



North Anna Power Station Mineral, VA

After Action Report/Improvement Plan

Exercise Date – July 19, 2022

Radiological Emergency Preparedness (REP) Program



Published September 28, 2022

This page is intentionally blank.

North Anna Power Station

After Action Report/Improvement Plan

Published September 28, 2022

EXECUTIVE SUMMARY	5
SECTION 1: EXERCISE OVERVIEW	7
1.1 Exercise Details.....	7
1.2 Exercise Planning Team Leadership	7
1.3 Participating Organizations	8
SECTION 2: EXERCISE DESIGN SUMMARY	11
2.1 Exercise Purpose and Design	11
2.2 Exercise Objectives, Capabilities and Activities.....	12
2.3 Scenario Summary	13
SECTION 3: ANALYSIS OF CAPABILITIES.....	14
3.1 Exercise Evaluation and Results.....	14
3.2 Summary Results of Exercise Evaluation	14
3.3 Capability Target Evaluation Summaries	24
3.3.1 State Jurisdictions	24
3.3.2 Risk Jurisdictions.....	28
3.3.3 Private Jurisdictions	36
SECTION 4: DEMONSTRATED STRENGTHS	37
SECTION 5: CONCLUSION.....	39
APPENDIX A: EXERCISE TIMELINE.....	40
APPENDIX B: EXERCISE EVALUATORS AND TEAM LEADERS	42
APPENDIX C: ACRONYMS AND ABBREVIATIONS.....	44
APPENDIX D: EXTENT OF PLAY AGREEMENT	47

This page is intentionally blank.

EXECUTIVE SUMMARY

On July 19, 2022, a full participation 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 U.S. Department of Homeland Security (DHS) Federal Emergency Management Agency (FEMA), Region 3. The previous full-participation Plume Exercise at this site was evaluated on May 5, 2021.

Out-of-Sequence demonstrations were conducted on June 29-30, 2022. The purpose of the Exercise and Out-of-Sequence demonstrations was to assess the capabilities of State and counties to implement Radiological Emergency Response Plans (RERP) and Procedures to protect the property and lives of residents and transients in the event of an emergency at the 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 3 Regional Assistance Committee (RAC) Chairperson, and approved by FEMA Headquarters. These reports are provided to the Nuclear Regulatory Commission (NRC) and participating States. State and local governments utilize the findings contained in these reports for the purposes of planning, training, and improving emergency preparedness.

The evaluation of this exercise determined that there were no Level 1 Findings and two Level 2 Findings. One Level 2 Finding was successfully redemonstrated on June 30, 2022 and resolved. There were also three Plan Issues assessed during the exercise period. Two of the Plan Issues were resolved prior to the publishing of this report after FEMA received updated plans. The two resolved plan issues were assessed to the Spotsylvania County Backup Route Alerting and Hanover County Emergency Operations Center (EOC). Additionally, one Level 2 finding assessed to the Corporate Emergency Response Center (CERC)/Virginia Department of Emergency Management (VDEM) during the North Anna Power Station Exercise on May 4, 2021, was successfully resolved and one plan issue assessed to the CERC/VDEM during the Surry Power Station Exercise on October 26, 2021, was successfully closed.

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

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

Finally, a Plan Issue is: "An observed or identified inadequacy in the Offsite Response Organization's (ORO) 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 five risk counties of Caroline County, Hanover County, Louisa County, Orange

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

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

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

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

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

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

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

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

SECTION 1: EXERCISE OVERVIEW

1.1 Exercise Details

Exercise Name

North Anna Power Station Plume Exercise

Type of Exercise

Plume

Exercise Date

July 19, 2022

Program

Department of Homeland Security/FEMA Radiological Emergency Preparedness Program

Scenario Type

Radiological Release

1.2 Exercise Planning Team Leadership

Lee Torres

Emergency Management Specialist

DHS/FEMA Region 3

One Independence Mall, 6th Floor

615 Chestnut Street

Philadelphia, PA, 19106-4404

(202) 426-1455

Lee.torres@fema.dhs.gov

Jim Ninnis

Statewide Exercise Officer

Virginia Department of Emergency Management

9711 Farrar Court

North Chesterfield, VA. 23235

(804) 836-3421

James.Ninnis@vdem.virginia.gov

Travis Owens

Radiological Emergency Preparedness Program Manager

Virginia Department of Emergency Management

9711 Farrar Court

North Chesterfield, VA. 23235

(804) 263-4755

travis.owens@vdem.virginia.gov

Matthew Ettinger
Director, Environmental Monitoring & Emergency Preparedness Program
Virginia Department of Health-Office of Radiological Health
109 Governor Street
Richmond, VA 23219
(804) 201-8155
matthew.ettinger@vdh.virginia.gov

Steve Mazzola
Emergency Preparedness Specialist
Dominion - Nuclear Emergency Preparedness
5000 Dominion Boulevard
Glen Allen, VA 23060
(860) 204-6453
Steve.mazzola@dominionenergy.com

1.3 Participating Organizations

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

State Jurisdiction

Commonwealth of Virginia

- Virginia Department of Agriculture
- Virginia Department of Conservation and Natural Resources
- Virginia Department of Emergency Management
- Virginia Department of Health
- Virginia Department of Health Blue Ridge Health District (BRHD)
- Virginia Department of Health. Office of Radiological Health
- Virginia Department of Military Affairs
- Virginia Department of Public Works and Engineering
- Virginia Department of Social Services
- Virginia Department of Transportation
- Virginia Department of Wildlife and Resources
- Virginia National Guard
- Virginia State Field Team 1, Newport News Hazmat Team
- Virginia State Field Team 2, Newport News Fire Department
- Virginia State Police

Risk Jurisdictions

Caroline County

- Caroline County 911 Communication Center
- Caroline County Department of Fire-Rescue and Emergency Management
- Caroline County Dispatch
- Caroline County Public Schools
- Caroline County Public Schools Transportation
- Caroline County Sheriff's Office

- Caroline County Social Service
- Newport News Emergency Management Agency

Hanover County

- Hanover County Administrator's Office
- Hanover County Public Schools
- Hanover County Sheriff's Office
- Hanover Department of Public Works
- Hanover Department of Social Services
- Hanover Emergency Communications Center
- Hanover Fire-EMS
- Hanover Health Department
- Hanover Information Technology Department

Louisa County

- Louisa County Administration
- Louisa County Department of Human Services
- Louisa County Emergency Management
- Louisa County Fire and Emergency Services
- Louisa County High School
- Louisa County Mineral District Supervisor
- Louisa County Public Schools
- Louisa County Sheriff's Office

Orange County

- Orange County Bus Transportation
- Orange County Commissioners Office
- Orange County Communications Office
- Orange County Department of Social Services
- Orange County Emergency Communications Center (E-911)
- Orange County Fire and Emergency Medical Services (EMS)
- Orange County GIS
- Orange County Information Technology Department
- Orange County Office of Emergency Management
- Orange County Public Information Office
- Orange County Public Schools
- Orange County Sheriff's Department
- Orange County Sheriff's Office
- Orange County School District

Spotsylvania County

- Spotsylvania County Administration
- Spotsylvania County Community Engagement
- Spotsylvania County Department of Fire, Rescue and Emergency Management
- Spotsylvania County Department of Information Services

- Spotsylvania County Emergency Communications
- Spotsylvania County Post Oak Middle School
- Spotsylvania County Public Schools
- Spotsylvania County Sheriff's Office
- Spotsylvania County Social Services Department
- Spotsylvania County Virginia Cooperative Extension Office
- Spotsylvania County Volunteers in Police Service

Private/Volunteer Organizations

- Amateur Radio Emergency Service (ARES)
- American Red Cross
- Culpepper Amateur Radio Association (CARA/AREA/RACES)
- Dominion Energy
- Mary Washington Hospital
- Olson Group Limited
- Radio Amateur Civil Emergency Services (RACES)
- Virginia Cooperative Extension Office

Federal Organizations

- Federal Emergency Management Agency
- Nuclear Regulatory Commission

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 REP Program that was established following the Three Mile Island Nuclear Generating Station accident in March 1979.

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

- A. Taking the lead in offsite emergency planning and in the review and evaluation of Radiological Emergency Response Plans (RERPs) and procedures developed by State and local governments;
- B. Determining whether such plans and procedures can be implemented based on observation and evaluation of exercises conducted by State and local governments;
- C. Responding to requests by the U.S NRC pursuant to the Memorandum of Understanding between the NRC and FEMA dated December 7, 2015 (Federal Register, Vol. 81, No. 57, March 24, 2016); and
- D. Coordinating the activities of the following Federal agencies with responsibilities in the radiological emergency planning process:
 - U.S. Department of Commerce
 - U.S. Nuclear Regulatory Commission
 - U.S. Environmental Protection Agency
 - U.S. Department of Energy
 - U.S. Department of Health and Human Services
 - U.S. Department of Transportation
 - U.S. Department of Agriculture
 - U.S. Department of the Interior
 - U.S. Food and Drug Administration

Representatives of these agencies serve on the Region 3 RAC, which is Chaired by FEMA. A Radiological Emergency Preparedness (REP) Plume Exposure Pathway Exercise was conducted during the week of July 18, 2022, 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 NAPS. The purpose of this exercise report is to present the exercise results and findings on the performance of the Offsite Response Organizations (OROs) during a simulated radiological emergency. The findings presented in this report are based on the evaluations of the Federal evaluation team, with final

determinations made by the FEMA Region 3 RAC Chairperson and approved by FEMA Headquarters.

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

The Radiological Emergency Preparedness Exercise Methodology utilized in the FEMA evaluation process are contained in the following:

- NUREG-0654/FEMA-REP-1, Rev. 2, December 2019
- Radiological Emergency Preparedness Program Manual, December 2019

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. NAPS 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 2022 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 EPZ.

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

An essential capability of the REP Program 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 REP Program. School districts and selected schools demonstrated the capability to communicate and coordinate the collection, evacuation, transportation, and shelter of students attending schools within the EPZ. Provisions for students who live within the EPZ but attend school outside were also evaluated.

2.3 Scenario Summary

The meteorological conditions remain unchanged throughout the scenario. The wind direction was from 92 degrees, east to west, the wind speed was 16 miles per hour (mph) and the temperature was 75 degrees with a 0% chance of precipitation.

At 0800 the exercise begins. For the postulated event, the effected unit is Unit #1.

Unit #1 is operating at 100% power; Unit #2 is operating at 100% power.

At 0825 NAPS declares a NOTIFICATION OF UNUSAL EVENT Emergency Classification Level (ECL)

At 0845 NAPS declares an ALERT ECL. OROs mobilize personnel and staff emergency facilities.

At 1045 the NAPS declares a SITE AREA EMERGENCY with an airborne radiation release in progress, however, did not exceed EPA Protective Action Guidelines. OROs may make protective/precautionary actions in accordance with plans and procedures.

At 1149 NAPS declares a GENERAL EMERGENCY based on plant conditions and with an airborne radiation release in progress. The Licensee makes a Protective Action Recommendation (PAR) to the Commonwealth of Virginia. Decision makers consider the Licensee PAR and other factors and OROs consider protective actions based on plans and procedures.

At 1210 the Licensee makes an upgraded Protective Action Recommendation (PAR) to the Commonwealth of Virginia. Decision makers consider the additional PAR and make protective actions based on plans and procedures.

At 1447 the exercise was 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 19, 2022, Biennial Plume Exposure Pathway 10-mile EPZ REP Exercise. These exercises were 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 EPZ surrounding the North Anna Power Station.

