



# North Anna Power Station After Action Report

Exercise Date – July 17, 2018

Radiological Emergency Preparedness (REP) Program



**FEMA**

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## EXECUTIVE SUMMARY

On July 17, 2018, a full-scale Plume Exposure Pathway exercise was conducted and evaluated for the 10 Mile Emergency Planning Zone (EPZ) around the North Anna Power Station (NAPS) by the Federal Emergency Management Agency (FEMA), Region III. The previous full-scale exercise at this site was evaluated on February 9, 2016.

Out-of-Sequence demonstrations were conducted June 5<sup>th</sup> and 6<sup>th</sup>, 2018. The purpose of the Exercise and Out-of-Sequence demonstrations was to assess the capabilities of State, counties, and local jurisdictions to implement Radiological Emergency Plans and Procedures (REPP) to protect the property and lives of residents and transients in the event of an emergency at the North Anna Power Station. The findings in this report are based on the evaluations of the Federal evaluation team, with final determinations made by the FEMA, Region III 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, (4) four Level 2 Findings, and (10) ten Plan Issues (PI). One Level 2 Finding was successfully re-demonstrated. All prior Performance and Planning Issues were resolved during the previous exercise. 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 Planning 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 Commonwealth of Virginia and the risk jurisdictions of Caroline, Hanover, Louisa, Orange and Spotsylvania. 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: EXERCISE OVERVIEW

### 1.1 Exercise Details

**Exercise Name**

Plume 2018-07-17

**Type of Exercise**

Plume

**Exercise Date**

July 17, 2018

**Program**

Department of Homeland Security/FEMA Radiological Emergency Preparedness Program

**Scenario Type**

Minimal Release

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## 1.3 Participating Organizations

Agencies and organizations of the following jurisdictions participated in the North Anna Power Station exercise:

### State Jurisdictions

#### Commonwealth of Virginia

- Commonwealth of Virginia Governor's Office
- Newport News Fire Department
- Virginia Cooperative Extension
- Virginia Department of Agriculture and Consumer Services
- Virginia Department of Aviation
- Virginia Department of Emergency Management
- Virginia Department of Health, Office of Radiological Health
- Virginia Department of Military Affairs
- Virginia Department of Motor Vehicle
- Virginia Department of Public Safety
- Virginia Department of Public Works
- Virginia Department of Transportation
- Virginia National Guard
- Virginia State Police

### Risk Jurisdictions

#### Caroline County

- Caroline County Amateur Radio Emergency Services (ARES)
- Caroline County Emergency Management Agency
- Caroline County Fire and Rescue Department
- Caroline County High School
- Caroline County Park and Recreation
- Caroline County Public Safety and Security
- Caroline County Public School
- Caroline County Sheriff's Department
- Caroline County Social Services

#### Hanover County

- Hanover County Administration
- Hanover County Amateur Radio Emergency Services (ARES)

- Hanover County Community Emergency Response Team (CERT)
- Hanover County Department of Social Services
- Hanover County Fire and Emergency Medical Services
- Hanover County Health Department
- Hanover County Schools
- Hanover County Sheriff's Department

### **Louisa County**

- Louisa County Fire Department
- Louisa County Fire and Emergency Medical Services
- Louisa County General Services Department
- Louisa County High School
- Louisa County Human Services Department
- Louisa County Public Health Department
- Louisa County School Department
- Louisa County Sheriff's Office
- Radio Amateur Civil Emergency Services (RACES)
- Town of Louisa Police Department

### **Orange County**

- Lake of the Woods Fire Company
- Orange County 911 Center
- Orange County Administrators Office
- Orange County Department of Finance
- Orange County Department of Fire, Rescue, and Emergency Services
- Orange County Department of Transportation
- Orange County Emergency Management
- Orange County Health Department
- Orange County Information Technology
- Orange County Public Schools
- Orange County Sheriff's Office
- Orange County Social Services
- Orange Volunteer Fire Company
- Town of Orange Police Department

### **Spotsylvania County**

- Fredericksburg Fire Department
- Fredericksburg Hazardous Materials (HazMat) Team
- Spotsylvania County Department of Administration
- Spotsylvania County Department of Social Services
- Spotsylvania County Fire and Rescue



- Spotsylvania County Fredericksburg Regional Emergency Management Agency
- Spotsylvania County GIS Department
- Spotsylvania County Schools
- Spotsylvania County Sheriff's Office

**Private Organizations**

- Boy Scouts of America
- Dominion Energy Corporation
- Norfolk Naval Ship Yard
- Rappahannock Valley Amateur Radio Club

## SECTION 2: EXERCISE DESIGN SUMMARY

### 2.1 Exercise Purpose and Design

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

44 CFR 350 establishes the policies and procedures for FEMA's initial and continued approval of 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 on the basis of 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, and
  - U.S. Food and Drug Administration

Representatives of these agencies serve on the Region III Regional Assistance Committee (RAC), which is chaired by FEMA. A REP Plume Exposure Pathway Exercise was conducted

during the week of July 16, 2018, 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 North Anna Power Station (NAPS). The purpose of this exercise report is to present the exercise results and findings on the performance of the off-site response organizations (OROs) during a simulated radiological emergency. The findings presented in this report are based on the evaluations of the Federal evaluation team, with final determinations made by the FEMA Region III RAC Chairperson and approved by FEMA Headquarters.

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

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

- NUREG-0654/FEMA-REP-1, Rev. 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants, "November 1980;
- Radiological Emergency Preparedness Program Manual, January 2016;

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

### **Emergency Planning Zone Description:**

The 10-mile plume Emergency Planning Zone (EPZ) includes Caroline, Hanover, Louisa, Orange and Spotsylvania Counties. The North Anna Power Station, consisting of approximately 1,856 acres, is located in Louisa County on the southern shore of Lake Anna in central Virginia, 40 miles northwest of Richmond, 38 miles east of Charlottesville, and 24 miles southwest of Fredericksburg. North Anna Power Station is located within the central Piedmont Plateau of Virginia. The topography is characterized as a gently undulating surface that varies from 60 m (200 ft.) to 150 m (500 ft.) above mean sea level. Lake Anna is a man-made reservoir, approximately 8 km (5 mi) upstream from the North Anna Dam. Forests comprising primarily pine and hardwoods cover the majority of the peninsula on which North Anna is sited. The predominant land use in Louisa County is forestry, a major contributor to the economy. Almost 70 percent of the total land area is forest interspersed with small farm agriculture.

## **2.2 Exercise Objectives, Capabilities and Activities**

The objectives of the 2018 North Anna Power Station (NAPS) 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 of 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**

DHS/FEMA Region III, NORTH ANNA POWER STATION 2018 PLUME EXPOSURE PATHWAY EXERCISE- July 17, 2018.

The scenario started with both North Anna Power Station (NAPS) reactors operating at 100% power. The weather forecast called for wind speed from 4.1 to 5.0 mph and wind direction is from 202°.

At 0805 an ALERT was declared due to a malfunction with the Emergency Diesel Generator (EDG). Notifications are made to off-site response organizations.

At 0940 a main condensate line ruptures in the turbine building resulting in a loss of main feedwater and the plant declares a Site Area Emergency at 0949.

At 1046 a General Emergency is declared due to the loss of fission product barriers and a radiological release to the environment. A Protective Action Recommendation (PAR) is made by the Licensee and the Commonwealth of Virginia makes a Protective Action Decision (PAD) based on plant conditions and meteorological data. Later, plant conditions worsen that results in an upgraded PAR from the Licensee and upgraded PAD by the Commonwealth of Virginia. The PAD should be implemented by the Commonwealth of Virginia and Risk jurisdictions.

At 1325 the exercise is terminated.

## 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 July 17, 2018, biennial Plume Exposure Pathway EPZ Radiological Emergency Preparedness (REP) Exercise, and the Out of Sequence Exercise evaluations conducted on June 5<sup>th</sup> and 6<sup>th</sup>, 2018. The exercise was conducted to demonstrate the ability of the Offsite Response Organizations of State and local government to protect the health and safety of the public in the 10 mile Emergency Planning Zone surrounding the North Anna Power Station.

Each jurisdiction and functional entity was evaluated on the basis of its demonstration of the Exercise Evaluation Area Criteria contained in the REP Exercise Evaluation Methodology. Detailed information on the exercise evaluation area criteria and the Extent of Play Agreement 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 by the use of the following letters:

(D) Demonstrated Strength: an observed action, behavior, procedure, and/or practice that is worthy of special notice and positive recognition, Note: this is already a common practice that many Regions employ when identifying demonstrated strengths.

(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 in the vicinity of 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: July 17, 2018 Site: North Anna Power Station			
Location	Criteria Title	Criteria	Classification
VA SEOC	Direction and Control	1c1	L2
VA SEOC	Direction and Control	1c1	L2
VA SEOC	Protective Action Decision Process and Coordination	2b2	L2
CC CCDFR (MS-1)	Implementation of Emergency Worker Exposure Control	3a1	L2 (Re-Demonstrated)
VA SEOC	Protective Action Decision Process and Coordination	2b2	P
CarCo EOC	Implementation of Emergency Worker Exposure Control	3a1	P (Resolved)
HC EOC	Implementation of Emergency Worker Exposure Control	3a1	P (Resolved)
LoCo EOC	Implementation of Emergency Worker Exposure Control	3a1	P
OC EOC	Implementation of Emergency Worker Exposure Control	3a1	P (Resolved)
SpCo EOC	Implementation of Emergency Worker Exposure Control	3a1	P (Resolved)
HC BuRA	Activation of the Back-up ANS	5a3	P
LoCo BuRA	Activation of the Back-up ANS	5a3	P
OC BuRA	Activation of the Back-up ANS	5a3	P (Resolved)
LoCo LoCoPS	Implementation of PADs for Schools	3c2	P

**Table 3.1b – Exercise Evaluation – Criteria Met**

Date: July 17, 2018 Site: North Anna Power Station		
Location	Criteria Title	Criteria
CarCo BuRA	Communications Equipment	1d1
CarCo BuRA	Equipment and Supplies to Support Operations	1e1
CarCo BuRA	Implementation of Emergency Worker Exposure Control	3a1
CarCo BuRA	Activation of the Back-up ANS	5a3
CarCoEARA5-10	Communications Equipment	1d1
CarCoEARA5-10	Equipment and Supplies to Support Operations	1e1
CarCoEARA5-10	Implementation of Emergency Worker Exposure Control	3a1
CarCoEARA5-10	Activation of the Exception Area ANS	5a4
CarCo EOC	Mobilization	1a1
CarCo EOC	Direction and Control	1c1
CarCo EOC	Communications Equipment	1d1
CarCo EOC	Equipment and Supplies to Support Operations	1e1
CarCo EOC	Implementation of Emergency Worker Exposure Control	3a1
CarCo EOC	Implementation of PADs for disabilities & access/functional needs people	3c1
CarCo EOC	Implementation of PADs for Schools	3c2
CarCo EOC	Implementation of Traffic & Access Control	3d1
CarCo EOC	Impediments to Evacuation	3d2
CarCo EOC	Emergency Information & Instructions for the Public/Media	5b1
CarCo EWMDS CCHS	Communications	1d1
CarCo EWMDS CCHS	Equipment and Supplies to Support Operations	1e1
CarCo EWMDS CCHS	Implementation of Emergency Worker Exposure Control	3a1



CarCo EWMDS CCHS	Monitoring and Decontamination of Emergency Workers and their Equipment & Vehicles	6b1
CarCo FMT	Mobilization	1a1
CarCo FMT	Communications Equipment	1d1
CarCo FMT	Equipment and Supplies to Support Operations	1e1
CarCo FMT	Implementation of Emergency Worker Exposure Control	3a1
CarCo FMT	Plume Phase Field Measurement, Handling, & Analyses	4a3
CarCo MCC CCHS	Direction and Control	1c1
CarCo MCC CCHS	Communications Equipment	1d1
CarCo MCC CCHS	Equipment and Supplies to Support Operations	1e1
CarCo MCC CCHS	Implementation of KI PAD for Institutionalized Individuals/Public	3b1
CarCo MCC CCHS	Temporary Care of Evacuees	6c1
CarCo RC CCHS	Facilities	1b1
CarCo RC CCHS	Direction and Control	1c1
CarCo RC CCHS	Communications Equipment	1d1
CarCo RC CCHS	Equipment and Supplies to Support Operations	1e1
CarCo RC CCHS	Implementation of Emergency Worker Exposure Control	3a1
CarCo RC CCHS	Monitoring, Decontamination, & Registration of Evacuees	6a1
CarCo TCP/ACP	Communications Equipment	1d1
CarCo TCP/ACP	Equipment and Supplies to Support Operations	1e1
CarCo TCP/ACP	Implementation of Emergency Worker Exposure Control	3a1
CarCo TCP/ACP	Implementation of Traffic & Access Control	3d1
CC CCDFR	Equipment and Supplies to Support Operations	1e1
CC CCDFR	Implementation of Emergency Worker Exposure Control	3a1
CC CCDFR	Transportation/Treatment of Contaminated Injured Individuals	6d1
HC BuRA	Communications Equipment	1d1
HC BuRA	Equipment and Supplies to Support Operations	1e1
HC BuRA	Implementation of Emergency Worker Exposure Control	3a1
HC BuRA	Activation of the Back-up ANS	5a3
HC EARA5-10	Communications Equipment	1d1
HC EARA5-10	Equipment and Supplies to Support Operations	1e1
HC EARA5-10	Implementation of Emergency Worker Exposure Control	3a1
HC EARA5-10	Activation of the Exception Area ANS	5a4
HC EOC	Mobilization	1a1
HC EOC	Direction and Control	1c1
HC EOC	Communications Equipment	1d1
HC EOC	Equipment and Supplies to Support Operations	1e1
HC EOC	Implementation of Emergency Worker Exposure Control	3a1
HC EOC	Implementation of PADs for disabilities & access/functional needs people	3c1
HC EOC	Implementation of PADs for Schools	3c2
HC EOC	Implementation of Traffic & Access Control	3d1
HC EOC	Impediments to Evacuation	3d2
HC EOC	Emergency Information & Instructions for the Public/Media	5b1
HC FMT	Mobilization	1a1
HC FMT	Communications Equipment	1d1
HC FMT	Equipment and Supplies to Support Operations	1e1
HC FMT	Implementation of Emergency Worker Exposure Control	3a1
HC FMT	Plume Phase Field Measurement, Handling, & Analyses	4a3
HC TCP/ACP	Communications Equipment	1d1

