must be structured such that the population closest to the plant (e.g., within 2 miles) is alerted and notified first. The populations farther away and downwind of any potential radiological release would be covered sequentially (e.g., 2 to 5 miles, followed by downwind 5 to 10 miles, and finally the remaining population as directed by authorities). Topography, population density, existing ORO resources, and timing will be considered in judging the acceptability of backup means of alert and notification.

Although circumstances may not allow this for all situations, FEMA and the NRC recommend that OROs and operators attempt to establish backup means that will reach those in the plume exposure EPZ within a reasonable time of failure of the primary alert and notification system, with a recommended goal of 45 minutes. The backup alert message must, at a minimum, include (1) a statement that an emergency exists at the plant and (2) instructions regarding where to obtain additional information.

If backup route alerting is demonstrated, **only one route needs to be selected and demonstrated**. All alert and notification activities along the route(s) must be simulated (that is, the message that would actually be used is read for the evaluator, but not actually broadcast), as negotiated in the Extent-of-Play. Actual testing of the mobile public address system will be conducted at an agreed-upon location.

ORO may demonstrate any means of backup alert and notification included in their plans/procedures as negotiated in the Extent-of-Play Agreement.

All activities must be based on the ORO's plans/procedures and completed as they would be in an actual emergency, unless noted above or otherwise specified in the Extent-of-Play Agreement.

Negotiated Extent-of-Play: This criterion will not be evaluated for this exercise; this criterion was evaluated during the 2014 Hostile Action Based (HAB) REP Exercise, satisfying the minimum evaluation frequency requirement for the current exercise cycle.

Outstanding Issues: None

Criterion 5.a.4: 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. (NUREG-0654/FEMA-REP-1, E.6; Appendix 3.B.2.c)

Assessment / Extent-of-Play

Assessment of this Demonstration Criterion may be accomplished during a biennial exercise, drills, or operational testing of equipment that would fully demonstrate capability.

OROs with FEMA-approved exception areas (identified in the approved *Alert and Notification System Design Report*), 5 to 10 miles from the NPP, must demonstrate the capability to accomplish primary alerting and notification of the exception area(s). FEMA and the NRC recommend that OROs and operators establish means that will reach those in approved exception areas within 45 minutes once the initial decision is made by authorized offsite emergency officials to notify the public of an incident. The exception area alert message must, at a minimum, include (1) a statement that an emergency exists at the plant and (2) instructions regarding where to obtain additional information.

For exception area alerting, at least one route must be demonstrated and evaluated. The selected route(s) must vary from exercise to exercise. However, the most difficult route(s) must be demonstrated no less than once every 8 years. All alert and notification activities along the route(s) must be simulated (that is, the message that would actually be used is read for the evaluator, but not actually broadcasted) as negotiated in the Extent-of-Play. Actual testing of the mobile public address system will be conducted at an agreed-upon location. For exception areas alerted by air/watercraft, actual routes will be negotiated in the Extent-of-Play but must be demonstrated no less than once every 8 years.

All activities must be based on the ORO's plans/procedures and completed as they would be in an actual emergency, unless noted above or otherwise specified in the Extent-of-Play Agreement.

Negotiated Extent-of-Play: Criterion does not apply - there are no exception areas in the State of Delaware.

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

Intent

This Sub-element is derived from NUREG-0654/FEMA-REP-1, which requires that OROs have the capability to disseminate appropriate emergency information and instructions, including any recommended protective actions, to the public. In addition, NUREG-0654/FEMA-REP-1 requires OROs to ensure that 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/FEMA-REP-1 also provides that a system must be available for dealing with rumors. This system will hereafter be known as the public inquiry hotline.

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

Assessment / Extent-of-Play

Assessment of this Demonstration Criterion may be accomplished during a full-scale or functional exercise, or drills.

The emergency information must be all-inclusive by including the four items specified under exercise Demonstration Criterion 5.a.1 and previously identified protective action areas that are still valid, as well as new areas. Information about any rerouting of evacuation routes due to impediments should also be included. The OROs must demonstrate the capability to ensure that emergency information that is no longer valid is rescinded and not repeated by broadcast media.