Each jurisdiction and functional entity were evaluated based on its demonstration of the exercise objectives and capability targets contained in the REP Exercise Evaluation Methodology. Detailed information on the exercise evaluation objectives and capability targets 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 objectives and capability targets from the REP Program Manual that were scheduled for demonstration during this exercise by all participating jurisdictions and functional entities. Exercise evaluation objectives and capability targets are listed by number and the demonstration status of the capability targets is indicated using the following letters:

- (D) Demonstrated Strength: an observed action, behavior, procedure, and/or practice that is worthy of special notice and positive recognition, 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 near a 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 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 objectives and capability targets indicating that the ORO, for a justifiable reason, did not demonstrate the capability target, 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 capability target 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 Findings and Issues by Classification

Location	Target	Capability Target Description	Status
Commonwealth of Virginia Joint Information Center	3.3	Emergency Information for the Public and News Media	L2 - Open
Hanover County Emergency Medical Services (EMS)	5.3	Transportation and Treatment of Contaminated, Injured Individuals	L2 – Closed by Re-demonstration
Hanover County Emergency Operations Center (EOC)	3.3	Emergency Information for the Public and News Media	P - Closed
Commonwealth of Virginia Emergency Operations Center	1.4	Protective Action Decisions for the Plume Phase	P - Open
Spotsylvania County Backup Route Alerting	3.2	Alert and Notification of the Public	P - Closed

Table 3.1b Exercise Evaluation Assessments Met

Location	Target	Capability Target Description	Status
Objective 1: Emergency Operations Management			
Commonwealth of Virginia Emergency Operations Center	1.1	Mobilization	M
Virginia Joint Information Center (JIC)	1.1	Mobilization	M
Virginia Department of Health/Office of Radiological Health (VDH/ORH)	1.1	Mobilization	M
Virginia State Field Monitoring Team 1	1.1	Mobilization	M
Virginia State Field Monitoring Team 2	1.1	Mobilization	M
Corporate Emergency Response Center (CERC)	1.1	Mobilization	M
Caroline County Emergency Operations Center	1.1	Mobilization	M
Caroline County Backup Route Alerting	1.1	Mobilization	M
Caroline County Exception Area Route Alerting	1.1	Mobilization	M
Caroline County Traffic/Access Control	1.1	Mobilization	M
Caroline County Transportation Dependent	1.1	Mobilization	M
Hanover County Emergency Operations Center	1.1	Mobilization	M
Hanover County Backup Route Alerting	1.1	Mobilization	M
Hanover County Exception Area Route Alerting	1.1	Mobilization	M
Hanover County Traffic/Access Control	1.1	Mobilization	M
Hanover County Transportation Dependent	1.1	Mobilization	M

Unclassified
Radiological Emergency Preparedness Program (REP)

After Action Report/Improvement Plan

North Anna Power Station

Louisa County Emergency Operations Center	1.1	Mobilization	M
Louisa County Backup Route Alerting	1.1	Mobilization	M
Louisa County Primary Area Route Alerting	1.1	Mobilization	M
Louisa County Exception Area Route Alerting	1.1	Mobilization	M
Louisa County Traffic/Access Control	1.1	Mobilization	M
Louisa County Transportation Dependent	1.1	Mobilization	M
Orange County Emergency Operations Center	1.1	Mobilization	M
Orange County Backup Route Alerting	1.1	Mobilization	M
Orange County Exception Area Route Alerting	1.1	Mobilization	M
Orange County Traffic/Access Control	1.1	Mobilization	M
Orange County Transportation Dependent	1.1	Mobilization	M
Spotsylvania County Emergency Operations Center	1.1	Mobilization	M
Spotsylvania County Backup Route Alerting	1.1	Mobilization	M
Spotsylvania County Primary Area Route Alerting	1.1	Mobilization	M
Spotsylvania County Exception Area Route Alerting	1.1	Mobilization	M
Spotsylvania County Traffic/Access Control	1.1	Mobilization	M
Spotsylvania County Transportation Dependent	1.1	Mobilization	M
Spotsylvania County Reception Center/Evacuee Mon/Decon Center at Massaponax High School Evacuation Assembly Center (EAC)	1.1	Mobilization	M
Spotsylvania County Emergency Worker Mon/Decon Center at Massaponax High School Evacuation Assembly Center (EAC)	1.1	Mobilization	M
Spotsylvania County Mass Care Center at Massaponax High School Evacuation Assembly Center (EAC)	1.1	Mobilization	M
Commonwealth of Virginia Emergency Operations Center	1.2	Direction and Control	M
Virginia Joint Information Center (JIC)	1.2	Direction and Control	M
Virginia Department of Health/Office of Radiological Health (VDH/ORH)	1.2	Direction and Control	M
Virginia State Field Monitoring Team 1	1.2	Direction and Control	M

Unclassified
Radiological Emergency Preparedness Program (REP)

After Action Report/Improvement Plan

North Anna Power Station

Virginia State Field Monitoring Team 2	1.2	Direction and Control	M
Corporate Emergency Response Center	1.2	Direction and Control	M
Caroline County Emergency Operations Center	1.2	Direction and Control	M
Caroline County Backup Route Alerting	1.2	Direction and Control	M
Caroline County Exception Area Route Alerting	1.2	Direction and Control	M
Hanover County Emergency Operations Center	1.2	Direction and Control	M
Hanover County Backup Route Alerting	1.2	Direction and Control	M
Hanover County Exception Area Route Alerting	1.2	Direction and Control	M
Hanover County Emergency Medical Services (EMS)	1.2	Direction and Control	M
Louisa County Emergency Operations Center	1.2	Direction and Control	M
Louisa County Backup Route Alerting	1.2	Direction and Control	M
Louisa County Primary Area Route Alerting	1.2	Direction and Control	M
Louisa County Exception Area Route Alerting	1.2	Direction and Control	M
Orange County Emergency Operations Center	1.2	Direction and Control	M
Orange County Backup Route Alerting	1.2	Direction and Control	M
Orange County Exception Area Route Alerting	1.2	Direction and Control	M
Spotsylvania County Emergency Operations Center	1.2	Direction and Control	M
Spotsylvania County Backup Route Alerting	1.2	Direction and Control	M
Spotsylvania County Primary Area Route Alerting	1.2	Direction and Control	M
Spotsylvania County Exception Area Route Alerting	1.2	Direction and Control	M
Spotsylvania County Reception Center/Evacuee Mon/Decon Center at Massaponax High School Evacuation Assembly Center (EAC)	1.2	Direction and Control	M
Spotsylvania County Emergency Worker Mon/Decon Center at Massaponax High School Evacuation Assembly Center (EAC)	1.2	Direction and Control	M
Spotsylvania County Mass Care Center at Massaponax High School Evacuation Assembly Center (EAC)	1.2	Direction and Control	M
Mary Washington Hospital	1.2	Direction and Control	M

Unclassified
Radiological Emergency Preparedness Program (REP)

After Action Report/Improvement Plan

North Anna Power Station

Virginia Department of Health/Office of Radiological Health (VDH/ORH)	1.3	Protective Action Recommendations	M
Corporate Emergency Response Center	1.3	Protective Action Recommendations	M
Commonwealth of Virginia Emergency Operations Center	1.4	Protective Action Decisions for the Plume Phase	M
Virginia Department of Health/Office of Radiological Health (VDH/ORH)	1.4	Protective Action Decisions for the Plume Phase	M
Corporate Emergency Response Center	1.4	Protective Action Decisions for the Plume Phase	M
Commonwealth of Virginia Emergency Operations Center	1.5	Protective Action Decision Implementation for the Plume Phase	M
Caroline County Emergency Operations Center	1.5	Protective Action Decision Implementation for the Plume Phase	M
Caroline County Transportation Dependent	1.5	Protective Action Decision Implementation for the Plume Phase	M
Hanover County Emergency Operations Center	1.5	Protective Action Decision Implementation for the Plume Phase	M
Hanover County Transportation Dependent	1.5	Protective Action Decision Implementation for the Plume Phase	M
Louisa County Emergency Operations Center	1.5	Protective Action Decision Implementation for the Plume Phase	M
Louisa County Transportation Dependent	1.5	Protective Action Decision Implementation for the Plume Phase	M
Louisa County School District/Louisa County High School	1.5	Protective Action Decision Implementation for the Plume Phase	M
Orange County Emergency Operations Center	1.5	Protective Action Decision Implementation for the Plume Phase	M
Orange County Transportation Dependent	1.5	Protective Action Decision Implementation for the Plume Phase	M
Spotsylvania County Emergency Operations Center	1.5	Protective Action Decision Implementation for the Plume Phase	M
Spotsylvania County Transportation Dependent	1.5	Protective Action Decision Implementation for the Plume Phase	M
Spotsylvania County School District/Post Oak Middle School	1.5	Protective Action Decision Implementation for the Plume Phase	M
Objective 2: Exposure Control			
Virginia Department of Health/Office of Radiological Health (VDH/ORH)	2.1	Emergency Worker Exposure Control Decision-Making Process	M
Corporate Emergency Response Center	2.1	Emergency Worker Exposure Control Decision-Making Process	M
Virginia State Field Monitoring Team 1	2.2	Emergency Worker Exposure Control Management	M
Virginia State Field Monitoring Team 2	2.2	Emergency Worker Exposure Control Management	M
Caroline County Emergency Operations Center	2.2	Emergency Worker Exposure Control Management	M

Unclassified
Radiological Emergency Preparedness Program (REP)

After Action Report/Improvement Plan

North Anna Power Station

Caroline County Backup Route Alerting	2.2	Emergency Worker Exposure Control Management	M
Caroline County Exception Area Route Alerting	2.2	Emergency Worker Exposure Control Management	M
Caroline County Traffic/Access Control	2.2	Emergency Worker Exposure Control Management	M
Caroline County Transportation Dependent	2.2	Emergency Worker Exposure Control Management	M
Hanover County Emergency Operations Center	2.2	Emergency Worker Exposure Control Management	M
Hanover County Backup Route Alerting	2.2	Emergency Worker Exposure Control Management	M
Hanover County Exception Area Route Alerting	2.2	Emergency Worker Exposure Control Management	M
Hanover County Traffic/Access Control	2.2	Emergency Worker Exposure Control Management	M
Hanover County Transportation Dependent	2.2	Emergency Worker Exposure Control Management	M
Hanover County Emergency Medical Services (EMS)	2.2	Emergency Worker Exposure Control Management	M
Louisa County Emergency Operations Center	2.2	Emergency Worker Exposure Control Management	M
Louisa County Backup Route Alerting	2.2	Emergency Worker Exposure Control Management	M
Louisa County Primary Area Route Alerting	2.2	Emergency Worker Exposure Control Management	M
Louisa County Exception Area Route Alerting	2.2	Emergency Worker Exposure Control Management	M
Louisa County Traffic/Access Control	2.2	Emergency Worker Exposure Control Management	M
Louisa County Transportation Dependent	2.2	Emergency Worker Exposure Control Management	M
Orange County Emergency Operations Center	2.2	Emergency Worker Exposure Control Management	M
Orange County Backup Route Alerting	2.2	Emergency Worker Exposure Control Management	M
Orange County Exception Area Route Alerting	2.2	Emergency Worker Exposure Control Management	M
Orange County Traffic/Access Control	2.2	Emergency Worker Exposure Control Management	M
Orange County Transportation Dependent	2.2	Emergency Worker Exposure Control Management	M
Spotsylvania County Emergency Operations Center	2.2	Emergency Worker Exposure Control Management	M
Spotsylvania County Backup Route Alerting	2.2	Emergency Worker Exposure Control Management	M

After Action Report/Improvement Plan

North Anna Power Station

Spotsylvania County Primary Area Route Alerting	2.2	Emergency Worker Exposure Control Management	M
Spotsylvania County Exception Area Route Alerting	2.2	Emergency Worker Exposure Control Management	M
Spotsylvania County Traffic/Access Control	2.2	Emergency Worker Exposure Control Management	M
Spotsylvania County Transportation Dependent	2.2	Emergency Worker Exposure Control Management	M
Spotsylvania County Reception Center/Evacuee Mon/Decon Center at Massaponax High School Evacuation Assembly Center (EAC)	2.2	Emergency Worker Exposure Control Management	M
Spotsylvania County Emergency Worker Mon/Decon Center at Massaponax High School Evacuation Assembly Center (EAC)	2.2	Emergency Worker Exposure Control Management	M
Mary Washington Hospital	2.2	Emergency Worker Exposure Control Management	M
Objective 3: Alert and Notification			
Commonwealth of Virginia Emergency Operations Center	3.1	Communications	M
Virginia Joint Information Center (JIC)	3.1	Communications	M
Virginia Department of Health/Office of Radiological Health (VDH/ORH)	3.1	Communications	M
Virginia State Field Monitoring Team 1	3.1	Communications	M
Virginia State Field Monitoring Team 2	3.1	Communications	M
Corporate Emergency Response Center (CERC)	3.1	Communications	M
Caroline County Emergency Operations Center	3.1	Communications	M
Caroline County Backup Route Alerting	3.1	Communications	M
Caroline County Exception Area Route Alerting	3.1	Communications	M
Caroline County Traffic/Access Control	3.1	Communications	M
Caroline County Transportation Dependent	3.1	Communications	M
Hanover County Emergency Operations Center	3.1	Communications	M
Hanover County Backup Route Alerting	3.1	Communications	M
Hanover County Exception Area Route Alerting	3.1	Communications	M
Hanover County Traffic/Access Control	3.1	Communications	M
Hanover County Transportation Dependent	3.1	Communications	M
Louisa County Emergency Operations Center	3.1	Communications	M
Louisa County Backup Route Alerting	3.1	Communications	M