HC TCP/ACP	Equipment and Supplies to Support Operations	1e1
HC TCP/ACP	Implementation of Emergency Worker Exposure Control	3a1
HC TCP/ACP	Implementation of Traffic & Access Control	3d1
LoCo BuRA	Communications Equipment	1d1
LoCo BuRA	Equipment and Supplies to Support Operations	1e1
LoCo BuRA	Implementation of Emergency Worker Exposure Control	3a1
LoCo BuRA	Activation of the Back-up ANS	5a3
LoCo PARA0-5	Communications Equipment	1d1
LoCo PARA0-5	Equipment and Supplies to Support Operations	1e1
LoCo PARA0-5	Implementation of Emergency Worker Exposure Control	3a1
LoCo PARA0-5	Activation of the Prompt Alert & Notification System	5a1
LoCo EARA5-10	Communications Equipment	1d1
LoCo EARA5-10	Equipment and Supplies to Support Operations	1e1
LoCo EARA5-10	Implementation of Emergency Worker Exposure Control	3a1
LoCo EARA5-10	Activation of the Exception Area ANS	5a4
LoCo EOC	Mobilization	1a1
LoCo EOC	Direction and Control	1c1
LoCo EOC	Communications Equipment	1d1
LoCo EOC	Equipment and Supplies to Support Operations	1e1
LoCo EOC	Implementation of Emergency Worker Exposure Control	3a1
LoCo EOC	Implementation of PADs for disabilities & access/functional needs people	3c1
LoCo EOC	Implementation of PADs for Schools	3c2
LoCo EOC	Implementation of Traffic & Access Control	3d1
LoCo EOC	Impediments to Evacuation	3d2
LoCo EOC	Activation of the Prompt Alert & Notification System	5a1
LoCo EOC	Emergency Information & Instructions for the Public/Media	5b1
LoCo FMT	Communications Equipment	1d1
LoCo FMT	Equipment and Supplies to Support Operations	1e1
LoCo FMT	Implementation of Emergency Worker Exposure Control	3a1
LoCo FMT	Plume Phase Field Measurement, Handling, & Analyses	4a3
LoCo TCP/ACP	Communications Equipment	1d1
LoCo TCP/ACP	Equipment and Supplies to Support Operations	1e1
LoCo TCP/ACP	Implementation of Emergency Worker Exposure Control	3a1
LoCo TCP/ACP	Implementation of Traffic & Access Control	3d1
LoCo LoCoPS	Implementation of PADs for disabilities & access/functional needs people	3c1
LoCo LoCoPS	Implementation of PADs for Schools	3c2
LoCoHS LoCoSD	Implementation of PADs for Schools	3c2
OC BuRA	Communications Equipment	1d1
OC BuRA	Equipment and Supplies to Support Operations	1e1
OC BuRA	Implementation of Emergency Worker Exposure Control	3a1
OC BuRA	Activation of the Back-up ANS	5a3
OC EARA5-10	Communications Equipment	1d1
OC EARA5-10	Equipment and Supplies to Support Operations	1e1
OC EARA5-10	Implementation of Emergency Worker Exposure Control	3a1
OC EARA5-10	Activation of the Exception Area ANS	5a4
OC EOC	Mobilization	1a1
OC EOC	Direction and Control	1c1
OC EOC	Communications Equipment	1d1
OC EOC	Equipment and Supplies to Support Operations	1e1

OC EOC	Implementation of Emergency Worker Exposure Control	3a1
OC EOC	Implementation of PADs for disabilities & access/functional needs people	3c1
OC EOC	Implementation of PADs for Schools	3c2
OC EOC	Implementation of Traffic & Access Control	3d1
OC EOC	Impediments to Evacuation	3d2
OC EOC	Emergency Information & Instructions for the Public/Media	5b1
OC FMT	Mobilization	1a1
OC FMT	Communications Equipment	1d1
OC FMT	Equipment and Supplies to Support Operations	1e1
OC FMT	Implementation of Emergency Worker Exposure Control	3a1
OC FMT	Plume Phase Field Measurement, Handling, & Analyses	4a3
OC TCP/ACP	Communications Equipment	1d1
OC TCP/ACP	Equipment and Supplies to Support Operations	1e1
OC TCP/ACP	Implementation of Emergency Worker Exposure Control	3a1
OC TCP/ACP	Implementation of Traffic & Access Control	3d1
SpCo BuRA	Communications Equipment	1d1
SpCo BuRA	Equipment and Supplies to Support Operations	1e1
SpCo BuRA	Implementation of Emergency Worker Exposure Control	3a1
SpCo BuRA	Activation of the Back-up ANS	5a3
SpCo PARA0-5	Communications Equipment	1d1
SpCo PARA0-5	Equipment and Supplies to Support Operations	1e1
SpCo PARA0-5	Implementation of Emergency Worker Exposure Control	3a1
SpCo PARA0-5	Activation of the Prompt Alert & Notification System	5a1
SpCo EARA5-10	Communications Equipment	1d1
SpCo EARA5-10	Equipment and Supplies to Support Operations	1e1
SpCo EARA5-10	Implementation of Emergency Worker Exposure Control	3a1
SpCo EARA5-10	Activation of the Exception Area ANS	5a4
SpCo EOC	Mobilization	1a1
SpCo EOC	Direction and Control	1c1
SpCo EOC	Communications Equipment	1d1
SpCo EOC	Equipment and Supplies to Support Operations	1e1
SpCo EOC	Implementation of Emergency Worker Exposure Control	3a1
SpCo EOC	Implementation of PADs for disabilities & access/functional needs people	3c1
SpCo EOC	Implementation of PADs for Schools	3c2
SpCo EOC	Implementation of Traffic & Access Control	3d1
SpCo EOC	Impediments to Evacuation	3d2
SpCo EOC	Activation of the Prompt Alert & Notification System	5a1
SpCo EOC	Emergency Information & Instructions for the Public/Media	5b1
SpCo FMT	Mobilization	1a1
SpCo FMT	Communications Equipment	1d1
SpCo FMT	Equipment and Supplies to Support Operations	1e1
SpCo FMT	Implementation of Emergency Worker Exposure Control	3a1
SpCo FMT	Plume Phase Field Measurement, Handling, & Analyses	4a3
SpCo TCP/ACP	Communications Equipment	1d1
SpCo TCP/ACP	Equipment and Supplies to Support Operations	1e1
SpCo TCP/ACP	Implementation of Emergency Worker Exposure Control	3a1
SpCo TCP/ACP	Implementation of Traffic & Access Control	3d1
VA SEOC	Mobilization	1a1
VA SEOC	Communications Equipment	1d1

VA SEOC	Equipment and Supplies to Support Operations	1e1
VA SEOC	PADs for disabilities & access/functional needs people	2c1
VA SEOC	Implementation of KI PAD for Institutionalized Individuals/Public	3b1
VA SEOC	Implementation of Traffic & Access Control	3d1
VA SEOC	Activation of the Prompt Alert & Notification System	5a1
VA FMT1	Mobilization	1a1
VA FMT1	Communications Equipment	1d1
VA FMT1	Equipment and Supplies to Support Operations	1e1
VA FMT1	Implementation of Emergency Worker Exposure Control	3a1
VA FMT1	Plume Phase Field Measurement, Handling, & Analyses	4a3
VA FMT2	Mobilization	1a1
VA FMT2	Communications Equipment	1d1
VA FMT2	Equipment and Supplies to Support Operations	1e1
VA FMT2	Implementation of Emergency Worker Exposure Control	3a1
VA FMT2	Plume Phase Field Measurement, Handling, & Analyses	4a3
VA JIC/SAU	Mobilization	1a1
VA JIC/SAU	Facilities	1b1
VA JIC/SAU	Communications Equipment	1d1
VA JIC/SAU	Equipment and Supplies to Support Operations	1e1
VA JIC/SAU	Emergency Information & Instructions for the Public/Media	5b1
VDH/ORH	Mobilization	1a1
VDH/ORH	Direction and Control	1c1
VDH/ORH	Communications Equipment	1d1
VDH/ORH	Equipment and Supplies to Support Operations	1e1
VDH/ORH	Emergency Worker Exposure Control Decisions	2a1
VDH/ORH	Accident Assessment and PARs for the Emergency Event	2b1
VDH/ORH	Protective Action Decision Process and Coordination	2b2
MWH	Communications Equipment	1d1
MWH	Equipment and Supplies to Support Operations	1e1
MWH	Transportation/Treatment of Contaminated Injured Individuals	6d1
NAEOF VDHORH	Mobilization	1a1
NAEOF VDHORH	Direction and Control	1c1
NAEOF VDHORH	Communications Equipment	1d1
NAEOF VDHORH	Equipment and Supplies to Support Operations	1e1
NAEOF VDHORH	Emergency Worker Exposure Control Decisions	2a1
NAEOF VDHORH	Accident Assessment and PARs for the Emergency Event	2b1
NAEOF VDHORH	Field Team Management	4a2

### 3.3 Criteria Evaluation Summaries

#### 3.3.1 State Jurisdictions

##### 3.3.1.1 Commonwealth of Virginia Emergency Operations Center

In summary, the status of DHS/FEMA criteria for the State jurisdiction is as follows:

- a. MET: 1.a.1, 1.d.1, 1.e.1, 2.c.1, 3.b.1, 3.d.1, 5.a.1
- b. LEVEL 1 FINDINGS: NONE
- c. LEVEL 2 FINDINGS: THREE

**ISSUE NO:** 41-18-2b2-L2-02

**CRITERION:** Protective Action Decision Process and Coordination

**CONDITION:** When the PAD to evacuate zones out to 10 miles was expanded the protective action to shelter livestock and place them on stored feed and protected water was not included.

**POSSIBLE CAUSE:** Lack of coordination between the ESFs and Leadership.

**REFERENCE:** NUREG-0654/FEMA-REP-1, Rev. 1 A.3; C.4, 6; D.4; J.9; J.10.e, f, m

**EFFECT:** Agricultural products could be contaminated and consumed by the public.

**RECOMMENDATION:** Develop position checklists to ensure coordination between ESFs and Leadership.

**ISSUE NO:** 41-18-1c1-L2-03

**CRITERION:** Direction and Control

**CONDITION:** Boaters and campers were not notified in a timely manner of protective actions to close Lake Anna and Lake Anna State Park.

**POSSIBLE CAUSE:** Lack of coordination between ESFs, External Affairs and Leadership.

**REFERENCE:** NUREG-0654/FEMA-REP-1, A.1.d; A.2.a, b; A.3; C.4, 6; and Tab A to Appendix 1 Action Checklist, Commercial Nuclear Power Plant Accident Operations, Virginia Emergency Operations Center (VEOC).

**EFFECT:** Recreational boaters and campers would not be aware of protective actions and exposed to ionizing radiation.

**RECOMMENDATION:** Leadership should discuss protective actions to clear Lake Anna and close the State Park to ensure boaters and campers that require extra time to evacuate, are notified in a timely manner.

**ISSUE NO:** 41-18-1c1-L2-04

**CRITERION:** Direction and Control

**CONDITION:** Key decision makers did not make protective actions to restrict rail and airways.

**POSSIBLE CAUSE:** Lack of coordination between ESFs and Leadership.

**REFERENCE:** NUREG-0654/FEMA-REP-1, A.1.d; A.2.a, b; A.3; C.4, 6

**EFFECT:** Rail and air travel would be at risk for exposure to ionizing radiation.

**RECOMMENDATION:** Develop position checklists to ensure coordination between ESFs and Leadership.

d. PLAN ISSUES: ONE

**ISSUE NO:** 41-18-2b2-P-02

**CRITERION:** Protective Action Decision Process and Coordination

**CONDITION:** No action step in the checklist to clear Lake Anna and establish access control and close Lake Anna State Park.

**POSSIBLE CAUSE:** Omission of action step in checklist.

**REFERENCE:** NUREG-0654/FEMA-REP-1, A.3; C.4, 6; D.4; J.9; J.10.e, f, m; and Tab A to Appendix 1 Action Checklist, Commercial Nuclear Power Plant Accident Operations, Virginia Emergency Operations Center (VEOC).