Message elements: The ORO must ensure that emergency information and instructions are consistent with PADs made by appropriate officials. The emergency information must contain all necessary and applicable instructions (e.g., evacuation instructions, evacuation routes, reception center locations, what to take when evacuating, shelter-in-place instructions, information concerning protective actions for schools and persons with disabilities and access/functional needs, and public inquiry hotline telephone number) to assist the public in carrying out the PADs provided. The ORO must also be prepared to disclose and explain the ECL of the incident. At a minimum, this information must be included in media briefings and/or media releases. OROs must demonstrate the capability to use language that is clear and understandable to the public within both the plume and ingestion exposure pathway EPZs. This includes demonstration of the capability to use familiar landmarks and boundaries to describe protective action areas.

The emergency information must be all-inclusive by including the four items specified under exercise Demonstration Criterion 5.a.1 and previously identified protective action areas that are still valid, as well as new areas. The OROs must 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 must demonstrate the capability to ensure that current emergency information is repeated at pre-established intervals in accordance with the plans/procedures. OROs must demonstrate the capability to develop emergency information in a non-English language when required by the plans/procedures.

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

Media information: OROs must 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 incident warrants. The OROs must demonstrate the capability to respond appropriately to inquiries from the news media. All information presented in media briefings and releases must be consistent with PADs and other emergency information provided to the public. Copies of pertinent emergency information (e.g., EAS messages and media releases) and media information kits must be available for dissemination to the media.

Public inquiry: OROs must demonstrate that an effective system is in place for dealing with calls received via the public inquiry hotline. Hotline staff must 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, must be included, as appropriate, in emergency information provided to the public, media briefings, and/or media releases.

HAB considerations: The dissemination of information dealing with specific aspects of NPP security capabilities, actual or perceived adversarial (terrorist) force or threat, and tactical law enforcement response must be coordinated/communicated with appropriate security authorities, e.g., law enforcement and NPP security agencies, in accordance with ORO plans/procedures.

All activities must be based on the ORO's plans/procedures and completed as they would be in an actual emergency, unless noted above or otherwise specified in the Extent-of-Play Agreement.

Negotiated Extent-of-Play: This criterion will be evaluated virtually via Microsoft Teams. Press releases and EAS messages will be written and approved at the State EOC; actual broadcast of EAS messages will be simulated.

A virtual Joint Information Center (JIC) will be used as a coordination point between the PIOs from Delaware, New Jersey, and PSEG; the Evaluator will access the virtual JIC via dedicated internet link. There will be no media briefings, but the PIO and / or Delaware spokesperson will discuss their process for conducting timely and pertinent media briefings and distribution of media releases as the incident warrants. The PIO and / or spokesperson will be prepared to describe the contents of the media information kits, where the kits are kept, and method(s) for dissemination to the media.

Public inquiry calls will be initiated by controller inject; public inquiry at the State EOC will be staffed with two operators and will receive at least six calls to include at least one identifiable trend.

All materials generated by the PIO and / or virtual JIC shall be accessible to the Evaluator via WebEOC or other agreed upon means.

Outstanding Issues: None

ASSESSMENT AREA 6: SUPPORT OPERATIONS/FACILITIES

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

Intent

This Sub-element is derived from NUREG-0654/FEMA-REP-1, which requires that OROs have the capability to implement radiological monitoring and decontamination of evacuees, while minimizing contamination of the facility. OROs must also have the capability to identify and register evacuees at reception centers.

Criterion 6.a.1: The reception center facility has appropriate space, adequate resources, and trained personnel to provide monitoring, decontamination, and registration of evacuees. (NUREG-0654/FEMA-REP-1, A.3; C.4; J.10.h; J.12)

Assessment / Extent-of-Play

Assessment of this Demonstration Criterion may be accomplished during a biennial exercise, an actual event, drills, or SAV.