Unclassified
Radiological Emergency Preparedness Program (REP)

After Action Report/Improvement Plan

North Anna Power Station

Louisa County Primary Area Route Alerting	3.1	Communications	M
Louisa County Exception Area Route Alerting	3.1	Communications	M
Louisa County Traffic/Access Control	3.1	Communications	M
Louisa County Transportation Dependent	3.1	Communications	M
Orange County Emergency Operations Center	3.1	Communications	M
Orange County Backup Route Alerting	3.1	Communications	M
Orange County Exception Area Route Alerting	3.1	Communications	M
Orange County Traffic/Access Control	3.1	Communications	M
Orange County Transportation Dependent	3.1	Communications	M
Spotsylvania County Emergency Operations Center	3.1	Communications	M
Spotsylvania County Backup Route Alerting	3.1	Communications	M
Spotsylvania County Primary Area Route Alerting	3.1	Communications	M
Spotsylvania County Exception Area Route Alerting	3.1	Communications	M
Spotsylvania County Traffic/Access Control	3.1	Communications	M
Spotsylvania County Transportation Dependent	3.1	Communications	M
Spotsylvania County Reception Center/Evacuee Mon/Decon Center at Massaponax High School Evacuation Assembly Center (EAC)	3.1	Communications	M
Spotsylvania County Emergency Worker Mon/Decon Center at Massaponax High School Evacuation Assembly Center (EAC)	3.1	Communications	M
Spotsylvania County Mass Care Center at Massaponax High School Evacuation Assembly Center (EAC)	3.1	Communications	M
Commonwealth of Virginia Emergency Operations Center	3.2	Alert and Notification to the Public	M
Corporate Emergency Response Center (CERC)	3.2	Alert and Notification to the Public	M
Caroline County Emergency Operations Center	3.2	Alert and Notification to the Public	M
Caroline County Backup Route Alerting	3.2	Alert and Notification to the Public	M
Caroline County Exception Area Route Alerting	3.2	Alert and Notification to the Public	M

Unclassified
Radiological Emergency Preparedness Program (REP)

After Action Report/Improvement Plan

North Anna Power Station

Hanover County Emergency Operations Center	3.2	Alert and Notification to the Public	M
Hanover County Backup Route Alerting	3.2	Alert and Notification to the Public	M
Hanover County Exception Area Route Alerting	3.2	Alert and Notification to the Public	M
Louisa County Emergency Operations Center	3.2	Alert and Notification to the Public	M
Louisa County Backup Route Alerting	3.2	Alert and Notification to the Public	M
Louisa County Primary Area Route Alerting	3.2	Alert and Notification to the Public	M
Louisa County Exception Area Route Alerting	3.2	Alert and Notification to the Public	M
Orange County Emergency Operations Center	3.2	Alert and Notification to the Public	M
Orange County Backup Route Alerting	3.2	Alert and Notification to the Public	M
Orange County Exception Area Route Alerting	3.2	Alert and Notification to the Public	M
Spotsylvania County Emergency Operations Center	3.2	Alert and Notification to the Public	M
Spotsylvania County Backup Route Alerting	3.2	Alert and Notification to the Public	M
Spotsylvania County Primary Area Route Alerting	3.2	Alert and Notification to the Public	M
Spotsylvania County Exception Area Route Alerting	3.2	Alert and Notification to the Public	M
Caroline County Emergency Operations Center	3.3	Emergency Information and Instructions for the Public and News Media	M
Hanover County Emergency Operations Center	3.3	Emergency Information and Instructions for the Public and News Media	M
Louisa County Emergency Operations Center	3.3	Emergency Information and Instructions for the Public and News Media	M
Orange County Emergency Operations Center	3.3	Emergency Information and Instructions for the Public and News Media	M
Spotsylvania County Emergency Operations Center	3.3	Emergency Information and Instructions for the Public and News Media	M
Objective 4: Detect, Measure, Sample, Analyze, and Assess			
Corporate Emergency Response Center (CERC)	4.1	Field Monitoring Teams Management	M
Virginia State Field Monitoring Team 1	4.2	Plume Phase Measurements and Sampling	M
Virginia State Field Monitoring Team 2	4.2	Plume Phase Measurements and Sampling	M
Corporate Emergency Response Center (CERC)	4.5	Plume Phase Analysis and Dose Assessment	M
Objective 5: Operate			

After Action Report/Improvement Plan

North Anna Power Station

Spotsylvania County Reception Center/Evacuee Mon/Decon Center at Massaponax High School Evacuation Assembly Center (EAC)	5.1	Monitoring, Decontamination, Sheltering, and Registration of Evacuees	M
Spotsylvania County Mass Care Center at Massaponax High School Evacuation Assembly Center (EAC)	5.1	Monitoring, Decontamination, Sheltering, and Registration of Evacuees	M
Spotsylvania County Emergency Worker Mon/Decon Center at Massaponax High School Evacuation Assembly Center (EAC)	5.2	Monitoring and Decontamination of Emergency Workers, Equipment, and Vehicles	M
Hanover County Emergency Medical Services (EMS)	5.3	Transportation and Treatment of Contaminated, Injured Individuals	M
Mary Washington Hospital	5.3	Transportation and Treatment of Contaminated, Injured Individuals	M
Commonwealth of Virginia Emergency Operations Center	5.4	Traffic and Access Control	M
Caroline County Emergency Operations Center	5.4	Traffic and Access Control	M
Caroline County Traffic/Access Control	5.4	Traffic and Access Control	M
Hanover County Emergency Operations Center	5.4	Traffic and Access Control	M
Hanover County Traffic/Access Control	5.4	Traffic and Access Control	M
Louisa County Emergency Operations Center	5.4	Traffic and Access Control	M
Louisa County Traffic/Access Control	5.4	Traffic and Access Control	M
Orange County Emergency Operations Center	5.4	Traffic and Access Control	M
Orange County Traffic/Access Control	5.4	Traffic and Access Control	M
Spotsylvania County Emergency Operations Center	5.4	Traffic and Access Control	M
Spotsylvania County Traffic/Access Control	5.4	Traffic and Access Control	M

Table 3.1c – 2021 Prior Issues Resolved

Location	Target	Capability Target Description	Status
Corporate Emergency Response Center (CERC) (VDEM)	4.1	Field Monitoring Teams Management	L2 – Closed
Corporate Emergency Response Center (CERC) (VDEM)	2.1	Emergency Worker Exposure Control Decision Making Process	P - Closed

3.3 Capability Target Summaries

3.3.1 State Jurisdictions

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

3.3.1.1 Commonwealth of Virginia Emergency Operations Center (EOC)

- a. Met: 1.1, 1.2, 1.4, 1.5, 3.1, 3.2, 5.4
- b. Level 1 Findings: NONE
- c. Level 2 Findings: NONE
- d. Plan Issues: ONE

LOCATION: Commonwealth of Virginia Emergency Operations Center

ISSUE NO: 41-22-1.4-P-01

CAPABILITY TARGET: Protective Action Decisions for the Plume Phase.

CONDITION: The Virginia State Emergency Operations Center process for protective action decisions during the accident scenario led to a period of about 60 minutes from the start of the major radiological release to the issuance of the Emergency Alert System message for evacuation of the affected areas.

Considerable time was taken to select the protective action zones to match the downwind keyhole protective action recommendation from the North Anna Power Station.

POSSIBLE CAUSE: The Virginia State Emergency Operations Center process for protective action decisions during the accident scenario was not in accordance with the recommended planning process in accordance with the planning standards in NUREG-0654-REP-1, Rev. 2, December 2019. The Commonwealth plans and procedures do not provide a preplanned, initial protective action that, for an incident involving actual or significant potential for offsite consequence, could be issued immediately without waiting for release rate information, dose projections or environmental measurements. Later, if necessary, an extended protective action decision can be issued based on radiological considerations.

REFERENCE: NUREG-0654/FEMA-REP-1, Rev. 2: (D.1.b, D.4, J.6, J.7, J.8, J.8.b, J.10, J.10.a, J.10.b, J.11.c-g, and O.1), Commonwealth of Virginia Radiological Emergency Response Plan, April 2022, Rev. 0, Appendix 5 Tab A, Evacuation Time Estimate Studies.

EFFECT: The longer it takes to notify the public of a protective action decision the greater the risk especially with a significant radiological release with high offsite dose consequence. In this exercise, the downwind offsite exposure rate offsite was calculated to be 790 and 430 mR/hour at one and two miles respectively. The child thyroid dose rate at two miles was calculated to be about 360 mR/hr. This means that adding an extra 60 minutes to the evacuation implementation time was not in the best interests of the public health and safety.

In addition, implementation of the evacuation decision takes time. The North Anna Evacuation Time Estimate Study identified that it would take three hours 20 minutes to evacuate 90 percent of the population in the 2-mile ring, and six hours and 30 minutes to evacuate 100 percent of the population in the 2-mile ring.

RECOMMENDATION: The Commonwealth of Virginia should implement a Protective Action Decision Process based on the recommendation in the FEMA REP Manual Part 2, Planning Standard J. It is recommended that a 2-mile ring be the Governor or designee's initial pre-planned protective action decision for an event with a significant radiological release with high offsite consequence. This would be based on plant conditions and there should be no need to wait for the NAPS or State Department of Health protective action recommendation based on radiological considerations. Utilizing the ring approach is preferred to the keyhole approach as it avoids the time-consuming process of picking the protective action zones for the event specific downwind direction. Also, traffic and access control points can be pre-planned for this protective action decision.

- e. Prior Issues – Resolved: TWO
- f. Prior Issues - Unresolved: NONE

3.3.1.2 Commonwealth of Virginia Joint Information Center

- a. Met: 1.1, 1.2, 3.1
- b. Level 1 Findings: NONE
- c. Level 2 Findings: ONE

LOCATION: Commonwealth of Virginia Joint Information Center

ISSUE NO: 41-22-3.3-L2-01

CAPABILITY TARGET: Emergency Information and Instructions for the Public and News Media.

CONDITION:

1. The Virginia Department of Emergency Management (VDEM) Director of Communications and Chief Agency Spokesperson did not consider dissemination of press releases for the following actions, in accordance with procedures:
 - Closure of Lake Anna (Department of Wildlife Resources [DWR]/Department of Conservation and Recreation [DCR]) – **NAPS Only**
 - Flight restrictions (Federal Aviation Administration [FAA]/Virginia Department of Aviation [DOAV])
 - Rail service termination (AMTRAK, CSX, Norfolk Southern)
 - State parks closure news release(s) as needed (Department of Wildlife Resources [DWR]/Department of Conservation and Recreation [DCR]).
2. During the media briefing, scheduled at 1335, the VDEM Chief Agency Spokesperson did not speak to traffic impediments on evacuation routes, did not coordinate with local governments in the preparation and dissemination

of news releases, and provided inaccurate information regarding pets at Evacuation Assembly Centers (EACs).

POSSIBLE CAUSE: Procedures for dissemination of press releases were not adhered to. Relevant information was either not conveyed or inaccurate during the media briefing.

REFERENCE: NUREG-0654/FEMA-REP-1, Rev. 2: (A.4, C.2.a, G.1, J.11, J.11a, J.11.b, J.11.c, J.11.d, J.11.e, J.11.g, J.13, J.13.f and O.1), Commonwealth of Virginia Radiological Emergency Response Plan, Appendix 9, External Affairs and Public Information, Section III, A and B, IV. B2, B4a-g, B6, B9.

EFFECT: The public would not receive timely and accurate information causing confusion and roadway congestion, further delaying the evacuation process.