**EFFECT:** Campers and boaters would not have adequate time to evacuate the area and potentially could be exposed to ionizing radiation.

**RECOMMENDATION:** Tab A to Appendix 1 Action Checklist, under 331, Site Area Emergency Actions, add Action Step to close Lake Anna State Park, clear Lake Anna of boaters and notify all marinas that the Lake is closed and to evacuate the area. Consider development of a boater's emergency preparedness brochure to be placed at all marinas at Lake Anna.

- e. PRIOR ISSUES: RESOLVED: NONE
- f. PRIOR ISSUES: UNRESOLVED: NONE

### **3.3.1.2 Joint Information Center/Situational Awareness Unit**

In summary, the status of DHS/FEMA criteria for the State jurisdiction is as follows:

- a. MET: 1.a.1, 1.b.1, 1.d.1, 1.e.1, 5.b.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

### **3.3.1.3 Virginia Department of Health/Office of Radiological Health**

In summary, the status of DHS/FEMA criteria for the State jurisdiction is as follows:

- a. MET: 1.a.1, 1.c.1, 1.d.1, 1.e.1, 2.a.1, 2.b.1, 2.b.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 Local EOF (VDH/ORH & VDEM)**

In summary, the status of DHS/FEMA criteria for the State jurisdiction is as follows:

- a. MET: 1.a.1, 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

#### **3.3.1.5 Virginia State Field Monitoring Team 1**

In summary, the status of DHS/FEMA criteria for the State jurisdiction is as follows:

- a. MET: 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

#### **3.3.1.6 Virginia State Field Monitoring Team 2**

In summary, the status of DHS/FEMA criteria for the State jurisdiction is as follows:

- a. MET: 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

#### 3.3.2.1 Caroline County Emergency Operations Center

In summary, the status of DHS/FEMA criteria for this Risk location is as follows:

- a. MET: 1.a.1, 1.c.1, 1.d.1, 1.e.1, 3.a.1, 3.c.1, 3.c.2, 3.d.1, 3.d.2, 5.b.1
- b. LEVEL 1 FINDINGS: NONE
- c. LEVEL 2 FINDINGS: NONE
- gg. PLAN ISSUES: ONE

**ISSUE NO:** 41-18-3a1-P-03

**CRITERION:** Implementation of Emergency Worker Exposure Control

**CONDITION:** 2018 Caroline County Radiological Emergency Response Plan and the Emergency Worker Protection Information Card do not adequately describe the correct or any dosage of KI.

**POSSIBLE CAUSE:** Failure to review final plans and documents against NUREG Guidelines.

**REFERENCE:** NUREG-0654/FEMA-REP-1, Rev 1, J.10.e; and Caroline County Radiological Emergency Response Plan, Pg. 19

#### *POTASSIUM IODIDE (KI)*

Used to protect your thyroid from radiation. Only take when instructed to. The State Health Commissioner or the local Health Director will provide instructions to take KI. Take 1 tablet per day for 10 days, unless told otherwise. If you are pregnant, nursing or allergic to iodine, do not take KI. VDH will determine the need to administer potassium iodide through the evaluation of projected dose and actual thyroid dose rates.

*Attachment 5, of ESF 6 section of the RERP "Worker Exposure Control-KI, Pg. 6-10".*

The Document does not specify dosage amount for the ingestion of KI.

#### *Emergency Worker Protection Information Card*

The KI Information on the card does not specify KI Dosage

**EFFECT:** With the distribution of 65mg KI tablets, the instructions may cause confusion and under dosing could endanger Emergency Workers who would be inadequately protected from Radioactive Iodine.

**RECOMMENDATION:** Revise the Caroline County Radiological Emergency Response Plan, Radiological Officer Briefing Documents, and Emergency Worker Protective action cards to detail the correct daily dosage of KI for Emergency Workers utilizing either 130mg or 65mg tablets.

**CORRECTIVE ACTION DEMONSTRATED:** Plan changes submitted on September 21, 2018 show the updated KI information stating "Only take a 130mg dose of KI equivalent to (2) 65mg tablets."

- e. PRIOR ISSUES: RESOLVED: NONE
- f. PRIOR ISSUES: UNRESOLVED: NONE

#### **3.3.2.2 Caroline County Field Team**

In summary, the status of DHS/FEMA criteria for this Risk location is as follows:

- a. MET: 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

#### **3.3.2.3 Caroline County Staging Area TCP/ACP**

In summary, the status of DHS/FEMA criteria for this Risk location is as follows:

- 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

#### **3.3.2.4 Caroline County Exception Area Route Alerting (5-10 miles)**

In summary, the status of DHS/FEMA criteria for this Risk location is as follows:

- a. MET: 1.d.1, 1.e.1, 3.a.1, 5.a.4
- b. LEVEL 1 FINDINGS: NONE
- c. LEVEL 2 FINDINGS: NONE
- d. PLAN ISSUES: NONE
- e. PRIOR ISSUES: RESOLVED: NONE
- f. PRIOR ISSUES: UNRESOLVED: NONE

#### **3.3.2.5 Caroline County Back-up Route Alerting**

In summary, the status of DHS/FEMA criteria for this Risk location is as follows:

- a. MET: 1.d.1, 1.e.1, 3.a.1, 5.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

#### **3.3.2.6 Caroline County Emergency Worker Monitoring/Decontamination Center, Caroline High School Evacuation Assembly Center**

In summary, the status of DHS/FEMA criteria for this Risk location is as follows:

- b. MET: 1.d.1, 1.e.1, 3.a.1, 6.b.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

### **3.3.2.7 Caroline County Mass Care Center, Caroline County High School Evacuation Assembly Center**

In summary, the status of DHS/FEMA criteria for this Risk location is as follows:

- c. MET: 1.c.1, 1.d.1, 1.e.1, 3.b.1, 6.c.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

### **3.3.2.8 Caroline County Reception Center, Caroline County High School Evacuation Assembly Center**

In summary, the status of DHS/FEMA criteria for this Risk location is as follows:

- d. MET: 1.b.1, 1.c.1, 1.d.1, 1.e.1, 3.a.1, 6.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

### **3.3.2.9 Caroline County Department of Fire Rescue (MS-1 Drill), Caroline County High School Evacuation Assembly Center**

In summary, the status of DHS/FEMA criteria for this Risk location is as follows:

- e. MET: 1.e.1, 3.a.1, 6.d.1
- b. LEVEL 1 FINDINGS: NONE
- c. LEVEL 2 FINDINGS: ONE

**ISSUE NO: 41-18-3a1-L2-01**

**CRITERION:** Implementation of Emergency Worker Exposure Control

**CONDITION:** During the required radiological briefing of Emergency Workers, the assigned Caroline County Exposure Control Officer (ECO) did not adequately deliver important safety information to members of the Caroline County Evacuation Assembly Center. Specifically, incorrect information regarding the reading and reporting of exposure limits was provided. In addition, the ECO failed to provide sufficient information regarding the ingestion and possible side-effects of KI. The ECO did not explain the necessary reasons why to ingest KI, correct dosage, or how often to ingest it. In addition, it was never stated for emergency workers to "refer to the instruction sheet" provided with your Potassium Iodide.

**POSSIBLE CAUSE:**

Inexperience of Exposure Control officer in delivering the briefing

**REFERENCE:** NUREG-0654/FEMA-REP-1, J.10.e; K.3.a, b; K.4

**EFFECT:** The delivered information could have resulted in misuse of exposure control limits, dosimetry, and Potassium Iodide

**RECOMMENDATION:** The Caroline County ECO agreed to re-demonstrate the RO Briefing stressing information about turn-back levels, the use of and potential side-effects of KI, as evidenced in follow-up interview with EW personnel.

**RE-DEMONSTRATION:** The ECO corrected the errors that were observed by the evaluator in the initial exposure control briefing to emergency workers. This Performance Issue is now closed

- d. PLAN ISSUES: NONE
- e. PRIOR ISSUES: RESOLVED: NONE
- f. PRIOR ISSUES: UNRESOLVED: NONE

**3.3.2.10 Hanover County Emergency Operations Center**

In summary, the status of DHS/FEMA criteria for this Risk location is as follows:

- a. MET: 1.a.1, 1.c.1, 1.d.1, 1.e.1, 3.a.1, 3.c.1, 3.c.2, 3.d.1, 3.d.2, 5.b.1
- b. LEVEL 1 FINDINGS: NONE
- c. LEVEL 2 FINDINGS: NONE

d. PLAN ISSUES: ONE

**ISSUE NO:** 41-18-3a1-P-04

**CRITERION:** Implementation of Emergency Worker Exposure Control

**CONDITION:** 2018 Hanover County Radiological Emergency Response Plan and the Emergency Worker Protection Information Card does not adequately describe the correct or any dosage of KI.

**POSSIBLE CAUSE:** Failure to review final plans and documents against NUREG Guidelines.

**REFERENCE:** NUREG-0654/FEMA-REP-1, Rev 1, J.10.e; and Hanover County Radiological Emergency Response Plan, Pg. 19

*POTASSIUM IODIDE (KI)*

Used to protect your thyroid from radiation. Only take when instructed to. The State Health Commissioner provides instructions to take KI. Take 1 dose per day for 10 days, unless told otherwise. If you are pregnant, nursing or allergic to iodine, do not take KI. VDH will determine the need to administer potassium iodide through the evaluation of projected dose and actual thyroid dose rates.

*Tab A of ESF 10 section of the REP "Radiological Officers Procedure"*

The Document does not specify dosage amount for the ingestion of KI.

*Emergency Worker Protection Information Card*

The KI Information on the card does not specify KI Dosage

**EFFECT:** With the distribution of 65mg KI tablets, the instructions may cause confusion and under dosing could endanger Emergency workers who would be inadequately protected from Radioactive Iodine.

**RECOMMENDATION:** Revise the Hanover County Radiological Emergency Response Plan, Radiological Officer Briefing Documents and Emergency Worker Protective action cards to detail the correct daily dosage of KI for Emergency workers utilizing either 130mg or 65mg tablets.

e. PRIOR ISSUES: RESOLVED: NONE

f. PRIOR ISSUES: UNRESOLVED: NONE

**3.3.2.11 Hanover County Field Team**

In summary, the status of DHS/FEMA criteria for this Risk location is as follows:

a. MET: 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

**3.3.2.12 Hanover County Staging Area TCP/ACP**

In summary, the status of DHS/FEMA criteria for this Risk location is as follows:

- 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

**3.3.2.13 Hanover County Exception Area Route Alerting (5-10 miles)**

In summary, the status of DHS/FEMA criteria for this Risk location is as follows:

- a. MET: 1.d.1, 1.e.1, 3.a.1, 5.a.4
- b. LEVEL 1 FINDINGS: NONE
- c. LEVEL 2 FINDINGS: NONE
- d. PLAN ISSUES: NONE
- e. PRIOR ISSUES: RESOLVED: NONE
- f. PRIOR ISSUES: UNRESOLVED: NONE

**3.3.2.14 Hanover County Back-up Route Alerting**

In summary, the status of DHS/FEMA criteria for this Risk location is as follows:

- a. MET: 1.d.1, 1.e.1, 3.a.1, 5.a.3
- b. LEVEL 1 FINDINGS: NONE
- c. LEVEL 2 FINDINGS: NONE
- d. PLAN ISSUES: ONE

**ISSUE NO:** 41-18-5a3-P-05

**CRITERION:** Activation of the Back-up ANS

**CONDITION:** The Hanover County Plan currently improperly identifies routes for primary route alerting and concurrently fails to properly identify exception area and back-up alerting routes.

**POSSIBLE CAUSE:** Oversight by the plan writers.

**REFERENCE:** NUREG-0654/FEMA-REP-1, Revision 1: E.6 and Appendix 3.B.2.c; and REP Program Manual, Radiological Emergency Preparedness, FEMA P-1028, January 2016, Assessment Area 5, Sub-element 5.a., pp 198-200

**EFFECT:** There is the possibility of residents not being alerted to the developing situation at the NAPS, thus placing those residents at risk.

**RECOMMENDATION:** Routes A and B, currently designated as primary alerting routes, and, Route C, currently designated as a back-up route, should be changed to: Exception Area Alerting Routes – those areas not covered by sirens and that are located 5-10 miles from the NAPS.

Currently, Routes A and B do not meet the definition of a route for primary alerting (0-5 miles) because they are wholly located within the 5-10-mile portion of the EPZ, thus they should be designated as an exception area alerting route.

Route C is also located wholly within the 5-10-mile portion of the EPZ and is not covered by the Siren No. 41 coverage area, thus should not be designated a back-up route, but should be designated an exception area alerting route.

While portions of Route A and B are within the coverage area of Siren No. 41, there are portions that are not covered by Siren No. 41, and the benefit of designating the entire routes as an exception area alerting route would enhance the opportunity of protecting the health and safety of the public. It would also preclude any requirement to provide back-up route alerting if Siren No. 41 fails to sound.

The portion of Route 715, Beaverdam Road, located within and running relatively along the diameter of the coverage circle of Siren No. 41, should be designated as



a back-up route in the event of a failure of Siren No. 41. It is currently not designated such, and in the event of a siren failure, those residents would most likely not be alerted to the developing emergency event at the NAPS.