Radiological monitoring, decontamination, and registration facilities for evacuees must be set up and demonstrated as they would be in an actual emergency or as indicated in the Extent-of-Play Agreement. OROs conducting this demonstration must have one-third of the resources (e.g., monitoring teams/instrumentation/portal monitors) available at the facility(ies) as necessary to monitor 20 percent of the population within a 12-hour period. This would include adequate space for evacuees' vehicles. Availability of resources can be demonstrated with valid documentation (e.g., MOU/LOA, etc.) reflecting how necessary equipment would be procured for the location. Plans/procedures must indicate provisions for service animals.

Before using monitoring instrument(s), the monitor(s) must demonstrate the process of checking the instrument(s) for proper operation. Staff responsible for the radiological monitoring of evacuees must demonstrate the capability to attain and sustain, within about 12 hours, a monitoring productivity rate per hour needed to monitor the 20 percent EPZ population planning base. The 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 procedure. For demonstration of monitoring, decontamination, and registration capabilities, a minimum of six evacuees must be monitored per station using equipment and procedures specified in the plans/procedures. The monitoring sequences for the first six simulated evacuees per monitoring team will be timed by the evaluators to determine whether the 12-hour requirement can be met.

ORO's must demonstrate the capability to register evacuees upon completion of the monitoring and decontamination activities. The activities for recording radiological monitoring and, if necessary, decontamination must include establishing a registration record consisting of the evacuee's name, address, results of monitoring, and time of decontamination (if any), or as otherwise designated in the plan and/or procedures. Audio recorders, camcorders, or written records are all acceptable means for registration.

Monitoring activities shall not be simulated. Monitoring personnel must explain use of trigger/action levels for determining the need for decontamination. They must also explain the procedures for referring any evacuees who cannot be adequately decontaminated for assessment and follow-up in accordance with the ORO's plans/procedures. All activities must be based on the ORO's plans/procedures and completed as they would be in an actual emergency, unless noted above or otherwise specified in the Extent-of-Play Agreement.

Decontamination of evacuees may be simulated and conducted by interview. Provisions for separate showering and same-sex monitoring must be demonstrated or explained. The staff must 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 uncontaminated from potentially contaminated areas. Provisions must also exist to separate contaminated and uncontaminated evacuees, provide changes of clothing for those with contaminated clothing; and store contaminated clothing and personal belongings to prevent further contamination of evacuees or facilities. In addition, for any evacuee found to be contaminated, procedures must be discussed concerning handling of potential contamination of

vehicles and personal belongings. Wastewater from decontamination operations does not need to be collected.

Individuals who have completed monitoring (and decontamination, if needed) must have means (e.g., hand stamp, sticker, bracelet, form, etc.) indicating that they, and their service animals and vehicles, where applicable, have been monitored, cleared, and found to have no contamination or contamination below the trigger/action level or have been placed in a secure area until they can be monitored and decontaminated, if necessary.

In accordance with plans/procedures, individuals found to be clean after monitoring do not need to have their vehicle monitored. These individuals do not require confirmation that their vehicle is free from contamination prior to entering the congregate care areas.

However, those individuals who are found to be contaminated and are then decontaminated will have their vehicles held in a secure area or monitored and decontaminated (if applicable) and do require confirmation that their vehicle is being held in a secure area or free from contamination prior to entering the congregate care areas.

Negotiated Extent-of-Play: This criterion will not be evaluated for this exercise; this criterion was demonstrated at Stern Readiness Center in 2016 and Smyrna Readiness Center in 2018, satisfying the minimum evaluation frequency requirement for the current exercise cycle.

Outstanding Issues: None

Sub-element 6.b – Monitoring and Decontamination of Emergency Workers and their Equipment and Vehicles

Intent

This Sub-element is derived from NUREG-0654/FEMA-REP-1, which requires that OROs have the capability to implement radiological monitoring and decontamination of emergency workers and their equipment, inclusive of vehicles.

Criterion 6.b.1: The facility/ORO has adequate procedures and resources to accomplish monitoring and decontamination of emergency workers and their equipment and vehicles. (NUREG-0654/FEMA-REP-1, K.5.a, b)

Assessment / Extent-of-Play

Assessment of this Demonstration Criterion may be accomplished during a biennial exercise, drills, an actual event, or SAV.