RECOMMENDATION: The following recommendations should be considered:

- Adequate direction and control should be exerted over the public information function.
 - Designate a public information staff member to oversee the receipt and coordination of local news releases received at VDEM to ensure message is timely and accurate.
 - Create a procedure for the coordination effort between the counties and the State to address messaging coordination with locals.
 - Create a procedure to coordinate local traffic impediment reroutes with the VDEM public information for dissemination to the media and public.
- 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 (VDH/ORH)

- a. Met: 1.1, 1.2, 1.3, 1.4, 2.1, 3.1
- b. Level 1 Findings: NONE
- c. Level 2 Findings: NONE
- d. Plan Issues: NONE
- e. Prior Issues - Resolved: NONE
- f. Prior Issues - Unresolved: NONE

3.3.1.4 Virginia State Field Monitoring Team 1

- a. Met: 1.1, 1.2, 2.2, 3.1, 4.2
- 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 2

- a. Met: 1.1, 1.2, 2.2, 3.1, 4.2
- b. Level 1 Findings: NONE
- c. Level 2 Findings: NONE
- d. Plan Issues: NONE
- e. Prior Issues - Resolved: NONE
- f. Prior Issues - Unresolved: NONE

3.3.1.6 Corporate Emergency Response Center (VDEM/VDH/ORH)

- a. Met: 1.1, 1.2, 1.3, 1.4, 2.1, 3.1, 3.2, 4.1, 4.5
- b. Level 1 Findings: NONE
- c. Level 2 Findings: NONE
- d. Plan Issues: NONE
- e. Prior Issues - Resolved: TWO

ISSUE NO: 41-21-4a2(4.1)-L2-01

CAPABILITY TARGET: Field Monitoring Teams Management

CONDITION: At 1140, a revised dosimeter-to-TEDE correction factor of 25 was calculated, which changed the Reporting Limit of 1.5R to 120 mR and the Turn-Back Limit from 2.5R to 200 mR. The VDEM Assistant State On-Scene Coordinator posted the revisions on Microsoft Teams, however, did not ensure Local FMTs received the information by directly contacting the counties.

POSSIBLE CAUSE: The CERC procedures do not address follow-up direct contact with counties by telephone or radio but assume that the counties are actively monitoring the appropriate Microsoft Teams channel

REFERENCE: NUREG-0654/FEMA-REP-1, K.3.a, and EPA 400-R-17-001

EFFECT: The Reporting and Turn-Back Dosimeter Limit revision downwards to 120 mR and 200 mR, respectively, were not communicated to the actual members of the Local FMTs and could have contributed to overexposures exceeding the EPA dose limits for emergency workers during the Early-Phase.

RECOMMENDATION: Revise the Assistant State On-Scene Coordinator CERC procedure to have the Assistant State On-Scene Coordinator or other personnel verify that the counties have received and are acting upon revised dosimeter limits and release data.

CORRECTIVE ACTION: This finding was resolved during the NAPS 2022 Exercise relaying the message of the correction factor to the Off-Site Response Organizations (OROs) and appropriately following the On Scene Coordinator's Checklist.

ISSUE NO: 62-21-2a1(2.1)-P-01

CAPABILITY TARGET: Emergency Worker Exposure Control Decision Making Process

CONDITION: An updated exposure control ratio with new administrative radiation exposure limits were determined by the personnel in the Corporate Emergency Response Center (CERC). The updated administrative radiation exposure limits were not communicated to all affected emergency workers.

POSSIBLE CAUSE: An omission on plans and procedures to alert all emergency workers operating in the field may have contributed to the lack of notification of the dose correction factor.

REFERENCE: NUREG-0654/FEMA-REP-1, K.3.a.
Virginia Emergency Operations Plan, Radiological Emergency Response, Technical Support Document Appendix 1, Direction and Control, November 2020. Commonwealth of Virginia, Office of Radiological Health, Radiological Emergency Response Plan and Emergency Plan Implementing Procedures, January 2021.

EFFECT: Without notification of a dosimeter correction factor, emergency workers could exceed authorized exposure limits.

RECOMMENDATION: Update VDEM procedures to specify how modified exposure control limits are to be communicated to all affected emergency workers.

CORRECTIVE ACTION: This plan issue was resolved by developing an On Scene Coordinator Plan/Procedure and submitted to FEMA for approval.

f. Prior Issues - Unresolved: NONE

3.3.2 Risk Jurisdictions

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

3.3.2.1 Caroline County Emergency Operations Center (EOC)

- a. Met: 1.1, 1.2, 1.5, 2.2, 3.1, 3.2, 3.3, 5.4
- b. Level 1 Findings: NONE
- c. Level 2 Findings: NONE
- d. Plan Issues: NONE
- a. Prior Issues - Resolved: NONE
- f. Prior Issues - Unresolved: NONE

3.3.2.2 Caroline County Backup Route Alerting

- a. Met: 1.1, 1.2, 2.2, 3.1, 3.2
- b. Level 1 Findings: NONE
- c. Level 2 Findings: NONE
- d. Plan Issues: NONE
- e. Prior Issues - Resolved: NONE
- f. Prior Issues - Unresolved: NONE

3.3.2.3 Caroline County Exception Area Route Alerting (5-10 miles)

- a. Met: 1.1, 1.2, 2.2, 3.1, 3.2
- b. Level 1 Findings: NONE
- c. Level 2 Findings: NONE
- d. Plan Issues: NONE
- e. Prior Issues - Resolved: NONE
- f. Prior Issues - Unresolved: NONE

3.3.2.4 Caroline County Traffic/Access Control

- a. Met: 1.1, 1.2, 2.2, 3.1, 5.2
- b. Level 1 Findings: NONE
- c. Level 2 Findings: NONE
- d. Plan Issues: NONE
- e. Prior Issues - Resolved: NONE
- f. Prior Issues - Unresolved: NONE

3.3.2.5 Caroline County Transportation Dependent

- a. Met: 1.1, 1.2, 2.2, 3.1, 5.1
- b. Level 1 Findings: NONE
- c. Level 2 Findings: NONE
- d. Plan Issues: NONE
- e. Prior Issues - Resolved: NONE
- f. Prior Issues - Unresolved: NONE

3.3.2.6 Hanover County Emergency Operations Center (EOC)

- a. Met: 1.1, 1.2, 1.5, 2.2, 3.1, 3.2, 3.3, 5.4
- b. Level 1 Findings: NONE
- c. Level 2 Findings: NONE
- d. Plan Issues: ONE

LOCATION: Hanover County Emergency Operations Center

ISSUE NO: 41-22-3.3-P-02

CAPABILITY TARGET: Emergency Information and Instructions for the Public and News Media.

CONDITION: Press Release #5 stated: "Due to an emergency at North Anna Power Station, Students are in summer school and who live within the 10-mile Emergency Planning Zone are being relocated to the following Evacuation Assembly Center where they will remain until the emergency is over:

Liberty Middle School

In order to keep the telephone lines open for the emergency use, please do not contact the school. Stay tuned to your local EAS station for further information".

POSSIBLE CAUSE: This press release is in the Hanover County plan as a boiler plate, which lends itself to the user as being acceptable to use without editing.

REFERENCE: NUREG-0654/FEMA-REP-1, Rev. 2: (E.2, E.4, E.5, G.1, G.3, G.3a, G.4, G.5, O.1); Hanover County Radiological Emergency Response Plan, Attachment 40, April 2022.

EFFECT: The instructional message that student will “remain until the emergency is over” is ambiguous and could give parents or guardians the impression that they will not be able to pick up their children.

RECOMMENDATION: In the Hanover County Radiological Emergency Response Plan, Page 200, Attachment 40, April 2022, edit the boiler plate press release to discuss Parent/Guardian reunification with children.

CORRECTIVE ACTIONS: Plan changes submitted by Hanover County on July 21, 2022, incorporated a revised press release template (Attachment 40) which now reads “Due to an emergency at the North Anna Power Station, students who live within the 10-mile Emergency Planning Zone are being relocated to the following Evacuation Assembly Center where they will remain until they are reunified with their parent or legal guardian.”

- e. Prior Issues - Resolved: NONE
- f. Prior Issues - Unresolved: NONE

3.3.2.7 Hanover County Backup Route Alerting

- a. Met: 1.1, 1.2, 2.2, 3.1, 3.2
- b. Level 1 Findings: NONE
- c. Level 2 Findings: NONE
- d. Plan Issues: NONE
- e. Prior Issues - Resolved: NONE
- f. Prior Issues - Unresolved: NONE

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

- a. Met: 1.1, 1.2, 1.5, 2.2, 3.1, 3.2
- b. Level 1 Findings: NONE
- c. Level 2 Findings: NONE
- d. Plan Issues: NONE
- e. Prior Issues - Resolved: NONE
- f. Prior Issues - Unresolved: NONE

3.3.2.9 Hanover County Traffic/Access Control

- a. Met: 1.1, 1.2, 2.2, 3.1, 5.4
- b. Level 1 Findings: NONE
- c. Level 2 Findings: NONE
- d. Plan Issues: NONE
- e. Prior Issues - Resolved: NONE
- f. Prior Issues - Unresolved: NONE

3.3.2.10 Hanover County Transportation Dependent

- a. Met: 1.1, 1.5, 2.2, 3.1
- b. Level 1 Findings: NONE
- c. Level 2 Findings: NONE
- d. Plan Issues: NONE
- e. Prior Issues - Resolved: NONE
- f. Prior Issues - Unresolved: NONE

3.3.2.11 Hanover County Emergency Medical Services (EMS)

- a. Met: 1.2, 2.2, 5.3
- b. Level 1 Findings: NONE
- c. Level 2 Findings: ONE

LOCATION: Hanover County Emergency Medical Services (EMS)

ISSUE NO: 41-22-5.3-L2-02

CAPABILITY TARGET: Transportation and Treatment of Contaminated, Injured Individuals.

CONDITION: The Hanover County Emergency Medical Services (EMS) did not properly execute contamination control while assessing, cocooning and transporting the patient. The EMS crew, although wearing gloves and shoe coverings, and establishing a hot/cold zone, entered the potentially contaminated area (hot zone) and the non-contaminated area (cold zone) several times throughout the demonstration without changing gloves or shoe coverings, in addition to wrapping the individual in the potentially contaminated sheet.

POSSIBLE CAUSE: The Hanover County EMS crew did not receive adequate training on contamination control and transporting a potentially contaminated patient.

REFERENCE: NUREG-0654/FEMA-REP-1, Rev. 2, (C.2.d, F.2, H.11, H.12, J.2, K.3, K.4, L.1, L.3, L.4 and O.1)

EFFECT: The lack of proper contamination control can lead to contamination of the EMS crew, further contamination to the patient, as well as the equipment and ambulance.

RECOMMENDATION: The demonstration was paused prior to the patient being placed in the ambulance and just in time training was provided to the EMS crew.

CORRECTIVE ACTIONS: The exercise resumed starting at the arrival of the ambulance on scene. Following the training, the EMS crew successfully redemonstrated proper procedures for handling of the patient and adequate contamination control.