- e. PRIOR ISSUES: RESOLVED: NONE
- f. PRIOR ISSUES: UNRESOLVED: NONE

### 3.3.2.15 Louisa County Emergency Operations Center

In summary, the status of DHS/FEMA criteria for this Risk location is as follows:

- a. MET: 1.a.1, 1.c.1, 1.d.1, 1.e.1, 3.a.1, 3.c.1, 3.c.2, 3.d.1, 3.d.2, 5.a.1, 5.b.1
- b. LEVEL 1 FINDINGS: NONE
- c. LEVEL 2 FINDINGS: NONE
- d. PLAN ISSUES: ONE

**ISSUE NO:** 41-18-3a1-P-06

**CRITERION:** Implementation of Emergency Worker Exposure Control

**CONDITION:** 2018 Louisa County Radiological Emergency Response Plan and the Emergency Worker Protection Information Card does not adequately describe the correct or any dosage of KI.

**POSSIBLE CAUSE:** Failure to review final plans and documents against NUREG Guidelines.

**REFERENCE:** NUREG-0654/FEMA-REP-1, Rev 1, J.10.e; and Louisa County Radiological Emergency Response Plan

#### *POTASSIUM IODIDE (KI)*

Used to protect your thyroid from radiation. Only take when instructed to. The State Health Commissioner or the local Health Director will provide instructions to take KI. Take 1 tablet per day for 10 days, unless told otherwise. If you are pregnant, nursing or allergic to iodine, do not take KI. VDH will determine the need to administer potassium iodide through the evaluation of projected dose and actual thyroid dose rates.

*Tab A of ESF 10 section of the REP "Radiological Officers Procedure"*

The document does not specify dosage amount for the ingestion of KI.

*Emergency Worker Protection Information Card*

The KI Information on the card does not specify KI dosage

**EFFECT:** With the distribution of 65mg KI tablets, the instructions may cause confusion and under dosing could endanger emergency workers who would be inadequately protected from radioactive iodine.

**RECOMMENDATION:** Revise the Louisa County Radiological Emergency Response Plan, Radiological Officer Briefing Documents and Emergency Worker Protective action cards to detail the correct daily dosage of KI for Emergency workers utilizing either 130mg or 65mg tablets.

**CORRECTIVE ACTION DEMONSTRATED:** Plan changes submitted on September 21, 2018 show the updated KI information stating "Only take a 130mg dose of KI equivalent to (2) 65mg tablets."

- e. PRIOR ISSUES: RESOLVED: NONE
- f. PRIOR ISSUES: UNRESOLVED: NONE

#### **3.3.2.16 Louisa County Field Team**

In summary, the status of DHS/FEMA criteria for this Risk location is as follows:

- a. MET: 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

#### **3.3.2.17 Louisa County Staging Area TCP/ACP**

In summary, the status of DHS/FEMA criteria for this Risk location is as follows:

- 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

**3.3.2.18 Louisa County Exception Area Route Alerting (5-10 miles)**

In summary, the status of DHS/FEMA criteria for this Risk location is as follows:

- a. MET: 1.d.1, 1.e.1, 3.a.1, 5.a.4
- b. LEVEL 1 FINDINGS: NONE
- c. LEVEL 2 FINDINGS: NONE
- d. PLAN ISSUES: NONE
- e. PRIOR ISSUES: RESOLVED: NONE
- f. PRIOR ISSUES: UNRESOLVED: NONE

**3.3.2.19 Louisa County Primary Area Route Alerting (0-5 miles)**

In summary, the status of DHS/FEMA criteria for this Risk location is as follows:

- a. MET: 1.d.1, 1.e.1, 3.a.1, 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

**3.3.2.20 Louisa County Back-up Route Alerting**

In summary, the status of DHS/FEMA criteria for this Risk location is as follows:

- a. MET: 1.d.1, 1.e.1, 3.a.1, 5.a.1
- b. LEVEL 1 FINDINGS: NONE
- c. LEVEL 2 FINDINGS: NONE
- d. PLAN ISSUES: ONE

**ISSUE NO: 41-18-5a3-P-07**

**CRITERION:** Activation of the Back-up ANS

**CONDITION:** The entire area requiring back-up route alerting in the event of a failure of Siren No. 63 (as shown in the North Anna Power Station – Siren and Backup Alerting Manual) is too large to be completed by one vehicle within a reasonable time.

**POSSIBLE CAUSE:** Planning for backup routes did not consider overlap from other sirens. Recent construction has added new roads; current plan is dated June 2014.

**REFERENCE:** NUREG-0654/FEMA-REP-1, E.6, Appendix 3.B.2.c

**EFFECT:** Residents residing in the affected areas may not be notified in a timely manner.

**RECOMMENDATION:** Maps and coverage for the entire North Anna Power Station – Siren and Backup Alerting Manual require extensive updating.

- e. PRIOR ISSUES: RESOLVED: NONE
- f. PRIOR ISSUES: UNRESOLVED: NONE

### 3.3.2.21 Louisa County School District

In summary, the status of DHS/FEMA criteria for this Risk location is as follows:

- a. MET: 3.c.2
- b. LEVEL 1 FINDINGS: NONE
- c. LEVEL 2 FINDINGS: NONE
- d. PLAN ISSUES: ONE

**ISSUE NO:** 41-18-3c2-P-01

**CRITERION:** Implementation of Protective Action Decisions (PADs) for Schools

**CONDITION:** The Louisa County School District Plan provides for all Louisa County schools to relocate to the Moss-Nuckols Elementary School. The space is inadequate for the 3,636 evacuated students, 580 students that attend Moss-Nuckols and staff. In addition, Moss Nuckols serves as an Evacuation Assembly Center (EAC) for general public evacuation. Also, the Plan does not account for

the approximate 50% of students that drive a personally owned vehicle to Louisa High School.

**POSSIBLE CAUSE:** Planners did not take into account the large numbers of students and population that would report to Moss Nuckols Elementary School.

**REFERENCE:** NUREG 0654 REP-1, Rev 1; C.1.a; J.9 (a) (b); and Louisa County Radiological Emergency Response Plan

**EFFECT:** Inadequate space and roadway infrastructure could potentially cause a delay transporting the children out of the EPZ, as well as a delay reunifying parents with children.

**RECOMMENDATION:** Revise the Louisa County School Plan to identify additional host schools to receive evacuated children

- e. PRIOR ISSUES: RESOLVED: NONE
- f. PRIOR ISSUES: UNRESOLVED: NONE

#### **3.3.2.22 Louisa County School District/Transportation Dependent Interview**

In summary, the status of DHS/FEMA criteria for this Risk location is as follows:

- a. MET: 3.c.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

#### **3.3.2.23 Louisa County High School**

In summary, the status of DHS/FEMA criteria for this Risk location is as follows:

- a. MET: 3.c.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

### 3.3.2.24 Orange County Emergency Operations Center

In summary, the status of DHS/FEMA criteria for this Risk location is as follows:

- a. MET: 1.a.1, 1.c.1, 1.d.1, 1.e.1, 3.a.1, 3.c.1, 3.c.2, 3.d.1, 3.d.2, 5.b.1
- b. LEVEL 1 FINDINGS: NONE
- c. LEVEL 2 FINDINGS: NONE
- d. PLAN ISSUES: ONE

**ISSUE NO:** 41-18-3a1-P-08

**CRITERION:** Implementation of Emergency Worker Exposure Control

**CONDITION:** 2018 Orange County Radiological Emergency Response Plan and the Emergency Worker Protection Information Card does not adequately describe the correct or any dosage of KI.

**POSSIBLE CAUSE:** Failure to review final plans and documents against NUREG Guidelines.

**REFERENCE:** NUREG-0654/FEMA-REP-1, Rev 1, J.10.e; and Orange County Radiological Emergency Response Plan, Pg. 4-12

#### *POTASSIUM IODIDE (KI)*

Only take a KI tablet when instructed to do so by your Radiological Officer. He is given these instructions by a Health Department medical doctor, who has analyzed the contents of the release from the nuclear power station. More than one tablet a day will not give you additional benefit and could easily harm you. If you think you are allergic to iodine, do not take KI.

*Attachment 4 of ESF Appendix 4 section of the REP "Radiological Officers Procedure"*

The Document does not specify dosage amount for the ingestion of KI.

#### *Emergency Worker Protection Information Card*

The KI Information on the card does not specify KI Dosage

**EFFECT:** With the distribution of 65mg KI tablets, the instructions may cause confusion and under dosing could endanger Emergency workers who would be inadequately protected from Radioactive Iodine.

**RECOMMENDATION:** Revise the Orange County Radiological Emergency Response Plan, Radiological Officer Briefing Documents and Emergency Worker Protective action cards to detail the correct daily dosage of KI for Emergency workers utilizing either 130mg or 65mg tablets.

**CORRECTIVE ACTION DEMONSTRATED:** Plan changes submitted on September 21, 2018 show the updated KI information stating "Only take a 130mg dose of KI equivalent to (2) 65mg tablets."

- e. PRIOR ISSUES: RESOLVED: NONE
- f. PRIOR ISSUES: UNRESOLVED: NONE

#### **3.3.2.25 Orange County Field Team**

In summary, the status of DHS/FEMA criteria for this Risk location is as follows:

- a. MET: 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

#### **3.3.2.26 Orange County Staging Area TCP/ACP**

In summary, the status of DHS/FEMA criteria for this Risk location is as follows:

- 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

### 3.3.2.27 Orange County Exception Area Route Alerting (5-10 miles)

In summary, the status of DHS/FEMA criteria for this Risk location is as follows:

- a. MET: 1.d.1, 1.e.1, 3.a.1, 5.a.4
- b. LEVEL 1 FINDINGS: NONE
- c. LEVEL 2 FINDINGS: NONE
- d. PLAN ISSUES: NONE
- e. PRIOR ISSUES: RESOLVED: NONE
- f. PRIOR ISSUES: UNRESOLVED: NONE

### 3.3.2.28 Orange County Back-up Route Alerting

In summary, the status of DHS/FEMA criteria for this Risk location is as follows:

- a. MET: 1.d.1, 1.e.1, 3.a.1, 5.a.3
- b. LEVEL 1 FINDINGS: NONE
- c. LEVEL 2 FINDINGS: NONE
- d. PLAN ISSUES: ONE

**ISSUE NO:** 41-18-5a3-P-09

**CRITERION:** Activation of the Back-up ANS

**CONDITION:** The North Anna Power Station – Siren and Backup Route Alerting Manual for Siren #5 provides incorrect driving instructions. Specifically, it states: "...Return to Orange Springs Road turn left and continue to Terry's Run Road (Rt. 651) ..." The Orange County Radiological Emergency Response Plan, 4-15 Appendix 4, Law Enforcement ESF Procedure 11/15, Appendix 4, Attachment 7, Route A incorrectly states: "...Return to the intersection of Orange Springs Road and Terrys Run Road (Rt. 651) turn left and ..."

**POSSIBLE CAUSE:** The route map was not verified for accuracy.

**REFERENCE:** NUREG-0654, FEMA-REP-1, E.6, b.; North Anna Power Station – Siren and Backup Route Alerting Manual; The Orange County



Radiological Emergency Response Plan, 4-15 Appendix 4, Law Enforcement ESF Procedure 11/15, Appendix 4, Attachment 7, Route

**EFFECT:** The entire population within the vicinity of failed siren #5 may not be alerted.

**RECOMMENDATION:** Although in this exercise the alert deputy recognized the error in the map instructions and self-corrected, a less experienced person may follow the driving instructions and not alert the public of the incident at North Anna Power Station. It is recommended that this route be revised and correct driving instructions inserted. A thorough review of all route alerts should also be initiated.

**CORRECTIVE ACTION DEMONSTRATED:** Plan changes submitted on September 21, 2018 specifically updated the route and the correct driving instructions were inserted.

- e. PRIOR ISSUES: RESOLVED: NONE
- f. PRIOR ISSUES: UNRESOLVED: NONE

### 3.3.2.29 Spotsylvania County Emergency Operations Center

In summary, the status of DHS/FEMA criteria for this Risk location is as follows:

- a. MET: 1.a.1, 1.c.1, 1.d.1, 1.e.1, 3.a.1, 3.c.1, 3.c.2, 3.d.1, 3.d.2, 5.a.1, 5.b.1
- b. LEVEL 1 FINDINGS: NONE
- c. LEVEL 2 FINDINGS: NONE
- d. PLAN ISSUES: ONE

**ISSUE NO:** 41-18-3a1-P-10

**CRITERION:** Implementation of Emergency Worker Exposure Control

**CONDITION:** 2018 Spotsylvania County Radiological Emergency Response Plan and the Emergency Worker Protection Information Card does not adequately describe the correct or any dosage of KI.

**POSSIBLE CAUSE:** Failure to review final plans and documents against NUREG Guidelines.

**REFERENCE:** NUREG-0654/FEMA-REP-1, Rev 1, J.10.e; Spotsylvania County Radiological Emergency Response Plan, Pg. 20

*POTASSIUM IODIDE (KI)*

Used to protect your thyroid from radiation. Only take when instructed to. The State Health Commissioner or the local Health Director will provide instructions to take KI. Take 1 tablet per day for 10 days, unless told otherwise. If you are pregnant, nursing or allergic to iodine, do not take KI. VDH will determine the need to administer potassium iodide through the evaluation of projected dose and actual thyroid dose rates.