The monitoring staff must demonstrate the capability to monitor emergency worker personnel and their equipment and vehicles for contamination in accordance with the ORO's plans/procedures.

Specific attention must be given to equipment, including any vehicles that were in contact with contamination. The monitoring staff must demonstrate the capability to make decisions on the need for decontamination of personnel, equipment, and vehicles based on trigger/action levels and procedures stated in the ORO plans/procedures. Monitoring of emergency workers does not have to meet the 12-hour requirement. However, appropriate monitoring procedures must be demonstrated for a minimum of two emergency workers and their equipment and vehicles. Before using monitoring instrument(s), the monitor(s) must demonstrate the process of checking the instrument(s) for proper operation.

The area to be used for monitoring and decontamination must 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 must 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 radiator grills, bumpers, wheel wells, tires, and door handles must be demonstrated. Interior surfaces of vehicles that were in contact with contaminated individuals must also be checked.

Decontamination of emergency workers may be simulated and conducted via interview. Provisions for separate showering and same-sex monitoring must be demonstrated or explained. The staff must 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 uncontaminated from potentially contaminated areas. Provisions must also exist to separate contaminated and uncontaminated individuals where applicable; provide changes of clothing for those with contaminated clothing; and store contaminated clothing and personal belongings to prevent further contamination of emergency workers or facilities.

Monitoring activities shall not be simulated. Monitoring personnel must explain use of trigger/action levels for determining the need for decontamination. They must also explain the procedures for referring any emergency workers who cannot be adequately decontaminated for assessment and follow-up in accordance with the ORO's plans/procedures.

Decontamination capabilities and provisions for vehicles and equipment that cannot be successfully decontaminated may be simulated and conducted by interview. Wastewater from decontamination operations does not need to be collected.

All activities must be based on the ORO's plans / procedures and completed as they would be in an actual emergency, unless noted above or otherwise specified in the Extent-of-Play Agreement.

Negotiated Extent-of-Play: This criterion will not be evaluated for this exercise; this criterion was demonstrated at the Middletown Emergency Worker Monitoring / Decontamination Center during the 2014 HAB Exercise, satisfying the minimum evaluation frequency requirement for the current exercise cycle.

Outstanding Issues: None

Sub-element 6.c – Temporary Care of Evacuees

Intent

This Sub-element is derived from NUREG-0654/FEMA-REP-1, which requires OROs to have the capability to establish relocation centers in host/support jurisdictions. The American Red Cross normally provides congregate care in support of OROs under existing letters of agreement.

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. 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/FEMA-REP-1, J.10.h, J.12)

Assessment / Extent-of-Play

Assessment of this Demonstration Criterion may be accomplished during a biennial exercise, drills, an actual event, or SAV.

The evaluator must conduct a walk-through of the center to determine, through observation and inquiries, that the services and accommodations are consistent with applicable guidance.

For planning purposes, OROs must plan for a sufficient number of congregate care centers in host/support jurisdictions based on their all-hazard sheltering experience and what is historically relevant for that particular area. 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 criterion, exercise demonstration expectations must be clearly specified in Extent of-Play Agreements.

Congregate care staff must also demonstrate the capability to ensure that evacuees, service animals, and vehicles have been monitored for contamination, decontaminated as appropriate, and registered before entering the facility.

Individuals arriving at congregate care facilities must have means (e.g., hand stamp, sticker, bracelet, form, etc.) indicating that they, and their service animals and vehicles, where applicable, have been placed in a secured area or monitored, cleared, and found to have no contamination or contamination below the trigger/action level.

In accordance with plans/procedures, individuals found to be clean after monitoring do not need to have their vehicle monitored. These individuals do not need confirmation that their vehicle is free from contamination prior to entering the congregate care areas.

However, those individuals who are found to be contaminated and are then decontaminated will have their vehicles held in a secure area until they can be monitored and decontaminated (if applicable) and do need confirmation that their vehicle is being held in a secure area or free from contamination prior to entering the congregate care areas. 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 must be verified by providing the evaluator a list of sources with locations and estimates of quantities.