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

3.3.2.12 Louisa County Emergency Operations Center (EOC)

- a. Met: 1.1, 1.2, 1.5, 2.2, 3.1, 3.2, 3.3, 5.4
- b. Level 1 Findings: NONE
- c. Level 2 Findings: NONE
- d. Plan Issues: NONE
- e. Prior Issues - Resolved: NONE
- f. Prior Issues - Unresolved: NONE

3.3.2.13 Louisa County Backup Route Alerting

- a. Met: 1.1, 1.2, 2.2, 3.1, 3.2
- b. Level 1 Findings: NONE
- c. Level 2 Findings: NONE
- d. Plan Issues: NONE
- e. Prior Issues - Resolved: NONE
- f. Prior Issues - Unresolved: NONE

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

- a. Met: 1.1, 1.2, 2.2, 3.1, 3.2
- b. Level 1 Findings: NONE
- c. Level 2 Findings: NONE
- d. Plan Issues: NONE
- e. Prior Issues - Resolved: NONE
- f. Prior Issues - Unresolved: NONE

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

- a. Met: 1.1, 1.2, 2.2, 3.1, 3.2
- b. Level 1 Findings: NONE
- c. Level 2 Findings: NONE
- d. Plan Issues: NONE
- e. Prior Issues - Resolved: NONE
- f. Prior Issues - Unresolved: NONE

3.3.2.16 Louisa County Traffic/Access Control

- a. Met: 1.1, 2.2, 3.1, 5.4
- b. Level 1 Findings: NONE
- c. Level 2 Findings: NONE
- d. Plan Issues: NONE
- e. Prior Issues - Resolved: NONE
- f. Prior Issues - Unresolved: NONE

3.3.2.17 Louisa County Transportation Dependent

- a. Met: 1.1, 1.5, 2.2, 3.1
- 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 School District/Louisa County High School

- a. Met: 1.5
- 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 Orange County Emergency Operation Center (EOC)

- a. Met: 1.1, 1.2, 1.5, 2.2, 3.1, 3.2, 3.3, 5.4
- b. Level 1 Findings: NONE
- c. Level 2 Findings: NONE
- d. Plan Issues: NONE
- e. Prior Issues - Resolved: NONE
- f. Prior Issues - Unresolved: NONE

3.3.2.20 Orange County Backup Route Alerting

- a. Met: 1.1, 1.2, 2.2, 3.1, 3.2
- b. Level 1 Findings: NONE
- c. Level 2 Findings: NONE
- d. Plan Issues: NONE
- e. Prior Issues - Resolved: NONE
- f. Prior Issues - Unresolved: NONE

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

- a. Met: 1.1, 1.2, 2.2, 3.1, 3.2
- b. Level 1 Findings: NONE
- c. Level 2 Findings: NONE
- d. Plan Issues: NONE
- e. Prior Issues - Resolved: NONE
- f. Prior Issues - Unresolved: NONE

3.3.2.22 Orange County Traffic/Access Control

- a. Met: 1.1, 2.2, 3.1, 5.4
- b. Level 1 Findings: NONE
- c. Level 2 Findings: NONE
- d. Plan Issues: NONE
- e. Prior Issues - Resolved: NONE
- f. Prior Issues - Unresolved: NONE

3.3.2.23 Orange County Transportation Dependent

- a. Met: 1.1, 1.5, 2.2, 3.1
- b. Level 1 Findings: NONE
- c. Level 2 Findings: NONE

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

3.3.2.24 Spotsylvania County Emergency Operations Center (EOC)

- a. Met: 1.1, 1.2, 1.5, 2.2, 3.1, 3.2, 3.3, 5.4
- b. Level 1 Findings: NONE
- c. Level 2 Findings: NONE
- d. Plan Issues: NONE
- e. Prior Issues - Resolved: NONE
- f. Prior Issues - Unresolved: NONE

3.3.2.25 Spotsylvania County Backup Route Alerting

- a. Met: 1.1, 1.2, 2.2, 3.1, 3.2
- b. Level 1 Findings: NONE
- c. Level 2 Findings: NONE
- d. Plan Issues: ONE

LOCATION: Spotsylvania County Backup Route Alerting

ISSUE NO: 41-22-3.2-P-03

CAPABILITY TARGET: Alert and Notification of the Public

CONDITION: Backup route alerting (BURA) was not completed within a reasonable amount of time (recommended goal of 45 minutes) in the area covered by Siren 11. The command to initial BURA for Siren 11 was received at the Spotsylvania County Staging Area at 1328 but the BURA mission was not completed until 1456, constituting a duration of 88 minutes from initiation to completion.

POSSIBLE CAUSE: Plans are written under the assumption that one vehicle can safely conduct the BURA mission within a reasonable amount of time for the entire area covered by Siren 11.

REFERENCE: NUREG-0654/FEMA-REP-1, Rev. 2: (E.2, E.4, E.5, F.3 and O.1); Spotsylvania County Radiological Emergency Response Plan, ESF #13, Public Safety and Security Procedure, Route Alerting Manual.

EFFECT: In the event that Siren 11 fails to sound successfully, alert and notification of the public located within the area covered by Siren 11 will not be completed within a reasonable amount of time.

RECOMMENDATION: Plans should be modified so that the BURA mission in the area covered by Siren 11 (and other areas that may be comparable) will be conducted by at least two vehicles. The vehicles should begin the BURA mission at the opposite ends of the impacted area and work simultaneously toward each other until all the impacted area has been successfully alerted. This

will ensure that the BURA mission can be completed more quickly and effectively.

CORRECTIVE ACTIONS: Plan changes submitted by Spotsylvania County on July 21, 2022, incorporated a revised route for failure of Siren 11. Spotsylvania County split the route into two, created Siren #11 Route 11-Alpha and Route 11-Bravo. The route was tested by Spotsylvania County on July 20, 2022. Each route took 30 minutes to complete using a fire engine.

- e. Prior Issues - Resolved: NONE
- f. Prior Issues - Unresolved: NONE

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

- a. Met: 1.1, 1.2, 2.2, 3.1, 3.2
- b. Level 1 Findings: NONE
- c. Level 2 Findings: NONE
- d. Plan Issues: NONE
- e. Prior Issues - Resolved: NONE
- f. Prior Issues - Unresolved: NONE

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

- a. Met: 1.1, 1.2, 2.2, 3.1, 3.2
- b. Level 1 Findings: NONE
- c. Level 2 Findings: NONE
- d. Plan Issues: NONE
- e. Prior Issues - Resolved: NONE
- f. Prior Issues - Unresolved: NONE

3.3.2.28 Spotsylvania County Traffic/Access Control

- a. Met: 1.1, 2.2, 3.1, 5.4
- b. Level 1 Findings: NONE
- c. Level 2 Findings: ONE
- d. Plan Issues: NONE
- e. Prior Issues - Resolved: NONE
- f. Prior Issues - Unresolved: NONE

3.3.2.29 Spotsylvania County Transportation Dependent

- a. Met: 1.1, 1.5, 2.2, 3.1
- b. Level 1 Findings: NONE
- c. Level 2 Findings: NONE
- d. Plan Issues: NONE
- e. Prior Issues - Resolved: NONE
- f. Prior Issues - Unresolved: NONE

3.3.2.30 Spotsylvania County School District/Post Oak Middle School

- a. Met: 1.5
- 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 Reception/Evacuee Monitoring/Decontamination Center at Massaponax High School Evacuation Assembly Center (EAC)

- a. Met: 1.1, 1.2, 2.2, 3.1, 5.1
- 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 Emergency Working Monitoring/Decontamination Center at Massaponax High School Evacuation Assembly Center (EAC)

- a. Met: 1.1, 1.2, 2.2, 3.1, 5.2
- b. Level 1 Findings: NONE
- c. Level 2 Findings: NONE
- d. Plan Issues: NONE
- e. Prior Issues - Resolved: NONE
- f. Prior Issues - Unresolved: NONE

3.3.2.33 Spotsylvania County Mass Care Center at Massaponax High School Evacuation Assembly Center (EAC)

- a. Met: 1.1, 1.2, 3.1, 5.1
- 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

In summary, the status of DHS/FEMA capability targets for the private jurisdictions are as follows:

3.3.3.1 Mary Washington Hospital

- a. Met: 1.2, 2.2, 5.3
- b. Level 1 Findings: NONE
- c. Level 2 Findings: NONE
- d. Plan Issues: NONE
- b. Prior Issues - Resolved: NONE
- f. Prior Issues - Unresolved: NONE

SECTION 4: DEMONSTRATED STRENGTHS

4.1 State Jurisdictions

4.1.1 Virginia Department of Health/Office of Radiological Health (VDH/ORH)

The Department of Health personnel in the Accident Assessment Center were well trained and knowledgeable of procedures.

Three of the key personnel were absent owing to COVID-19. The two substitute personnel successfully met the challenge.

4.1.2 Corporate Emergency Response Center (VDEM/VDH/ORH)

The VDEM On-Scene Coordinator communicated to the Virginia State Emergency Operations Center, Protective Action Task Force and the County Radiological Officers a “Conditions Report to Local Radiological Officers Report” detailing current plant, meteorological and radiological conditions including the default Exposure Control Ratio detailing exposure control limits for emergency workers.

4.2 Risk Jurisdictions

4.2.1 Caroline County Staging Area

The Exposure Control Officer (ECO) recognized as disparity in the terminology in the descriptions of the Traffic Control Posts and Access Control Posts (TCPs/ACPs) between those in the Caroline County REP Plan and the Virginia Department of Transportation (VDOT) Procedure. The ECO met with the VDOT personnel to reconcile the terms, so as not cause any misunderstandings or delays in establishing.

4.2.2 Orange County Emergency Operations Center (EOC)

The Orange County Office of Emergency Management took full advantage of the relocation of the Orange County Emergency Operation Center to a new, larger facility, by allowing new staff not normally present in the EOC when it was located at a much smaller venue, to shadow those whose positions they may fill during an actual activation. Allowing this interaction will greatly improve the overall response and staffing capabilities of the Orange County EOC.

The staff at the Orange County EOC displayed outstanding teamwork in solving an unforeseen challenge. Despite having no Access & Functional Needs individuals registered in the county, at 0907, Rumor Control received a call from an individual who said she was mobility impaired and expected to need transportation if an evacuation occurred. That information was passed along to the Department of Social Services representative to contact that individual to assist her. Unfortunately, there was no answer at the number given and there was no last name. The Sheriff’s Department attempted to flush out the last name through directories. The GIS Specialist went through their lists of names and addresses in the county. Ultimately, the person’s name was discovered. A Sheriff’s Deputy would have been dispatched to check on the individual, and if necessary, the Department of Transportation readied a Special Needs vehicle to take her to the Evacuation Assembly Center.

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

The Orange County Exception Area Route Alerting team demonstrated leveraging smart phone technology in completing message delivery along the exception area route. The Deputy Sheriff assigned to drive the route had pre-recorded the exception area alert and notification message on his cell phone and played the pre-recorded message from his phone through the vehicles amplified public address system about every 30 seconds while driving the route. This technique ensured consistent delivery of the message and allowed the driver to repeat the message and complete the route in a timely and efficient manner.

SECTION 5: CONCLUSION

The Commonwealth of Virginia and risk 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 19, 2022, and the Out of Sequence Demonstrations conducted June 29-30, 2022.

FEMA assesses offsite planning and preparedness for communities within the plume and/or ingestion exposure pathway EPZs of commercial NPPs through an established set of objectives and capability targets that reflect the intent of the planning standards of 44 CFR 350 and the evaluation criteria of NUREG-0654/FEMA-REP-1, Rev. 2, December 2019. Thus, FEMA considers these objectives and capability targets to be the benchmarks for FEMA's validation of reasonable assurance.

Each of these objectives/capability targets apply to all aspects of FEMA's assessment and are reported out in terms of core capabilities in the Biennial Preparedness Report. There are five overarching objectives, each of which have a unique set of capability targets that support the accomplishment of the objective. The capability targets are associated with one or more core capabilities, as agreed to by the OROs and RAC Chairs. This assessment strategy supports FEMA's regulatory responsibilities and successfully aligns REP evaluation methodology with the doctrine of the NPS.

FEMA evaluators assessed 199 Capability Targets in five Objectives:

- Objective 1: Emergency Operations Management
- Objective 2: Exposure Control
- Objective 3: Alert and Notification
- Objective 4: Detect, Measure, Sample, Analyze, and Assess
- Objective 5: Operate

These resulted in a determination of no Level 1 Findings, two Level 2 Findings (one re-demonstrated and closed), and three new Plan Issues. Two Plan Issues were resolved prior to the publish date of this report after revised plans and procedures were received by FEMA. Additionally, one level 2 finding assessed to the Corporate Emergency Response Center (CERC)/Virginia Department of Emergency Management (VDEM) during the North Anna Power Station Exercise on May 4, 2021, was successfully resolved and one plan issue assessed to the CERC/VDEM during the Surry Power Station Exercise on October 26, 2021, was successfully closed.

Based on the results of the exercise and a review of the offsite radiological emergency response plans and procedures submitted, FEMA Region 3 has determined they are adequate (meet the planning and preparedness standards of NUREG-0654/FEMA-REP-1, Revision 2, December 2019, as referenced in 44 CFR 350.5) and there is reasonable assurance they can be implemented, as demonstrated during this exercise.