*Tab A of ESF 10 section of the REP "Radiological Officers Procedure"*

The Document does not specify dosage amount for the ingestion of KI.

*Emergency Worker Protection Information Card*

The KI Information on the card does not specify KI Dosage

**EFFECT:** With the distribution of 65mg KI tablets, the instructions may cause confusion and under dosing could endanger Emergency workers who would be inadequately protected from Radioactive Iodine.

**RECOMMENDATION:** Revise the Spotsylvania County Radiological Emergency Response Plan, Radiological Officer Briefing Documents and Emergency Worker Protective action cards to detail the correct daily dosage of KI for Emergency workers utilizing either 130mg or 65mg tablets.

**CORRECTIVE ACTION DEMONSTRATED:** Plan changes submitted on September 21, 2018 show the updated KI information stating "Only take a 130mg dose of KI equivalent to (2) 65mg tablets."

- e. PRIOR ISSUES: RESOLVED: NONE
- f. PRIOR ISSUES: UNRESOLVED: NONE

**3.3.2.30 Spotsylvania County Field Team**

In summary, the status of DHS/FEMA criteria for this Risk location is as follows:

- a. MET: 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

**3.3.2.31 Spotsylvania County Staging Area TCP/ACP**

In summary, the status of DHS/FEMA criteria for this Risk location is as follows:

- 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

**3.3.2.32 Spotsylvania County Exception Area Route Alerting (5-10 miles)**

In summary, the status of DHS/FEMA criteria for this Risk location is as follows:

- a. MET: 1.d.1, 1.e.1, 3.a.1, 5.a.4
- b. LEVEL 1 FINDINGS: NONE
- c. LEVEL 2 FINDINGS: NONE
- d. PLAN ISSUES: NONE
- e. PRIOR ISSUES: RESOLVED: NONE
- f. PRIOR ISSUES: UNRESOLVED: NONE

**3.3.2.33 Spotsylvania County Primary Area Route Alerting (0-5 miles)**

In summary, the status of DHS/FEMA criteria for this Risk location is as follows:

- a. MET: 1.d.1, 1.e.1, 3.a.1, 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

### **3.3.2.34 Spotsylvania County Back-up Route Alerting**

In summary, the status of DHS/FEMA criteria for this Risk location is as follows:

- a. MET: 1.d.1, 1.e.1, 3.a.1, 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

### **3.3.3 Private Jurisdictions**

#### **3.3.4.1 Mary Washington Hospital**

In summary, the status of DHS/FEMA criteria for the Private jurisdiction is as follows:

- a. MET: 1.e.1, 3.a.1, 6.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

## SECTION 4: DEMONSTRATED STRENGTHS

### STATE JURISDICTIONS

#### Commonwealth of Virginia EOC

- After the activation of the Virginia EOC; the lead controller held a Player Briefing which established the rules of play as well as provided the staff with a refresh of specific NPP terms and how they affect the VEOC.

#### Virginia Department of Health/Office of Radiological Health SEOC

- The Commonwealth of Virginia has adopted the updated 2016 EPA PAG Manual to include the use of calculated child-thyroid dose in making protective action recommendations. They are a leader among States in making the transition to use the new FDA Guidelines and child-thyroid dose.

#### Local EOF (VDOH/ORH & VDEM)

- Good teamwork between VDEM and VDH staff in the LEOF.
- Effective interface with the NAPS staff in the LEOF.

### RISK JURISDICTIONS

#### Caroline County EOC

- The Caroline County Deputy Chief gave a very comprehensive initial briefing of the exercise expectation of the day.
- The Controller at Caroline County conducted an excellent PowerPoint presentation for the EOC staff at the beginning of the REP Exercise.

#### Hanover County EOC

- The Sheriff's Department personnel in the EOC and at the Staging Area showed excellent initiative in resolving a situation involving back-up route alerting.
- EOC Manager had outstanding command and control while learning the position.
- Hanover County EOC had double the normal operational staff due to using the event to train other personnel in new positions.

#### Orange County EOC

- During the demonstration for Route Alerting in Orange County, an Emergency Worker (EW) came across a downed tree blocking his route. He called it into the EOC and it took leadership a minute to realize that this wasn't an exercise inject, but a real world issue. The EW called the Orange County Fire Department to have the tree removed; and immediately took another route to complete his route alerting. He was still able to complete his route alerting in a timely manner.

#### Spotsylvania County EOC

- During the traffic impediment, a Spotsylvania County Fire Department member made the decision to provide a radiological officer's briefing, Potassium Iodide, and dosimetry to the responders and to the accident victim at the accident scene.

- Direction and Control by the Spotsylvania County EOC Manager was methodical and provided ongoing updates and look ahead on the potential radiological impacts to the county responder's and the general public.
- The Public Information Officer demonstrated exceptional coordination with the Public Inquiry Staff on filtering and addressing rumor trending. In particular, a rumor concerning ingestion of KI was addressed when the PIO contacted the Virginia JIC and State EOC staff for verification of a KI decision before drafting a News Release to the Spotsylvania County public to not ingest KI unless directed to by the Virginia Secretary of Health.

## SECTION 5: CONCLUSION

The Commonwealth of Virginia and local jurisdictions, except where noted in this report demonstrated knowledge of their Radiological Emergency Response Plans (RERP), and procedures were adequately implemented during the North Anna Power Station Plume exercise evaluated on July 17, 2018.

Federal Emergency Management Agency (FEMA) evaluators assessed 207 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 (4) four Level 2 Findings, (1) one successfully re-demonstrated on June 6, 2018, and (10) ten New Plan Issues, (5) five of the Plan Issues were successfully resolved on September 21, 2018.

Based on the results of the exercise and a review of the offsite radiological emergency response plans and procedures submitted, FEMA Region III 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.

## **APPENDIX A: EXERCISE TIMELINE**

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



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Emergency Classification Level or Event	Time Utility Declared	Time That Notification Was Received at the Listed Location								
		Virginia SEOC	VDH/ORH	JIC	LEOF	Caroline County EOC	Hanover County EOC	Louisa County EOC	Orange County EOC	Spotsylvania County EOC
Unusual Event										
Alert	0822	0831	0836	0831	0835	0833	0838	0830	0829	0829
Site Area Emergency	0949	0956	0955	0956	0950	0953	0956	0952	0952	0953
General Emergency	1051	1059	1053	1059	1052	1057	1056	1055	1055	1054
Start of Simulated Radiation Release	1051	1059	1055	1059	1051	1051	1056	1055	1055	1054
Terminated of Simulated Radiation Release	On-going	On-going	On-going	On-going	On-going	On-going	On-going	On-going	On-going	On-going
Facility Declared Operational		0922	0923	0922	0907	0840	0909	0832	0839	0900
Governor's Declaration of State of Emergency		0942	0948	0942	0945	0942	0942	0942	0948	1020
Exercise Terminated		1325	1325	1325	1330	1342	1245	1237	1237	1322
First Precautionary Action: Shelter animals and place on stored feed/covered water		1042	1120	1042		1110	1110	1110	1118	0841
First Protective Action: EVAC Sectors A, B, C; PAZs 4, 6, 8, 9, 10, 11, 12, 13, 14. up to 5 miles		1113	1120	1113	1113	1113	1113	1113	1113	1113
Siren Sounding		1121		1121		1124	1119	1122	1121	1120
EAS Message Broadcast		1125		1125		1126	1122	1126	1124	1123
Second Precautionary Action: Clear Lake Anna		1048	1048	1048						1048
Second Protective Action: EVAC PAZs: 4, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 18, 19, 20, 21, 22, 25, 0-5 360 degrees, up to 10 miles down wind		1148	1148	1148	1148	1148	1148	1148	1148	1148
Siren Sounding		1154	1154	1154	1154	1159	1153	1154	1154	1154
EAS Message Broadcast		1157	1157	1157	1157	1157	1157	1157	1157	1157

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Third Protective Actions: 10 mile/360, KI for all	1304	1304	1304						
Siren Sounding	1310		1310						
EAS Message Broadcast	1313		1313						
KI Decision: Emergency Workers	1304	1304	1304	1323	1323		1312	1312	1312
KI Decision: General Public	1304	1304	1304	1323			1312	1312	1312

## APPENDIX B: EXERCISE EVALUATORS AND TEAM LEADERS

The following is the list of Evaluators and Team Leaders for the North Anna Power Station 2018 Radiological Emergency Preparedness Plume Exercise evaluated on July 17, 2018. The following constitutes the managing staff for the Exercise Evaluation:

- Thomas Scardino, DHS/FEMA, Regional Assistance Committee (RAC) Chairman
- Lee Torres, DHS/FEMA, Project Officer and Site Specialist
- PJ Nied, ICF Regional Coordinator

DATE: 7/17/18

SITE: North Anna Power Station

LOCATION	TEAM LEADER	AGENCY
Caroline County Back-up Route Alerting	Tina Lai-Thomas	FEMA RIII
Caroline County Emergency Operations Center	Tina Lai-Thomas	FEMA RIII
Caroline County EW Mon/Decon Station (EAC), Caroline HS	Christopher Nemcheck	FEMA RIII
Caroline County Exception Area Route Alerting (5 - 10 Miles)	Tina Lai-Thomas	FEMA RIII
Caroline County Field Monitoring Team	Kenneth Wierman	FEMA HQ
Caroline County Mass Care Center (EAC), Caroline County High School	Thomas Scardino	FEMA RIII
Caroline County Reception Center (EAC), Caroline County High School	Tina Lai-Thomas	FEMA RIII
Caroline County Traffic and Access Control Points	Tina Lai-Thomas	FEMA RIII
Caroline County, Caroline County Dept. of Fire-Rescue	Patricia Gardner	FEMA RIII
Hanover County Back-up Route Alerting	Christopher Nemcheck	FEMA RIII
Hanover County Emergency Operations Center	Christopher Nemcheck	FEMA RIII
Hanover County Exception Area Route Alerting (5 - 10 Miles)	Christopher Nemcheck	FEMA RIII
Hanover County Field Monitoring Team	Kenneth Wierman	FEMA HQ
Hanover County Traffic and Access Control Points	Christopher Nemcheck	FEMA RIII
Louisa County Back-up Route Alerting	John Rice	FEMA R1
Louisa County Emergency Operations Center	John Rice	FEMA R1
Louisa County Primary Area Route Alerting (0 - 5 Miles)	John Rice	FEMA R1
Louisa County Exception Area Route Alerting (5-10 Miles)	John Rice	FEMA R1
Louisa County Field Monitoring Team	Kenneth Wierman	FEMA HQ
Louisa County Public Schools	Thomas Scardino	FEMA RIII
Louisa County Schools, Louisa High School	Christopher Nemcheck	FEMA RIII

Louisa County Traffic and Access Control Points	John Rice	FEMA R1
Mary Washington Hospital	Patricia Gardner	FEMA RIII
North Anna Local Emergency Operations Facility (VDH/ORH)	Kenneth Wierman	FEMA HQ
Orange County Back-up Route Alerting	William McDougall	FEMA RIII
Orange County Emergency Operations Center	William McDougall	FEMA RIII
Orange County Exception Area Route Alerting (5 - 10 Miles)	William McDougall	FEMA RIII
Orange County Field Monitoring Team	Kenneth Wierman	FEMA HQ
Orange County Traffic and Access Control Points	William McDougall	FEMA RIII
Spotsylvania County Back-up Route Alerting	Joseph Suders	FEMA RIII
Spotsylvania County Emergency Operations Center	Joseph Suders	FEMA RIII
Spotsylvania County Primary Area Route Alerting (0 - 5 Miles)	Joseph Suders	FEMA RIII
Spotsylvania County Exception Area Route Alerting (5 - 10 Miles)	Joseph Suders	FEMA RIII
Spotsylvania County Field Monitoring Team	Kenneth Wierman	FEMA HQ
Spotsylvania County Traffic and Access Control Points	Joseph Suders	FEMA RIII
Virginia Department of Emergency Management Joint Information Center/Situational Awareness Unit	Patricia Gardner	FEMA RIII
Virginia Department of Health, Office of Radiological Health	Kenneth Wierman	FEMA HQ
Virginia State Emergency Operations Center	Patricia Gardner	FEMA RIII
Virginia State Field Monitoring Team 1	Kenneth Wierman	FEMA HQ
Virginia State Field Monitoring Team 2	Kenneth Wierman	FEMA HQ

LOCATION	EVALUATOR	AGENCY
Caroline County Back-up Route Alerting	Henry Christiansen	ICF
Caroline County Emergency Operations Center	Barbara Thomas	FEMA RI
Caroline County Emergency Operations Center	Tina Lai-Thomas	FEMA RIII
Caroline County Emergency Operations Center	Roy Smith	ICF
Caroline County EW Mon/Decon Station (EAC), Caroline HS	Christopher Nemcheck	FEMA RIII
Caroline County Exception Area Route Alerting (5 - 10 Miles)	Robert Duggleby	ICF
Caroline County Field Monitoring Team	Deborah Blunt	ICF
Caroline County Mass Care Center (EAC), Caroline County High School	Thomas Scardino	FEMA RIII
Caroline County Reception Center (EAC), Caroline County High School	Lee Torres	FEMA RIII
Caroline County Reception Center (EAC), Caroline County High School	Tina Lai-Thomas	FEMA RIII
Caroline County Traffic and Access Control Points	Brian Clark	ICF
Caroline County, Caroline County Dept. of Fire-Rescue	Kathy Duran	FEMA RIII