All activities must be based on the ORO's plans/procedures and completed as they would be in an actual emergency, unless noted above or otherwise specified in the Extent-of-Play Agreement.

Negotiated Extent-of-Play: This criterion will not be evaluated for this exercise; this criterion was demonstrated during the 2014 REP HAB Exercise, satisfying the minimum evaluation frequency requirement for the current exercise cycle.

Outstanding Issues: None

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

Intent

This Sub-element is derived from NUREG-0654/FEMA-REP-1, which requires that OROs have the capability to transport contaminated injured individuals to medical facilities with the capability to provide medical services.

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

Assessment / Extent-of-Play

Assessment of this Demonstration Criterion may be accomplished during a biennial exercise, an actual event or drills. FEMA has determined that these capabilities have been enhanced and consistently demonstrated as adequate; therefore, offsite medical services drills need only be evaluated biennially. FEMA will, at the request of the involved ORO, continue to evaluate the drills on an annual basis. All hospitals listed in the plan as medical services hospitals must be evaluated, with a transportation provider, every 2 years. Additional transportation providers will be rotated through the drills in the 8-year exercise cycle. For ambulance providers who do not participate in an evaluated drill during the two-year cycle, training will be provided. This training will be documented in the ALC.

Monitoring, decontamination, and contamination control efforts must not delay urgent medical care for the victim.

ORO must demonstrate the capability to transport contaminated injured individuals to medical facilities.

An ambulance must be used for response to the victim. However, to avoid taking an ambulance out of service for an extended time, OROs may use any vehicle (e.g., car, truck, or van) to transport the victim to the medical facility. It is allowable for an ambulance to demonstrate up to

the point of departure for the medical facility and then have a non-specialized vehicle transport the “victim(s)” to the medical facility. This option is used in areas where removing an ambulance from service to drive a great distance (over an hour) for a drill would not be in the best interests of the community.

Normal communications between the ambulance / dispatcher and the receiving medical facility must be demonstrated. If a substitute vehicle is used for transport to the medical facility, this communication must occur before releasing the ambulance from the drill. This communication would include reporting radiation monitoring results, if available. In addition, the ambulance crew must demonstrate, by interview, knowledge of where the ambulance and crew would be monitored and decontaminated, if required, or whom to contact for such information.

Monitoring of the victim may be performed before transport or en route or may be deferred to the medical facility. Contaminated injured individuals transported to medical facilities are monitored as soon as possible to assure that everyone (ambulance and medical facility) is aware of the medical and radiological status of the individual(s). However, if an ambulance defers monitoring to the medical facility, then the ambulance crew presumes that the patient(s) is contaminated and demonstrate appropriate contamination controls until the patient(s) is monitored. Before using monitoring instruments, the monitor(s) must demonstrate the process of checking the instrument(s) for proper operation. All monitoring activities must be completed as they would be in an actual emergency. Appropriate contamination control measures must be demonstrated before and during transport and at the receiving medical facility.

The medical facility must demonstrate the capability to activate and set up a radiological emergency area for treatment. Medical facilities are expected to have at least one trained physician and one trained nurse to perform and supervise treatment of contaminated injured individuals. Equipment and supplies must be available for treatment of contaminated injured individuals.

The medical facility must demonstrate the capability to make decisions on the need for decontamination of the individual, follow appropriate decontamination procedures, and maintain records of all survey measurements and samples taken. All procedures for collection and analysis of samples and decontamination of the individual must be demonstrated or described to the evaluator. Wastewater from decontamination operations must be handled according to facility plans / procedures.

All activities must be based on the ORO’s plans/procedures and completed as they would be in an actual emergency, unless noted above or otherwise specified in the Extent-of-Play Agreement.

State Negotiated Extent-of-Play: This criterion will not be evaluated for this Exercise. Actual incident credit has been granted based on the fact that Christiana Hospital’s protocols for transportation / treatment of COVID patients correlate with REP MS-1 objectives and capabilities.

Outstanding Issues: None