NAPS APPENDIX A – EXERCISE TIMELINE

Emergency Classification Level or Event	Time Utility Declared	Time That Notification Was Received at the Listed Location								
		Virginia State EOC	Corporate Emergency Response Center (CERC)	VDH/ORH Accident Assessment	Virginia JIC	Caroline County EOC	Hanover County EOC	Louisa County EOC	Orange County EOC	Spotsylvania County EOC
Unusual Event	0815	0823	-	0827	0823	0827	0823	0826	0826	0829
Alert	0831	0838	0910	0838	0838	0842	0836	0840	0841	0842
Site Area Emergency	1036	1044	1036	1050	1044	1045	1040	1045	1045	1044
General Emergency	1136	1143	1136	1151	1143	1141	1140	1145	1142	1142
Start of Simulated Radiation Airborne Release	1036/1136	1141	1036/1136	1151	1141	1141	1040	1146	1045	1142
Terminated of Simulated Radiation Release	1125	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing
Facility Declared Operational		0852	0927	0840	0852	0848	0910	0839	0845	0842
Governor's Declaration of State of Emergency		0920	-	0921	0920	0931	0920	0923	0925	1019
Exercise Terminated		1447	1327	1448	1447	1452	1448	1422	1429	1457
Precautionary Actions: Describe										
Evacuate Lake Anna		1102	1125	N/A	1102	N/A	N/A	N/A	N/A	N/A
Livestock on stored feed and water		0921	1223	0931	0921	0942	0943	0935	0932	0853
Rail/flight notification		1102	1102	N/A	1102	N/A	N/A	N/A	N/A	N/A
First Protective Actions: Describe										
Evacuate PAZs 2-18, 22 and 25		1230	1250	1243	1230	1230	1230	1235	1234	1236
Siren Sounding		1240	1240	1240	1240	1240	1240	1240	1240	1240
EAS Message Broadcast		1243	1243	1243	1243	1243	1243	1243	1243	1243

Unclassified
Radiological Emergency Preparedness Program (REP)

After Action Report/Improvement Plan

North Anna Power Station

	Virginia State EOC	Corporate Emergency Response Center (CERC)	VDH/ORH Accident Assessment	Virginia JIC	Caroline County EOC	Hanover County EOC	Louisa County EOC	Orange County EOC	Spotsylvania County EOC
Second Protective Actions: Describe									
General public in Louisa, Spotsylvania, and Orange Counties in PAZs 2-18, 22 and 25 to ingest KI	1320	1320	1320	1320	1320	1320	1320	1320	1320
Siren Sounding	1324	1324	1324	1324	1324	1324	1324	1324	1324
EAS Message Broadcast	1327	1327	1327	1327	1327	1327	1327	1327	1327
KI Decision Emergency Workers	1150	1143	1142	1150	1156	1158	1201	1142	1201
KI Decision General Public/Special populations	1212	1225	1212	1212	1317	1318	1318	1320	1319

Emergency Classification Level or Event	Time Utility Declared	Time That Notification Was Received at the Listed Location							
		Louisa County School District	Louisa County High School	Spotsylvania County School District	Spotsylvania Post Oak Middle School				
Unusual Event									
Alert		0847	0905	0844	0852				
Site Area Emergency		N/A	N/A	1044	1052				
General Emergency		N/A	N/A	1144	1144				
Precautionary Actions: Describe									
Notification from SD to close school and prep for trans		N/A	N/A	0848	0852				
Busses arrive at School		N/A	N/A	1007	1007				
18 busses enroute to EAC		N/A	N/A	1037	1037				
Arrive EOC		N/A	N/A	1050	1050				

APPENDIX B: EXERCISE EVALUATORS AND TEAM LEADERS

The following is the list of Evaluators and Team Leaders for the North Anna Power Station 2022 Radiological Emergency Preparedness Plume Pathway Exercise evaluated on July 19, 2022, and the Out-of-Sequence Demonstrations conducted on June 29-30, 2022. The following constitutes the managing staff for the Exercise Evaluation:

- Thomas Scardino, DHS/FEMA, Regional Assistance Committee (RAC) Chair
- Lee Torres, DHS/FEMA, Project Officer and Site Specialist

North Anna Power Station

PLUME EXERCISE DEMONSTRATION July 19, 2022		
LOCATION	EVALUATOR	AGENCY
Commonwealth of Virginia Emergency Operations Center	Joe Suders (TL)	FEMA R3
	Rahuel Preciado	FEMA R3
	Michele Sturman	FEMA R2
Virginia Joint Information Center (JIC)	Lisa Rink	FEMA HQ
Virginia Department of Health/Office of Radiological Health (VDH/ORH)	Cheryl Weaver	ICF
	Reggie Rodgers	ICF
Virginia State Field Monitoring Team 1	Deb Blunt	ICF
Virginia State Field Monitoring Team 2	Carol Shepard	ICF
Corporate Emergency Response Center (CERC)	Ken Wierman (TL)	FEMA HQ
	John Wills	ICF
Caroline County Emergency Operations Center	Tina Thomas (TL)	FEMA R3
	Mark Dalton	ICF
	Gary Goldberg	FEMA R3
Caroline County Backup Route Alerting	Jon Christiansen	ICF
Caroline County Exception Area Route Alerting	Rosemary Samsel	ICF
Caroline County Traffic/Access Control	Jim Greer	ICF
Caroline County Transportation Dependent	Jim Greer	ICF
Hanover County Emergency Operations Center	Alex Hazard (TL)	FEMA R3
	Kerry Holmes	FEMA R3
	Kevin Reed	ICF
Hanover County Backup Route Alerting	Terry Blackmon	ICF
Hanover County Exception Area Route Alerting	Mike Burriss	ICF
Hanover County Traffic/Access Control	Ron Bonner	ICF
Hanover County Transportation Dependent	Ron Bonner	ICF
Louisa County Emergency Operations Center	Taylor Griffiths (TL)	FEMA R3
	Marynette Herndon	ICF
	Roy Smith	ICF

After Action Report/Improvement Plan

North Anna Power Station

Louisa County Backup Route Alerting	Brenda Rembert	ICF
Louisa County Primary Area Route Alerting	Bonnie Sheffield	ICF
Louisa County Exception Area Route Alerting	Paul Ringheiser	ICF
Louisa County Traffic/Access Control	Teri Englehart	ICF
Louisa County Transportation Dependent	Teri Englehart	ICF
Louisa County School District/Louisa County High School	Roy Smith	ICF
	Chris Nemcheck	FEMA R3
Orange County Emergency Operations Center	Kathy Duran (TL)	FEMA R3
	Larry Broockerd	FEMA HQ
	Peter Judge	ICF
Orange County Backup Route Alerting	Chris Nemcheck	FEMA R3
Orange County Exception Area Route Alerting	Steve Watts	ICF
Orange County Traffic/Access Control	John Wiecjorek	ICF
Orange County Transportation Dependent	John Wiecjorek	ICF
Spotsylvania County Emergency Operations Center	Dan Rose (TL)	FEMA R3
	Bob Zucker	FEMA R3
	Lisa Hamilton	FEMA HQ
Spotsylvania County Backup Route Alerting	Mike Meshenberg	ICF
Spotsylvania County Primary Area Route Alerting	Herb Massie	ICF
Spotsylvania County Exception Area Route Alerting	Meg Swearingen	ICF
Spotsylvania County Traffic/Access Control	Mike DeBonis	FEMA R2
Spotsylvania County Transportation Dependent	Mike DeBonis	FEMA R2
Spotsylvania County School District/Post Oak Middle School	Lisa Hamilton	FEMA HQ
	PJ Nied	ICF
Spotsylvania County Reception Center/Evacuee Mon/Decon Center at Massaponax High School Evacuation Assembly Center (EAC)	Dan Rose	FEMA R3
	Alex Hazard	FEMA R3
Spotsylvania County Emergency Worker Mon/Decon Center at Massaponax High School Evacuation Assembly Center (EAC)	Zach Corle	FEMA R3
Spotsylvania County Mass Care Center at Massaponax High School Evacuation Assembly Center (EAC)	Rahuel Preciado	FEMA R3

APPENDIX C: ACRONYMS AND ABBREVIATIONS

Acronym	Meaning
ACP	Access Control Point
ALC	Annual Letter of Certification
ANS	Alert and Notification System
ARC	American Red Cross
ARES	Amateur Radio Emergency Services
BRP	Bureau of Radiological Protection
BuRA	Back-up Route Alerting
CERT	Community Emergency Response Team
CFR	Code of Federal Regulations
CERC	Corporate Emergency Response Center
CNS	Commonwealth Notification System
CPM	Counts per Minute
CRCC	Commonwealth Response Coordination Center
DAD	Digital Alarming Dosimeter
DHS	Department of Homeland Security
DOT	Department of Transportation
EAL	Emergency Action Level
EAS	Emergency Alert System
ECL	Emergency Classification Level
EMC	Emergency Management Coordinator
EMD	Emergency Management Director
EMS	Emergency Medical Services
EOC	Emergency Operations Center
EOP	Extent of Play
EPT	Exercise Planning Team
EPZ	Emergency Planning Zone
ESF	Emergency Support Function
EW	Emergency Workers
EWMDS	Emergency Worker Mon/Decon Station
FD	Fire Department
FEMA	Federal Emergency Management Agency
FMT	Field Monitoring Team
FRMAC	Federal Radiological Monitoring Assessment Center
FPE	Full Participation Exercise
FST	Field Sampling Team
FTC	Field Team Coordinator
GE	General Emergency

After Action Report/Improvement Plan

North Anna Power Station

GIS	Geographic Information Systems
HazMat	Hazardous Materials
IPAWS	Integrated Public Alert & Warning System
ICF	International Consulting Firm
IPX	Ingestion Pathway Zone
JIC	Joint Information Center
KI	Potassium Iodide
LOA	Letter of Agreement
MCC	Mass Care Center
MOC	Media Operations Center
MOU	Memorandum of Understanding
MSEL	Master Scenario Events List
NAPS	North Anna Power Station
NPP	Nuclear Power Plant
NRC	Nuclear Regulatory Commission
OOS	Out of Sequence
ORH	Office of Radiological Health
ORO	Offsite Response Organization
OSD	Optically Stimulated Dosimeter
PAD	Protective Action Decision
PAG	Protective Action Guide
PAR	Protective Action Recommendation
PARA	Primary Area Route Alerting
PDAFN	Persons with Disabilities/Access Functional Needs
PIO	Public Information Officer
PPE	Personal Protective Equipment
PRD	Permanent Record Dosimeter
RAC	Regional Assistance Committee
RACES	Radio Amateur Civil Emergency Services
RC	Reception Center
REA	Radiation Emergency Area
REPP	Radiological Emergency Preparedness Program
RERP	Radiological Emergency Response Plan
RO	Radiological Officer
SAC	Staging Area Coordinator
SAE	Site Area Emergency
SAV	Staff Assistance Visit
SEOC	State Emergency Operations Center
SEVAN	State Emergency Voice Activation Network
TCP	Traffic Control Point

TRNSDEP	Transportation Dependent
VDEM	Virginia Department of Emergency Management
VHF	Very High Frequency
WEA	Wireless Emergency Alerts

APPENDIX D: EXTENT OF PLAY AGREEMENT

The 2022 North Anna Power Station Plume Exercise Extent-of-Play (EOP) Agreement is a document created by the Commonwealth of Virginia Department of Emergency Management Agency that sets the parameters for exercise demonstration. The EOP agreement was signed by the FEMA Region 3 and the Commonwealth of Virginia Department of Emergency Management planning team members.



FEMA

NORTH ANNA POWER STATION PLUME EXERCISE

By signing this Extent of Play Agreement, the Commonwealth of Virginia and the FEMA Region 3 exercise planning team confirm that all conditions have been met to satisfy the requirements to drive exercise play and satisfy the objectives and capability targets as agreed upon for the June 29-30, 2022 Out of Sequence Demonstrations and the July 19, 2022 North Anna Power Station Plume Exercise.

LEE A TORRES Digitally signed by LEE A TORRES
Date: 2022.07.13 09:40:40 -04'00'

FEMA Site Specialist

Date

A handwritten signature in black ink, appearing to be "Daniel A. Rose", is written over a horizontal line.