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Hanover County Back-up Route Alerting	Clayton Spangenberg	ICF
Hanover County Emergency Operations Center	Helen LaForge	FEMA RII
Hanover County Emergency Operations Center	Kevin Malone	FEMA RII
Hanover County Emergency Operations Center	Christopher Nemcheck	FEMA RIII
Hanover County Exception Area Route Alerting (5 - 10 Miles)	Michael Burriss	ICF
Hanover County Field Monitoring Team	Michael Henry	ICF
Hanover County Traffic and Access Control Points	Paul Nied	ICF
Louisa County Back-up Route Alerting	Gary Goldberg	ICF
Louisa County Emergency Operations Center	John Rice	FEMA RII
Louisa County Emergency Operations Center	Kathy Duran	FEMA RIII
Louisa County Emergency Operations Center	Rebecca Thomson	ICF
Louisa County Primary Area Route Alerting (0 - 5 Miles)	Don Carlton	ICF
Louisa County Exception Area Route Alerting (5-10 Miles)	Carl Wentzell	ICF
Louisa County Field Monitoring Team	Keith Earnshaw	ICF
Louisa County Public Schools	Thomas Scardino	FEMA RIII
Louisa County Public Schools	Lee Torres	FEMA RIII
Louisa County Schools, Louisa High School	Christopher Nemcheck	FEMA RIII
Louisa County Traffic and Access Control Points	Kevin Reed	ICF
Mary Washington Hospital	Patricia Gardner	FEMA RIII
North Anna Local Emergency Operations Facility (VDH/ORH)	Reggie Rodgers	ICF
Orange County Back-up Route Alerting	Michele Skiermont	ICF
Orange County Emergency Operations Center	Miriam Weston	FEMA RII
Orange County Emergency Operations Center	Kerry Holmes	FEMA RIII
Orange County Emergency Operations Center	William McDougall	FEMA RIII
Orange County Exception Area Route Alerting (5 - 10 Miles)	Carol D. Shepard	ICF
Orange County Field Monitoring Team	Michael Shuler	FEMA RIII
Orange County Traffic and Access Control Points	James Hickey	ICF
Spotsylvania County Back-up Route Alerting	David Kayen	ICF
Spotsylvania County Emergency Operations Center	Joseph Suders	FEMA RIII
Spotsylvania County Emergency Operations Center	Larry Broockerd	FEMA HQ
Spotsylvania County Emergency Operations Center	Bruce Swiren	ICF
Spotsylvania County Primary Area Route Alerting (0 - 5 Miles)	Michael DeBonis	FEMA RII

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Spotsylvania County Exception Area Route Alerting (5 - 10 Miles)	Robert Walker	ICF
Spotsylvania County Field Monitoring Team	Thomas Reynolds	ICF
Spotsylvania County Traffic and Access Control Points	Paul Ringheiser	ICF
Virginia Department of Emergency Management/Joint Information Center/Situational Awareness Unit	Taneeka Hollins	FEMA RI
Virginia Department of Health, Office of Radiological Health	Marcy Campbell	ICF
Virginia State Emergency Operations Center	Patricia Gardner	FEMA RIII
Virginia State Emergency Operations Center	Lisa Hamilton	FEMA HQ
Virginia State Emergency Operations Center	Frank Cordaro	ICF
Virginia State Field Monitoring Team 1	Kenneth Wierman	FEMA HQ
Virginia State Field Monitoring Team 2	Jeff Clark	FEMA RVII

## APPENDIX C: ACRONYMS AND ABBREVIATIONS

ACRONYM	DESCRIPTION
ACP	Access Control Point
ALARA	As Low As Reasonably Achievable
ARC	American Red Cross
AREA	Amateur Radio Emergency Services
BURA	Back Up Route Alerting
CCES	Caroline County Emergency Services
CCPA	Caroline County Public Schools
CDE	Committed Dose Equivalent
CERC	Corporate Emergency Response Center
CERT	Community Emergency Response Team
CO	Communications Officer
CPM	Counts Per Minute
CST	Civil Support Team
DAC	Dose Assessment Coordinator
DAD	Digital Alarming Dosimeter
DHHS	Department of Health and Human Services
DOT	Department of Transportation
DRF	Dosimetry Record Form
EAC	Evacuation Assembly Center
EAL	Emergency Action Level
EARA	Exception Area Route Alerting
EAS	Emergency Alert System
EC	Emergency Coordinator
ECL	Emergency Classification Level
ECO	Exposure Control Officer
EMC	Emergency Management Coordinator
EMD	Emergency Management Director
EMnet	Emergency Management Network
EMS	Emergency Medical Services
EOC	Emergency Operations Center
EOF	Emergency Operations Facility
EOP	Extent of Play
EPA	Environmental Protection Agency
EPT	Exercise Planning Team
EPZ	Emergency Planning Zone
ER	Emergency Room
ESC	Emergency Services Coordinator
ESF	Emergency Support Function
ETA	Estimated Time of Arrival
EW	Emergency Worker

FD	Fire Department
FEMA	Federal Emergency Management Agency
FMT	Field Monitoring Team
FRMAC	Federal Radiological Monitoring Assessment Center
FTC	Field Team Coordinator
GE	General Emergency
GIS	Geographic Information System
HAN	Health Alert Network
HazMat	Hazardous Materials
HCSO	Hanover County School District
HCSO	Hanover County Sheriff's Office
HF	High Frequency
HSEEP	Homeland Security Exercise and Evaluation Program
IPZ	Ingestion Pathway Zone
IWP	Initial Warning Point
JIC	Joint Information Center
KI	Potassium Iodide
LCHD	Louisa County Health Department
LCSA	Louisa County Staging Area
LCSD	Louisa County School District
LEOF	Local Emergency Operations Facility
LHD	Local Health Department
MDDT	Mobile Data Display Terminal
MDT	Mobile Data Terminals
MHz	Megahertz
MIDAS	Meteorological Information Dose Assessment System
MS-1	Medical Services Hospital
MSEL	Master Scenario Events List
NAPS	North Anna Power Station
ORH	Office of Radiological Health
OSD	Optically Stimulated Dosimeter
PA	Public Affairs
PAD	Protective Action Decision
PAG	Protective Action Guidelines
PAR	Protective Action Recommendation
PAZ	Protective Action Zone
PD	Police Department
PDAFN	Persons with Disabilities/Access Functional Needs
PED	Personal Electronic Dosimeter
PIO	Public Information Officer
PPE	Personal Protective Equipment
PRA	Primary Route Alerting
PRD	Permanent Record Dosimeter
RAC	Regional Assistance Committee
RACES	Radio Amateur Civil Emergency Services



RAO	Radiation Assessment Officer
REA	Radiation Emergency Area
REC	Radiation Exposure Control
REP	Radiological Emergency Plan
RERP	Radiological Emergency Response Plans
RO	Radiological Officer
SA	Staging Area
SAC	Staging Area Coordinator
SAE	Site Area Emergency
SAIC	Science Applications International Corporation
SAU	Situational Awareness Unit
SC	Spotsylvania County
SCEOC	Spotsylvania County Emergency Operations Center
SEOC	State Emergency Operations Center
SERS	State Emergency Radio System
SFMT	State Field Monitoring Team
SOP	Standard Operating Procedure
SRO	School Resources Officer
STARS	Statewide Area Radio System
SWAN	State Warning Alert Notification
TCP	Traffic Control Point
VDEM	Virginia Department of Emergency Management
VEOC	Virginia Emergency Operation Center
VEST	Virginia Emergency Support Team
VHF	Very High Frequency

## **APPENDIX D: EXTENT OF PLAY AGREEMENT**

The 2018 North Anna Power Station Plume Exercise Extent-of-Play was negotiated and agreed upon by FEMA Region III, Virginia Department of Emergency Management, and the Emergency Management Agencies of the Risk Counties.

## METHOD OF OPERATION AND EXTENT OF PLAY

### 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; 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.

**State Negotiated Extent of Play:**

*The State will notify and mobilize appropriate response agencies which have responsibilities in the Virginia EOC, at the appropriate emergency classification level and in accordance with established plans and procedures in a timely manner. VDEM and ORH will provide staffing as per procedures. The State will demonstrate the capability to receive notification of an emergency situation from the licensee and verify notification. The State will demonstrate the activation of facilities for immediate use by mobilized personnel when they arrive to begin emergency operations. In all instances, the demonstration of a shift change is not required. 24-hour staffing will be demonstrated by means of a roster or staffing chart.*

**Pre-staging of personnel assigned to the VEOC for VOPEX18 is not allowed.** *Participants should report to their normal work location and wait for notification to report to the VEOC.*

**Staff assigned to the Local Emergency Operations Facility (LEOF) or backup facility may pre-position at a location nearby the facility but may not enter the facility until it is activated or they receive a notification message.**

**Risk and Host Jurisdictions Negotiated Extent of Play:**

*Local jurisdictions will notify and mobilize appropriate response agencies and key personnel assigned to the local EOCs and media centers, field workers and Evacuation Assembly Centers, (out of sequence) if activated, at the appropriate Emergency Classification Level (ECL) and as per procedures in a timely manner. **Pre-staging of personnel assigned to local EOC's for VOPEX18 is allowed.***

*The risk jurisdictions will demonstrate the capability to receive notification of an emergency situation from the licensee and verify notification. The risk and host jurisdictions will demonstrate the activation of facilities for immediate use by mobilized personnel when they arrive to begin emergency operations. In all instances, the demonstration of a shift change is not required. 24-hour staffing will be demonstrated by means of a roster or staffing chart. The evaluator will conduct an interview of how the facility would activate.*

**Outstanding Issues:** None

## Sub-element 1.b – Facilities

### Intent

This sub-element derives from NUREG-0654, which provides that Offsite Response Organizations (ORO) have facilities to support the emergency response.

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

### Assessment/Extent of Play

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

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.

### **State, Risk and Host Jurisdictions Negotiated Extent of Play:**

*This criteria will be evaluated as follows:*

Virginia Emergency Operations Center (VEOC) Situational Awareness Unit (SAU)

### **Out-of-Sequence Demonstrations:**

#### **Evacuation Assembly Centers (EACs):**

- Caroline County – Caroline High School

**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.

### **State Negotiated Extent of Play:**

*Overall direction and control of state activities will be demonstrated in the Virginia EOC, Local Emergency Operations Facility (LEOF) or backup LEOF and Joint Information Center (JIC). The Governor's representative or a simulated designee will be present and will simulate coordinating decisions with the Governor's Office. The State Coordinator or designee will demonstrate the ability to keep staff informed, hold briefings and coordinate activities with other offsite response organizations. Both the State and risk/host jurisdictions should ensure the completion of requirements and requests. Demonstration will be in accordance with plans and procedures.*

### **Risk and Host Jurisdictions Negotiated Extent of Play:**

*The emergency services coordinator or designee will demonstrate the ability to keep staff informed, hold briefings, and coordinate activities with other offsite response organizations. Risk and host jurisdictions should ensure the completion of requirements and requests. Demonstration will be in accordance with plans and procedures.*

**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.*

ORO 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.

### **State, Risk and Host Jurisdictions Negotiated Extent of Play:**

*This evaluation area will be demonstrated in all participating locations, in accordance with plans and procedures. OROs will demonstrate that a primary and at least one backup system are fully functional at the beginning of the exercise. Facility and field workers will have access to at least one communications system that is independent of commercial landline telephone.*

**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 location(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.

**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.

**State Negotiated Extent of Play:**

*State field monitoring teams will demonstrate this criterion according to their procedures. KI questions will be addressed through interviews.*

**Risk Jurisdictions Negotiated Extent of Play:**

*Appropriate emergency workers in the risk jurisdictions will demonstrate this criterion according to their procedures. Emergency workers, as appropriate, will receive KI according to their procedures and will be briefed or given information on its use. Included organizations will demonstrate the ability to develop and maintain lists of emergency workers who have ingested KI, including documentations of the date(s) and time(s) they were instructed to ingest KI.*

*Simulated KI can be used. Emergency workers will demonstrate through interview the basic knowledge of procedures for the use of KI whether or not the scenario drives the use of KI. Availability of appropriate equipment for traffic and access control personnel (vehicles, barriers, traffic cones and signs) will be described to the evaluator.*

**Out-of-Sequence Demonstrations:**

**Evacuation Assembly Centers (EACs):**

- *Caroline County – Caroline High School*  
*The EAC radiological officer will provide a briefing to demonstrate this evaluation area. Designated emergency worker personnel (non-shelter personnel) who are assigned to the EAC will be provided with a radiological briefing, dosimetry, and appropriate forms. They will demonstrate the reading and recording of their dosimeter according to their plans and procedures and demonstrate their knowledge of emergency worker exposure control. **Pre-staging is allowed for EAC demonstrations.***

**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 full scale, functional or tabletop exercise.*

ORO's 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.