Lead State Planner

2022 07 13
Date

DANIEL A ROSE Digitally signed by DANIEL A ROSE
Date: 2022.08.16 08:52:05 -04'00'

FEMA Team Leader

Date

NATIONAL EXERCISE PROGRAM

Exercise Plan/Extent of Play

VIRGINIA FEMA EVALUATED REP EXERCISE

EXERCISE DATE: 07/19/2022

U.S. DEPARTMENT OF HOMELAND SECURITY



FEMA

For Official Use Only

Table of Contents

PREFACE	.....
HANDLING INSTRUCTIONS	.....
CHAPTER 1: GENERAL INFORMATION	.....
Introduction	.....
Confidentiality	.....
Purpose	.....
Capability Targets	.....
Exercise Objectives	.....
Outstanding Issues	.....
CHAPTER 2: EXERCISE LOGISTICS	.....
Exercise Summary	.....
General	.....
Assumptions	.....
Constructs and Constraints	.....
Exercise Participants	.....
Exercise Tools	.....
Controller Handbook	.....
Extent of Play Agreement	.....
Master Scenario Events List	.....
Exercise Implementation	.....
Exercise Play	.....
Exercise Rules	.....
Safety Requirements	.....
General	.....
Exercise Setup	.....
Accident Reporting and Real Emergencies	.....
Site Access	.....
Observer Coordination	.....
Directions	.....
Exercise Identification	.....
Communications Plan	.....
Exercise Start, Suspension, and Termination Instructions	.....
Player Communication	.....
Player Briefing	.....
Public Affairs	.....
CHAPTER 3: PLAYER GUIDELINES	.....
Exercise Staff	.....
Exercise Director	.....
Lead Controller	.....

Controllers	
Lead Evaluator	
Evaluators	
Player Instructions	
Before the Exercise	
During the Exercise	
Following the Exercise	
Simulation Guidelines	
CHAPTER 4: EVALUATION AND POST-EXERCISE ACTIVITIES	
Exercise Documentation	
Exercise Evaluation Guides	
Players Critique	
Participants Briefing and Public Meeting	
Controller and Evaluator Debriefing	
After Action Report	
After Action Conference	
Improvement Plan	
APPENDIX A: EXERCISE SCHEDULE	
APPENDIX B: METHOD OF OPERATION AND EXTENT OF PLAY	
APPENDIX C: PARTICIPATING AGENCIES AND SITE MAPS	
APPENDIX D: ADDRESSES/DIRECTIONS	
APPENDIX E: OPEN ISSUES	
APPENDIX F: LIST OF ACRONYMS	

PREFACE

The NAPS VOPEX 2022 Evaluated Full Scale Exercise (FSE) is sponsored by the Virginia Department of Emergency Management (VDEM). This Exercise Plan (ExPlan) was produced with input, advice, and assistance from the Exercise Planning Team (EPT), which followed the guidance set forth in the Federal Emergency Management Agency (FEMA), Homeland Security Exercise and Evaluation Program (HSEEP).

The REP exercise design and development process will include establishing an EPT led by the state(s) (or designee), with representatives from the licensee, OROs, and FEMA REP Regional staff to include identification of trusted agents that have access to confidential exercise-specific information.

The ExPlan gives officials, observers, media personnel, and players from participating organizations the information necessary to observe or participate in a nuclear power plant accident response exercise focusing on participants' emergency response plans, policies, and procedures as they pertain to this type of event. The information in this document is current as of the date of publication and is subject to change as dictated by the EPT.

The NAPS VOPEX 2022 is an *unclassified exercise*. The control of information is based more on public sensitivity regarding the nature of the exercise than on the actual exercise content. Some exercise material is intended for the exclusive use of exercise planners, Controllers, and Evaluators, but Players may view other materials deemed necessary to their performance. The ExPlan may be viewed by all exercise participants, however if developing a Controller and Evaluator (C/E) Handbook it should be treated as a restricted document intended for Controllers and Evaluators only to prevent compromise to exercise activities.

All exercise participants should use appropriate guidelines to ensure the proper control of information within their areas of expertise and to protect this material in accordance with current jurisdictional directives. Public release of exercise materials to third parties is at the discretion of DHS and the EPT.

HANDLING INSTRUCTIONS

1. The title of this document is NAPS VOPEX 2022 Exercise Plan (ExPlan).
2. The information gathered in this ExPlan should be handled as sensitive information not to be disclosed. This document should be safeguarded, handled, transmitted, and stored in accordance with appropriate security directives. Reproduction of this document, in whole or in part, without prior approval from VDEM is prohibited.
3. At a minimum, the attached materials will be disseminated only on a need-to-know basis and when unattended, stored in an area offering sufficient protection against theft, compromise, inadvertent access, and unauthorized disclosure.
4. For more information, please consult the following points of contact (POCs):

Federal POC(s):

Lee Ann Torres
Technological Hazards Specialist
615 Chestnut Street
6th Floor
Philadelphia, PA 19106
(202) 436 - 1455
Lee.torres@fema.dhs.gov

State POC(s):

Stephanie Harris
Director, Training, Education and Exercise Division
Virginia Department of Emergency Management
9711 Farrar Court
N. Chesterfield, VA 23236

Meghan E. Hutchinson
Senior Associate, Radiological Emergency Preparedness
The Olson Group Ltd.
11 Canal Center Plaza, Suite 103
Alexandria, VA 22314

ORO POC(s):

Caroline County
Jason Loftus
Fire-EMS Chief
233 West Broaddus Avenue
Bowling Green, VA 22427
(804) 994-7110

Mark Garnett
Deputy Fire-EMS Chief
233 West Broadus Avenue
Bowling Green, VA 22427
(804) 994-7110

Hanover County
Corey Beazley
Captain, Hanover Fire-EMS
13326 Hanover Courthouse Road
Hanover, VA 23069
(804) 572-4463

Gregory R. Martin
Battalion Chief, PIO
Hanover Fire-EMS
13326 Hanover Courthouse Road
Hanover, VA 23069
(804) 517 – 5163

Aaron Robinson
Lieutenant
Hanover Fire-EMS
13326 Hanover Courthouse Road
Hanover, VA 23069
(804) 564 - 9861

Louisa County
Robert Dube
Fire-EMS Chief
105 Woolfolk Avenue
Louisa, VA 23093
(540) 894 - 3491

Timmy Luke
Fire-EMS Captain
105 Woolfolk Avenue
Louisa, VA 23093
(540) 894 – 3491

Orange County
Nathan Mort
Fire-EMS Chief
11282 Government Center Drive
Orange, VA 22960
(540) 672 – 7044

Roger Wilson
Fire-EMS Assistant Chief of Operations
11282 Government Center Drive
Orange, VA 22960
(540) 672 - 7044

Spotsylvania County
Matthew Embrey
Fire, Rescue & Emergency Management
Division Chief for Logistics
9119 Dean Ridings Lane
2nd Floor
Spotsylvania, VA 22553
(540) 507 - 7904

CHAPTER 1: GENERAL INFORMATION

Introduction

The NAPS VOPEX 2022 is a full-participation exercise designed to establish a learning environment for players to exercise emergency response plans, policies, and procedures as they pertain to Nuclear Power Plant accidents. A full participation exercise is a complex event that requires detailed planning. To conduct an effective exercise, subject matter experts (SMEs) and local representatives from numerous agencies have taken part in the planning process and will take part in exercise conduct and evaluation.

This Exercise Plan (ExPlan) was produced at the direction of the VDEM and FEMA with the input, advice, and assistance of the EPT. The NAPS VOPEX 2022 is evidence of the growing partnership between State and local jurisdictions for response to the threats our Nation and communities.

Confidentiality

The NAPS VOPEX 2022 is an *unclassified exercise*. The control of information is based more on public sensitivity regarding the nature of the exercise than on the actual exercise content. Some exercise material is intended for the exclusive use of exercise planners, controllers, and evaluators, but players may view other materials deemed necessary to their performance. This ExPlan may be viewed by all exercise participants, however if developing a Controller and Evaluator (C/E) Handbook it should be treated as a restricted document intended for Controllers and Evaluators only. All site-specific scenario information, including out of sequence exercise materials, designed to drive exercise play must be treated as confidential to avoid compromising exercise activities and limited to Controllers and Trusted Agents designated by the EPT.

All exercise participants should use appropriate guidelines to ensure the proper control of information within their areas of expertise and protect this material in accordance with current FEMA and VDEM directives.

Public release of exercise materials to third parties is at the discretion of the Federal Emergency Management Agency (FEMA) and the EPT.

Purpose

The purpose of this exercise is to evaluate player actions against current response plans and capabilities for a nuclear power plant-related incident, and to comply with the requirements of 44 CFR 350 and the planning standards of NUREG-0654/FEMA-REP-1, Rev. 2. Exercise planners utilized the elements described in the Radiological Emergency Preparedness (REP) Program Manual (December 2019) to develop this exercise.

The objective of VDEM and Offsite Response Organizations is to demonstrate reasonable assurance that the public can be protected during a nuclear power plant emergency.

Capability Targets

The establishment of the National Preparedness Priorities have steered the focus of homeland security toward a capabilities-based planning approach. Capabilities-based planning focuses on planning under uncertainty since the next danger or disaster can never be forecast with complete accuracy. Therefore, capabilities-based planning takes an all-hazards approach to planning and preparation which builds capabilities that can be applied to a wide variety of incidents. States and Urban Areas use capabilities-based planning to identify a baseline assessment of their homeland security efforts by comparing their current capabilities against the Capabilities Target List (CTL) and the critical tasks of the Universal Task List (UTL). This approach identifies gaps in current capabilities and focuses efforts on identifying and developing priority capabilities and tasks for the jurisdiction. These priority capabilities are articulated in the jurisdiction's homeland security strategy and Integrated Preparedness Workshop (IPW), of which this exercise is a component.

Capability Targets for this exercise have been identified from the listing below and selected by the EPT for evaluation from the Capability Targets identified in Virginia IPW, 2019 REP Program Manual, based on required exercise frequency and noted in the Extent of Play Agreement (EOPA). These Capability Targets provide the foundation for development of the exercise objectives and scenario, as the purpose of this exercise is to measure and validate performance of these capabilities and their associated critical tasks.

- Capability Target 1.1: Mobilization
- Capability Target 1.2: Direction and Control
- Capability Target 1.3: Protective Action Recommendations
- Capability Target 1.4: Protective Action Decisions for the Plume Phase
- Capability Target 1.5: Protective Action Decision Implementation for the Plume Phase
- Capability Target 1.6: Protective Action Decisions for the Post-Plume Phase
- Capability Target 1.7: Protective Action Decision Implementation for the Post-Plume Phase
- Capability Target 2.1: Emergency Worker Exposure Control Decision-Making Process
- Capability Target 2.2: Emergency Worker Exposure Control Management
- Capability Target 3.1: Communications
- Capability Target 3.2: Alert and Notification of the Public
- Capability Target 3.3: Emergency Information and Instructions for the Public and News Media
- Capability Target 4.1: Field Monitoring Teams Management
- Capability Target 4.2: Plume Phase Measurements and Sampling
- Capability Target 4.3: Post-Plume Phase Measurements and Sampling
- Capability Target 4.4: Laboratory Operations
- Capability Target 4.5: Plume Phase Analysis and Dose Assessment
- Capability Target 4.6: Post-Plume Phase Sampling Plan Development and Analysis
- Capability Target 5.1: Monitoring, Decontamination, Sheltering, and Registration of Evacuees
- Capability Target 5.2: Monitoring and Decontamination of Emergency Workers, Equipment, and Vehicles
- Capability Target 5.3: Transportation and Treatment of Contaminated, Injured Individuals

Exercise Objectives

The EPT selected objectives that focus on evaluating emergency response procedures and identifying areas for improvement. This exercise will focus on the following objectives:

- Objective 1: Emergency Operations Management
- Objective 2: Exposure Control
- Objective 3: Alert and Notification
- Objective 4: Detect, Measure, Sample, Analyze, and Assess
- Objective 5: Operate

Outstanding Issues

There are no level 1, one Level 2, and no Planning Issue (s) as a result of the FEMA-evaluated plume-phase and Ingestion Exposure Pathway exercise at North Anna Power Station; Mineral, Virginia on May 4, 2021, and no Level 1, no Level 2, and one Planning Issue (s) as a result of the FEMA-evaluated plume-phase exercise at Surry Power Station; Surry, Virginia on October 26, 2021:

See [Appendix E] for additional details on these outstanding issues.