#### **State Negotiated Extent of Play:**

*State field monitoring teams and mobile lab workers will demonstrate emergency worker exposure control, as per procedures. The State has established reporting, turn back, protecting valuable property, lifesaving, voluntary lifesaving, and KI administration levels based on EPA Guidance. Authorization to exceed the turnback limit must be given by the local Radiological Officer for emergency workers under their respective local jurisdictions. Authorization for the State Field Teams must be given by the State Field Team Coordinator. Local Radiological*

*Officers and the State Field Team Coordinator shall notify VDH at the State EOC whenever voluntary lifesaving has been authorized.*

*As appropriate, ORH will demonstrate the capability to make decisions on the distribution and administration of KI as a protective measure, based on plan and/or procedures relating to the protective action guides (PAGs) for KI administration.*

**Risk Jurisdictions Negotiated Extent of Play:**

*Risk Jurisdictions authorized to send emergency workers into the plume exposure pathway EPZ will demonstrate a capability to meet the criterion based on their emergency plans and procedures. The State has established reporting, turn back, protecting valuable property, lifesaving, voluntary lifesaving, and KI administration levels based on EPA Guidance. Authorization to exceed the turnback limit must be given by the local Radiological Officer for emergency workers under their respective local jurisdictions. As appropriate, risk jurisdictions will demonstrate the capability for the distribution and administration of KI, as a protective measure, based on the ORO's plan and/or procedures relating to the protective action guides (PAGs) for KI administration.*

**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 full-scale, functional 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.

**State Negotiated Extent of Play:**

*The initial Protective Action Recommendation (PAR) is based on plant conditions. Scenario driven doses may or may not exceed EPA PAGs, as the plant condition-based PAR will dictate the appropriate evacuation/sheltering recommendation.*

*Dose projections will be developed by the Office of Radiological Health at the LEOF or backup facility to confirm or modify, as necessary, the PAR in effect. The protective action recommendation will be forwarded from the LEOF or backup facility to the Virginia EOC with any information necessary to support the recommendation. If the scenario has no radiological release or potential of a radiological release, the decision-making process used to make protective action decisions can be addressed through an interview.*

**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 PAD 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.

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:**

*Decisions to evacuate and shelter any portion of the affected population will be demonstrated by the VDEM State Coordinator or his representative in the Virginia EOC. These decisions will be coordinated with risk jurisdictions. If the scenario has no radiological release, or potential of a radiological release, the decision-making process used to make protective action decisions can be addressed through an interview.*

*VDH decision makers will demonstrate the capability to make decisions on the distribution and administration of KI as a protective measure for the general public to supplement sheltering and/or evacuation.*

**Outstanding Issues:** None

## **Sub-element 2.c – PAD 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 PADs, 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: 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 actually 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.



**Risk Jurisdictions Negotiated Extent of Play:**

*Risk jurisdictions will have a school representative and social services representative available at their EOC. When dictated by events and according to procedures, officials will demonstrate what protective action decision they would make for schools located within the 10 mile EPZ, schools located outside of the 10 mile emergency planning zone (EPZ), yet have students residing within the 10 mile EPZ and for groups of persons with disabilities and access/functional needs. EOC representatives will consider relevant factors, such as weather, shelter availability and time evacuation estimates when determining what protective actions to recommend for special populations. EOC representatives will also consider relevant factors such as the availability of transportation assets, risk of evacuation vs. risk from the avoided dose, precautionary school evacuation, and the administration of KI in situations where an institutionalized population cannot be evacuated.*

**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's 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. ORO's 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.

OROs 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.

OROs 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 or not 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.

**State Negotiated Extent of Play:**

*State field monitoring teams will demonstrate this criterion according to their procedures. KI questions will be addressed through interviews. Emergency workers will demonstrate the basic knowledge of radiation exposure limits as specified in plans/procedures. Emergency workers will demonstrate procedures to monitor and record dosimeter readings and manage radiological exposure control describe the procedures to be followed when administrative exposure limits and turn-back values are reached.*

**Virginia Department of Radiological Health Negotiated Extent of Play:**

*The State Commissioner of Health (or designee) will determine whether and/or when to authorize the administration of KI to emergency workers.*

**Risk Jurisdictions Negotiated Extent of Play:**

*Appropriate emergency workers in the risk jurisdictions will demonstrate this criterion according to their procedures. Radiological Officers will be evaluated on their management (equipping*

and briefing) of field workers at the staging area location where field workers are equipped and briefed. Emergency workers, as appropriate, will receive KI according to their procedures and will be briefed or given information on its use. Included organizations will demonstrate the ability to develop and maintain lists of emergency workers who have ingested KI, including documentations of the date(s) and time(s) they were instructed to ingest KI. Simulated KI can be used. Emergency workers will demonstrate through interview the basic knowledge of procedures for the use of KI whether or not the scenario drives the use of KI. Emergency workers will demonstrate through interview the knowledge of exposure limits (reporting and turnback levels) and describe the procedures to be followed when administrative exposure limits and turn-back values are reached. At any time, players may ask other players or supervisors to clarify radiological information.

**Out-of-Sequence Demonstrations: Pre-staging is allowed for EAC demonstrations.**

**Evacuation Assembly Centers (EACs):**

- Caroline County – Caroline High School

The EAC radiological officer will provide a briefing to demonstrate this evaluation area. Emergency worker personnel who are assigned to the EAC will be provided with a radiological briefing, dosimetry, and appropriate forms. They will demonstrate the reading and recording of their dosimeter according to their plans and procedures and demonstrate their knowledge of emergency worker exposure control.

**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.

#### **Risk and Host Jurisdictions Negotiated Extent of Play:**

*Risk and host jurisdictions will have a sufficient quantity of KI on hand in their EOC or at some other storage location or be capable of demonstrating its availability through written documentation (inventory sheets or letter). The KI intended for use will not exceed the expiration date. **Implementation of KI use by the general public will be demonstrated out-of-sequence (see below).***

**Out-of-Sequence Demonstrations: Evacuation Assembly Centers (EACs):**

• *Caroline County – Caroline High School*

*Local personnel will demonstrate the activation and operation of their EAC. As part of this demonstration, the health department representatives at the EAC will demonstrate the implementation of the KI decision for the general public and the implementation of the KI distribution plan and health annex. Participating jurisdictions will provide their respective KI inventories for the general public at the EACs as well as the list of previously distributed KI. Health department representatives at the EAC will demonstrate the administration and distribution of the tablets (simulated). The process for distribution will be in accordance with ORO plans and procedures.*

**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.

#### **Risk Jurisdictions Negotiated Extent of Play:**

*Jurisdictions will demonstrate that a list of any persons with disabilities and access/functional needs within their portion of the 10-mile EPZ is maintained. If resources are needed to assist these individuals for areas included in the Protective Action Decision, the availability of these resources will be verified (e.g., through discussion and presentation of transportation methods or providers, available vehicles, etc.). Contact with any persons with disabilities and access/functional needs will be simulated. Contact with the transportation providers will occur in the EOC with transportation providers (e.g., rescue squad). All actual or simulated communications will be logged.*

**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, functional, or tabletop 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 actually 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.

The provisions of this criterion also apply to any private schools, private kindergartens, and licensed daycare centers that participate in REP exercises 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.

**Risk Jurisdiction Negotiated Extent of Play:**

**School District – Louisa County**  
**Louisa County School District – Transportation Dependent Interview**  
**Louisa County High School**

*This evaluation area will be demonstrated out-of-sequence on Tuesday, June 5, 2018 at 10 a.m. at Louisa County High School. Public school systems/districts will demonstrate the ability to make protective action decisions for students. Implementation procedures for closing schools, dismissing early or sheltering will be simulated by describing procedures to evaluators. The designated school will demonstrate, by discussion, the implementation of protective actions.*

*School demonstration activities will be initiated at the school administration/superintendent's office following notification (controller inject) that a simulated Alert was declared by the utility and the local Emergency Management Coordinator upon advice from the school representative at the local EOC has decided to close schools.*



*A FEMA evaluator will be located in the Superintendent's office or other school command location and will review the actions taken by the Superintendent/designee and school transportation officer in response to the notification. He/she will, in turn, simulate notifying the appropriate school representatives, i.e., the school principal or assistant principal at the designated school(s) in each jurisdiction of school protective action decision.*

*The actions taken by the Principal/designee (pre-staged at designated schools) will be evaluated. No students will be moved from the simulated schools. Actions will be taken according to school emergency response plans and procedures. Ability of participating schools to implement the school protective action decisions will be by interview. Designated schools will demonstrate, via interview, the capability to perform the following:*

- *Discuss the ability to implement the school protective action decision.*
- *Discuss procedure for students residing within the 10 mile EPZ who attend schools located outside 10 mile EPZ.*

***Movement of Transportation Dependent*** – *An interview at Louisa County High School will be conducted on June 5, 2018 at 10:00 a.m. with Louisa County to demonstrate the necessary protective actions for the movement of transportation dependent personnel located within the 10-mile EPZ. This interview may include discussions with responsible and appropriate county emergency management personnel, Transportation Officer or provider, bus driver, and Radiological Officer and include discussion concerning protective measures such as issue of dosimetry for bus drivers, turn back values, issue of (KI), resources, pick up points, pre-identified routes or maps, and relocation points in accordance with the OROs plans and procedures.*

***Radiological Officers will be available at the school district/superintendent's office to discuss their procedures regarding dosimetry and emergency worker exposure control.***

***Pre-staging is allowed for school district and school interviews.***

***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.*

ORO's 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. ORO's 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 ORO's 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.

#### **State Negotiated Extent of Play:**

*The Virginia EOC, driven by Protective Action Decisions will need to demonstrate the requesting of control of air, rail and waterways to the appropriate organizations. All communication will be simulated and logged. Traffic/Access Control personnel will not be deployed.*

#### **Risk Jurisdictions Negotiated Extent of Play:**

*Risk Jurisdictions, driven by the Protective Action Decision (PAD) to activate traffic control points and access control points will activate one traffic control point (TCP) and one access control point (ACP) simulated at the staging area. Both the TCP and the ACP will be established and held until evaluated. One unit (officer) will be provided to demonstrate this evaluation area. The personnel used to activate the TCP can also be the one to activate the*

*ACP. Risk jurisdictions will demonstrate the capability to provide instructions to traffic and access control staff on actions to take when modifications to protective action strategies necessitate change in evacuation patterns or in the area(s) where access is controlled.*

*The TCP/ACP officers will be knowledgeable of the following:*

- *Traffic Control*
- *Access Control*
- *Location of the EAC*
- *Dosimetry and exposure limits (reporting and turnback levels)*
- *Required Protective Actions*

*Demonstration dates/locations:*

***Emergency Operations Center (EOCs), July 17, 2018:***

- *Caroline County*
- *Hanover County*
- *Louisa County*
- *Orange County*
- *Spotsylvania County*

**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, as required by the scenario, to identify and take appropriate actions concerning impediments to evacuation. Actual dispatch of resources to deal with impediments, such as wreckers, need not be demonstrated; however, all contacts, actual or simulated, must be logged. The impediment must remain in place during the evacuation, does not necessarily need to occur on an evacuation route, and should be such that re-routing of traffic is required. The impediment should result in, and must remain in place long enough, for demonstration of the decision-making and coordination with the JIC to communicate the alternate route to evacuees leaving the area. 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.

### **Risk Jurisdictions Negotiated Extent of Play:**

*Risk jurisdiction Emergency Operations Centers will demonstrate the ability to identify and take appropriate actions concerning impediments to evacuation by inject or interview. Actual dispatch of resources to deal with impediments, such as tow trucks, need not be demonstrated;*

*however, simulated contacts will be logged. If the scenario does not lead to evacuation, the criteria shall be deemed complete if the ORO can describe to the evaluator the actions they would take to overcome a major traffic impediment during an evacuation and how such actions would be communicated to the public.*

**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.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.

ORO's must use Federal resources as identified in the NRF Nuclear/Radiological Incident Annex and other resources (e.g., compacts or the licensee). 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.

**Virginia Department of Health, Office of Radiological Health Negotiated Extent of Play:**

*Two State Field Monitoring Teams (FMT), consisting of at least two individuals per team, will be staged at the Cuckoo Residency Shop Staging area. The teams will communicate results, as necessary, to the ORH representative at the LEOF or backup facility. It should be noted that the overall monitoring effort is coordinated by ORH from the LEOF or backup facility. Field Monitoring Teams will be briefed prior to deployment in accordance with their procedures. **Pre-staging is allowed for state field monitoring teams.***

**Risk Jurisdictions Negotiated Extent of Play:**

*The following risk jurisdictions will deploy one FMT (at least two individuals per team) from the staging area within their jurisdiction:*

*Caroline County (evaluated)  
Hanover County (evaluated) - will be demonstrated at fire station #2  
Louisa County (evaluated)  
Orange County (evaluated)  
Spotsylvania County (evaluated)*

**Pre-staging is allowed for local field monitoring teams.**

*The Radiological Officer in all risk jurisdictions will provide a briefing, survey meters and appropriate forms to field monitors. The field monitoring team will be in contact with the Radiological Officer (RO). The field teams will report field readings to the R.O. who will then forward the appropriate information to the VDEM Radiological Protection Officer at the LEOF or backup facility. In addition, the R.O. will be responsible to inform the field teams, in a timely manner, all relevant information, including weather conditions, changes in wind direction, and all protective action decisions.*

**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.

ORO's must use Federal resources as identified in the NRF Nuclear/Radiological Incident Annex and other resources (e.g., compacts or the licensee). 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.

**Virginia Department of Health, Office of Radiological Health Negotiated Extent of Play:**

*Two State Field Monitoring Teams (FMT), consisting of at least two individuals per team, will be staged at the Cuckoo Residency Shop staging area and will operate according to their procedures. The teams will demonstrate the capability to make and report measurements to the field team coordinator. Teams will demonstrate taking and analyzing an air sample at the staging area. Emergency workers will be interviewed on their knowledge of the appropriate radiation level required to take an air sample.*

**Risk Jurisdictions Negotiated Extent of Play:**

*All risk jurisdictions will deploy one FMT, consisting of at least two individuals per team as directed by the VDEM State Radiological Protection Officer (RPO) at the LEOF or backup facility.*

*Teams will take measurements and operate according to their procedures. The controllers will have the necessary data to provide radiation levels to these teams. Note: Local field monitoring teams will not demonstrate the collection of air samples.*

**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
<b>Primary Alert and Notification</b>			
5.a.1 ... covering essentially 100% of 10 mile EPZ	X		
5.a.3 ... covering the 10-mile EPZ			X
<b>Backup Alert and Notification for All Incidents</b>			
5.a.4 ... for FEMA approved exception areas		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.

#### **Virginia Department of Emergency Management**

*Coordination will occur between the Virginia EOC and the affected counties with respect to the Alert and Notification System (ANS) process. Louisa County and Spotsylvania County have the control equipment for activation of sirens. 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. The Virginia EOC is the initiating point for the activation of the EAS. Regular Broadcasting will not be interrupted on the EAS Stations. Broadcast of the message(s) or test message(s) is **NOT** required and **NOT** requested. Following the decision to activate the alert and notification system, 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. Each risk county will demonstrate, by interview, route alerting of the hearing impaired residents within their jurisdiction. Hearing impaired notification teams will not be deployed.*

#### **Risk Jurisdiction Negotiated Extent of Play:**

*The following jurisdictions will demonstrate primary route alerting (one route) for areas not covered by sirens within the 0-5 mile radius. In addition, they will demonstrate the process for siren activation. Actual sounding of sirens will be simulated.*

- Louisa County
- Spotsylvania County

*This action is not subject to specific time requirements but must be completed within a timely manner.*

**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. OROs 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.

#### **Risk Jurisdictions Negotiated Extent of Play:**

*Backup route alerting will be demonstrated on July 17, 2018 during the evaluated drill.*

**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/water craft, 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.

**Risk Jurisdiction Negotiated Extent of Play:**

*The following jurisdictions will demonstrate exception area route alerting (one route) for areas not covered by sirens within the 5-10 mile radius:*

- *Caroline County*
- *Hanover County*
- *Louisa County*
- *Orange County*
- *Spotsylvania County*

*This route must be demonstrated within 45 minutes once the initial decision is made to notify the public of an incident.*

**Outstanding Issues:** None

## **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 responsible ORO personnel/representatives must demonstrate actions to provide emergency information and instructions to the public and media in a timely manner following the initial alert and notification (not subject to specific time requirements). 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.

**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.

**Virginia Department of Emergency Management Negotiated Extent of Play:**

*This evaluation area will be demonstrated at the JIC located at the Virginia EOC. The news releases will be coordinated and exchanged with local jurisdictions. Dissemination of news releases may be accomplished by the use of fax or other means. One simulated media briefing will be demonstrated at the JIC. JIC staff will explain to evaluators the procedures for identification of trends in rumors, misleading information, logging calls, and the process for referring callers to appropriate agencies for emergency information. A 2-1-1 call center will be staffed at one of the two call centers but will not be evaluated at the facility. Some calls will be designed so as to allow public inquiry staff to demonstrate the capability to identify trends in rumors (e.g., frequently expressed false or misleading information). The hotline staff will demonstrate the capability to provide or obtain accurate information for callers or refer them to an appropriate source. Information from the hotline staff, including information that correct false, or inaccurate information when trends are noted will be included as appropriate in emergency information provided to the public, media briefings and/or media releases. Public inquiry telephone number(s) will be designated and published at the appropriate time. Public information staff will simulate monitoring EAS broadcasts to determine whether false or misleading information is being disseminated to the public. Media monitoring equipment will be available. Since no actual exercise related broadcasts will be made, the media monitoring equipment will be tested for operability and the staff will demonstrate their capability to monitor area EAS stations. All subsequent emergency information and instruction will be*

*provided to the public and the media in a timely manner. All emergency information and instructions are consistent with protective action decisions made by appropriate officials. The emergency information will contain all necessary and applicable instructions (e.g. evacuation instructions, evacuation routes, reception center locations, what to take when evacuating, information concern pets, shelter in place, information concerning protective action for schools and special populations, public inquiry telephone numbers, etc. The State will demonstrate the capability to use familiar landmarks and boundaries to describe protective action areas. The emergency information will be all-inclusive by including previously identified protective actions areas that are still valid as well as new areas. The State will demonstrate the capability to ensure that emergency information that is no longer valid is rescinded and not repeated by broadcast media. The State will demonstrate the capability to ensure that current emergency information is repeated at pre-established intervals.*

**Risk and Host Jurisdictions Negotiated Extent of Play:**

*Risk and host jurisdictions will prepare news releases, as necessary and coordinate local information with the JIC. One simulated media briefing will be demonstrated. Each jurisdiction will establish a public inquiry phone line and will respond to calls. Some calls will be designed so as to allow public inquiry staff to demonstrate the capability to identify trends in rumors (e.g., frequently expressed false or misleading information). The public inquiry staff will demonstrate the capability to provide or obtain accurate information for callers or refer them to an appropriate source. Information from the hotline staff, including information that correct false, or inaccurate information when trends are noted will be included as appropriate in emergency information provided to the public, media briefings and/or media releases. Public inquiry number(s) will be designated and published according to each jurisdiction's procedures. Since no actual exercise related broadcasts will be made, the media monitoring equipment will be tested for operability and demonstration of reception on local EAS stations, however, continued monitoring will not be demonstrated.*

## 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 full-scale or functional exercise, 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 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

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. Waste water 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.

**Risk Jurisdictions Negotiated Extent of Play - Out-of-Sequence Demonstrations:**

**Evacuation Assembly Centers (EACs):**

- **Caroline County – Caroline High School**  
*The activated EAC will be set up according to established plans and procedures in a partial set-up to allow for exercise evaluation. However, the EAC will be staffed with adequate monitoring and decontamination personnel to allow exercise demonstration. **All EAC personnel may be prepositioned and actual facility setup (signs, equipment, etc.) may be begun prior to the start of the evaluated demonstration.** The EAC will monitor and register six persons consecutively. For demonstration purposes, these six persons can be emergency workers or EAC personnel acting as evacuees. The use of walk-through portal monitors will be demonstrated in all activated EACs. Evacuee decontamination procedures and the referral of individuals to a medical facility will be simulated through interview. The decontamination of one person will be demonstrated through controller inject. Monitoring of one evacuee vehicle will be demonstrated. Decontamination of one evacuee vehicle will be demonstrated via interview with the evaluator. Once the evacuees are monitored and found to be clean from contamination, sheltering staff will demonstrate the registration process.*

**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 full-scale or functional exercise, drills, 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. Waste water 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.

**Risk Jurisdictions Negotiated Extent of Play - Out-of-Sequence Demonstrations:**

**Evacuation Assembly Centers (EACs):**

- *Caroline County – Caroline High School*

*The activated EAC will be set up according to established plans and procedures in a partial set-up to allow for exercise evaluation. However, the EACs will be staffed with adequate monitoring and decontamination personnel to allow exercise demonstration. **All EAC personnel may be prepositioned and actual facility setup (signs, equipment, etc.) may be begun prior to the start of the evaluated demonstration.***

*The emergency workers and monitoring staff will demonstrate according to their plans and procedures the equipment tool drop and **monitoring of used appropriate field survey meters** being returned from the field. **A minimum of one emergency worker and one emergency worker vehicle will be monitored. The decontamination of one emergency worker vehicle will be demonstrated through interview.***

**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 full-scale or functional exercise, drills, 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.

**Risk Jurisdictions Negotiated Extent of Play:**

**Out-of-Sequence Demonstrations: Evacuation Assembly Centers (EACs):**

- *Caroline County – Caroline High School*

*This objective will be demonstrated by interview. For demonstration purposes of congregate care, bedding, cots, food, etc. normally associated with mass care need not be moved to the site. However, the source of these items will be explained to evaluators by an item and source list.*

**Pre-staging is allowed for EAC demonstrations.**

**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. If more than two medical facilities and transportation providers are designated as primary or backup, they are also evaluated biennially.

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

OROs 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. Monitoring of the victim may be performed before transport or en route, or may be deferred to the medical facility. 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.

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 activate and set up a radiological emergency area for treatment. 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. Waste water 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.

**Out-of-Sequence Demonstration, Pre-staging is allowed for all the medical services drill.**

**Tuesday, June 6, 2018 9:30 a.m.-1:30 p.m.**

*Caroline County Department of Fire-Rescue will demonstrate the ability to respond to a simulated injured/contaminated individual at North Anna Power Station requiring transport to Mary Washington Hospital. Contamination levels will be provided to EMS personnel by controller inject. EMS personnel will demonstrate appropriate contamination control measures before and during transport of the victim. Decontamination of the victim will be deferred to the medical facility due to injuries taking precedence over contamination. Dosimetry will be provided by the utility. Communications between the ambulance/dispatcher and the receiving medical facility should 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. Additionally, the ambulance crew should demonstrate, by interview, knowledge of where the ambulance and crew would be monitored and decontaminated, if required, or whom to contact for such information.*

*Mary Washington Hospital should demonstrate the capability to set up and activate a radiological area for treatment of the victim. Equipment and supplies will be available for the treatment of the contaminated/injured patient. The medical center should demonstrate the capability to make decisions on the need for decontamination of the patient. Monitoring and decontamination of the patient will be in accordance with plans and procedures.*

**Outstanding Issues:** None.

### Annex C: Participating Agencies

- Virginia Emergency Support Team (VEST)
  - Virginia Department of Emergency Management
  - Virginia Department of Health/Office of Radiological Health
  - Virginia Department of Agriculture and Consumer Services
  - Virginia Department of Transportation
  - Virginia Department of Social Services
  - Virginia State Police
  - Virginia Department of Military Affairs
- Risk-Area Jurisdictions
  - Caroline County
  - Hanover County
  - Louisa County
  - Orange County
  - Spotsylvania County
- 2-1-1 Virginia
- Mary Washington Hospital

**Addresses of Locations to be Evaluated**

Virginia EOC 7700 Midlothian Turnpike Richmond, VA 804-674-2400	Local Emergency Operations Facility (LEOF) North Anna Power Station 1022 Haley Drive Mineral, VA
Joint Information Center (JIC) Virginia EOC	<i>State Field Team 1 and 2 - Staging Area</i> Cuckoo Residency Shop Staging Area 11084 Jefferson Highway, Mineral, VA

<b>Local Emergency Operations Centers</b>	<b>Local Staging Areas</b>
Spotsylvania County EOC 9119 Dean Ridings Lane, Room 2270 Spotsylvania, VA 22553	Spotsylvania County Staging Area Fire Company 1 7200 Courthouse Commons Blvd. Spotsylvania, VA 22553
Caroline County EOC 17202 Richmond Turnpike Bowling Green, VA. 22427	Caroline Staging Area Ladysmith Volunteer Rescue Squad 18287 Jefferson Davis Highway Ladysmith, Virginia 22501
Louisa County EOC 1 Woolfolk Ave Louisa, VA 23093	Louisa County Staging Area Louisa County Fire/Rescue Training Center 12 Sacred Heart Avenue Mineral, VA 23117
Hanover County EOC Hanover County Fire Administration Bldg. 13326 Hanover Courthouse Rd.	Hanover County Staging Area Beaverdam Fire Station 16150 Trainham Road Beaverdam, VA 23015
Orange County EOC 112 West Main Street Gordon Building Basement Orange, VA 22960	Orange County Staging Area East Orange Ruritan Club 24124 Constitution Highway Unionville VA 22567

**Out-of-Sequence Demonstrations:**

<b>Demonstration</b>	<b>Date/Time</b>	<b>Participants</b>
MS-1 Exercise	Date: June 6, 2018 Time: 9:30 a.m.	Caroline County Dept. of Fire-Rescue Mary Washington Hospital
Louisa County School District with Transportation Interview	Date: June 5, 2018 Time: 10 a.m.	Louisa County S.D. and necessary support staff
Louisa Schools – Louisa county High School	Date: June 5, 2018 Time: 10 a.m.	Louisa County High School Principal or Representative
Evacuation Assembly Center (EAC) Exercise	Date: June 6, 2018 Time: 9:30 a.m.	Caroline High School



Virginia EOC 7700 Midlothian Turnpike Richmond, VA 804-674-2400
Joint Information Center (JIC) <i>Virginia EOC</i>
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