CHAPTER 2: EXERCISE LOGISTICS

Exercise Summary

General

The NAPS VOPEX 2022 is designed to establish a learning environment for players to exercise their plans and procedures for responding to an incident at a Nuclear Power Plant. The NAPS VOPEX 2022 will be conducted on July 19, 2022. Exercise play is scheduled for approximately eight hours or until the lead controller in consultation with FEMA determines that the exercise objectives have been met at each venue.

Assumptions

Assumptions constitute the implied factual foundation for the exercise and, hence, are assumed to be present before the start of the exercise. The following general assumptions apply to the NAPS VOPEX 2022:

- The exercise will be graded against the REP Objectives and Capability Targets. Elements outside the scope of the REP criteria will not be graded.
- Exercise simulation will be realistic and plausible, containing sufficient detail from which to respond.
- Exercise players will react to the information and situations as they are presented, in the same manner as if this had been a real event.
- Exercise play, including the protective action decision-making process, will be based solely on conditions as driven by the scenario. Exercise injects will be developed to directly reflect scenario conditions/event and help further drive exercise play in order to meet evaluation criterion.

Constructs and Constraints

Constructs are exercise devices designed to enhance or improve exercise realism. Alternatively, constraints are exercise limitations that may detract from exercise realism. Constraints may be the inadvertent result of a faulty construct or may pertain to financial and staffing issues.

Although there are a number of constructs and constraints (also known as exercise artificialities) for any exercise, the EPT recognizes and accepts the following as necessary:

- Exercise communication and coordination will be limited to the participating exercise venues and the Simulation Cell (SimCell).
- Out-of-Sequence play is authorized based on prior approval.
- Certain simulations are allowed based on prior approval.
- Pre-staging is allowed unless otherwise noted in the Extent of Play.

The participating agencies may need to balance exercise play with real-world emergencies. It is understood that real-world emergencies will take priority.

Exercise Participants

The following are the categories of participants involved in this exercise; note that the term “participant” refers to all categories listed below, not just those playing in the exercise:

- **Players:** Players are agency personnel who have an active role in responding to the simulated emergency and perform their regular roles and responsibilities during the exercise. Players initiate actions that will respond to and mitigate the simulated emergency.
- **Controllers:** Controllers set up and operate the exercise site; plan and manage exercise play; act in the roles of response individuals and agencies not playing in the exercise. Controllers direct the pace of exercise play and routinely include members from the exercise planning team. They provide key data to players and may or initiate certain player actions to ensure exercise continuity.
- **Trusted Agents:** An individual on the exercise planning team who is trusted not to reveal exercise and scenario details to players or third parties before and during exercise conduct.
- **Simulators:** Simulators are control staff personnel who role-play as nonparticipating organizations or individuals. They most often operate out of the SimCell but may occasionally have face-to-face contact with players. Simulator's function semi-independently under the supervision of SimCell controllers, enacting roles (e.g., as media reporters or next of kin) in accordance with instructions provided in the Master Scenario Events List (MSEL). All simulators are ultimately accountable to the Exercise Director and/or the Senior Controller.
- **Evaluators:** Evaluators are chosen to evaluate and provide feedback on a designated functional area of the exercise. They are chosen based on their expertise in the functional area(s) they have been assigned to review during the exercise and their familiarity with local emergency response procedures. Evaluators assess and document participants' performance against established emergency plans and exercise evaluation criteria, in accordance with HSEEP standards and within the bounds of REP Program guidance and regulations. They are typically chosen from amongst planning committee members or the agencies/organizations that are participating in the exercise. FEMA Evaluators will not serve as Controllers.
- **Actors:** Actors are exercise participants who act or simulate specific roles during exercise play. They are typically volunteers, who have been recruited to play the role of victims or other bystanders.
- **Observers:** Observers visit or view selected segments of the exercise. Observers do not play in the exercise, and do not perform any control or evaluation functions. Observers will view the exercise from a designated observation area and will be asked to remain within the observation area during the exercise. VIPs are a type of observer but are frequently grouped separately. A dedicated group of exercise Controllers should be assigned to manage these groups.
- **Media Personnel:** Some media personnel may be present as observers pending approval by the appropriate EMA personnel and exercise support team members. Media interaction may also be simulated by the SimCell to enhance realism and meet related exercise objectives. A dedicated group of exercise controllers should be assigned to manage these groups.
- **Support Staff:** Exercise support staff includes individuals who are assigned administrative and logistical support tasks during the exercise (i.e., registration, catering, etc).

Exercise Tools

Controller Handbook

The NAPS VOPEX 2022 C/E Handbook is designed to help exercise Controllers and evaluators conduct and evaluate an effective exercise. This Handbook also enables Controllers and Evaluators to understand their roles and responsibilities in exercise execution and evaluation. Should a Player, Observer, or media representative find an unattended Handbook, it should be provided to the nearest Controller or Evaluator. Determine if a Controller Handbook will be used.

Extent-of-Play Agreement (EOPA)

The extent-of-play agreements will document and define the agreed-upon approach to demonstrating and evaluating the REP Program objectives/capability targets. These documents are intended to define the commitment of participants in advance and should outline those commitments, as well as the facilities to be evaluated or utilized and the anticipated level of participation. The extent-of-play agreement should also capture activities that may deviate in demonstration from plans and procedures as currently written, such as pre-staging personnel at or near a facility prior to activation during an exercise. These extent-of-play agreements will provide reliable information for developing the assessment activity and ensure appropriate evaluation

Master Scenario Events List

The MSEL outlines benchmarks, as well as injects that drive exercise play. It also details realistic input to the exercise players as well as information expected to emanate from simulated organizations (i.e., those nonparticipating organizations, agencies, and individuals who would usually respond to the situation). An inject will include several items of information, such as inject time, intended recipient, responsible controller, inject type, a short description of the event, and the expected player action. In order to avoid compromise to exercise play, the MSEL will not be provided to exercise players.

For the VOPEX2022, injects will be used primarily for the out-of-sequence demonstrations (see Exercise Summary above) and the Field Monitoring and Public Inquiry (rumor control) messages during the exercise. These injects are provided in an older format, i.e. (inject packet or mini scenario) for controller use and will include a timeline or time stamp consistent with escalations of events during a simulated nuclear power plant incident and include other required information necessary to drive exercise play.

Notifications during the Plume Phase of the exercise will be driven by the simulator at the utility in accordance with events outlined in the MSEL included in the approved exercise scenario and will be communicated in the same manner as a real event with all communications being preceded with and terminated by the phrase *"This is an Exercise"*.

Exercise Implementation

Exercise Play

Exercise play will begin at approximately 0800 with a situation update going to each participating venue. Play will proceed according to the events outlined in the MSEL, in accordance with established plans and procedures. The exercise will conclude upon the completion of operations and attainment of the exercise objectives, as determined by the by the lead exercise controller in consultation with FEMA and the utility. Participants at the Virginia Emergency Operations Center (VEOC) **will be allowed to pre-stage at the VEOC.** State Field Monitoring teams **will be allowed to pre-stage within the local area.**

Exercise Rules

The following are the general rules that govern exercise play:

- Real-world emergency actions take priority over exercise actions.
- Exercise participants will comply with real-world response procedures, unless otherwise directed by control staff.
- All communications (written, radio, telephone, etc.) made during the exercise will begin and end with the phrase, *"This is an exercise."*

Exercise participants placing telephone calls or initiating radio communication with the SimCell must identify the organization, agency, office, and/or individual with whom they wish to speak.

Safety Requirements

General

Exercise participant safety takes priority over exercise events. Although the organizations involved in the NAPS VOPEX 2022 come from various response agencies, they share the basic responsibility for ensuring a safe environment for all personnel involved in the exercise. In addition, aspects of an emergency response are dangerous. Professional health and safety ethics should guide all participants to operate in their assigned roles in the safest manner possible. The following general requirements apply to the exercise:

- All exercise controllers, evaluators, and staff will serve as safety observers while the exercise activities are underway. Any safety concerns must be immediately reported to the Lead Controller.
- Participants will be responsible for their own and each other's safety during the exercise. It is the responsibility of all persons associated with the exercise to stop play if, in their opinion, a real safety problem exists. Once the problem is corrected, exercise play can be restarted.
- All organizations will comply with their respective environmental, health, and safety plans and procedures, as well as the appropriate Federal, State, and local environmental health and safety regulations.

Exercise Setup

Exercise setup involves the pre-staging and dispersal of exercise materials, including registration materials, documentation, signage, and other equipment as appropriate.

Accident Reporting and Real Emergencies

- Anyone observing a participant who is seriously ill or injured will first advise the nearest controller, then, if possible, render aid, provided the aid does not exceed his or her training.
- The controller who is made aware of a real emergency will initiate the broadcast “*Real-World Emergency*” on the controller radio network, providing the following information to the Senior/Lead Controller and Exercise Director:
 - Venue/function
 - Location within the venue/function
 - Condition
 - Requirements
- The SimCell and Lead Controller will be notified as soon as possible if a real emergency occurs.
- The Lead Controller will be located in the VEOC and will be notified as soon as possible if a real emergency occurs.
- If the nature of the emergency requires a suspension of the exercise at the venue/function, all exercise activities at that facility will immediately cease. Exercise play may resume at that venue/function once the “Real-World Emergency” situation has been addressed.
- Exercise play at other venue/functions should not cease if one venue/function has declared a “Real-World Emergency” unless they are reliant on the affected venue.
- If a real emergency occurs that affects the entire exercise, the exercise may be suspended or terminated at the discretion of the Exercise Director and Senior Controller. The notification will be made from the VEOC.

Site Access

Observer Coordination

Each organization with observers will coordinate with the VDEM for access to the exercise site. Observers will be escorted to an observation area for orientation and conduct of the exercise. All observers will be asked to remain within the designated observation area during the exercise. The Lead Controller and/or the Observer Controller will be present to explain the exercise program and answer questions for the observers during the exercise.

Directions

Directions/addresses to each venue area are available in Appendix D.

Exercise Identification

Identification badges may be issued to exercise staff. All exercise personnel and observers will be identified by badges distributed by the staff from each participating agency.

Communications Plan

Exercise Start, Suspension, and Termination Instructions

The exercise is scheduled to run for approximately eight hours or until the Lead Controller, in consultation with the Federal Emergency Management Agency and the utility determines that the exercise objectives have been met. The VDEM Lead Controller will announce the exercise suspension or termination through the exercise controller at each venue and/or by DEENS and CNS. **Pre-Staging is allowed at some locations. See Extent of Play for specific locations and details.**

All spoken and written communication will start and end with the statement, “THIS IS AN EXERCISE.”

Player Communication

Players will use routine, in-place agency communication systems. Additional communication assets may be made available as the exercise progresses. The need to maintain capability for a real-world response may preclude the use of certain communication channels or systems that would usually be available for an actual emergency incident. In no instance will exercise communication interfere with real-world emergency communications. Each venue will coordinate its own internal communication networks and channels.

The primary means of communication among the SimCell, Controllers, Evaluators, and the venues will be telephone. A list of key telephone and fax numbers, and radio call signs if applicable will be available as a Communication Directory before the start of the exercise.

Player Briefing

Controllers/Evaluators may be required to read specific exercise details to the participants prior to exercise play. They may also have technical handouts or other materials to give to players in order to better orient them to the exercise environment.

Public Affairs

This exercise enables Players to demonstrate an increased readiness to deal with a nuclear power plant incident. Any nuclear power plant exercise may be a newsworthy event. Special attention must be given to the needs of the media, allowing them to get as complete and accurate a story as possible while ensuring their activities do not compromise the exercise realism, safety, or objectives.

A Joint Information Center will be established at the Virginia Emergency Operations Center. Actors may play the role of reporters and (simulate) “media briefings” and will be given as they would for a real incident.

Participation by actual media will be coordinated through the Exercise Director in conjunction with the VDEM Director of Communications. The Virginia Department of Emergency

Management and FEMA are responsible for disseminating public information in advance of the exercise.

CHAPTER 3: PLAYER GUIDELINES

Exercise Staff

Exercise Director

The Exercise Director has the overall responsibility for planning, coordinating, and overseeing all exercise functions. He/she manages the exercise activities and maintains a close dialogue with the Controllers regarding the status of play and the achievement of the exercise design objectives. The VDEM Exercise Coordinator has responsibility to organize and lead the Exercise Planning Team.

Lead Controller

The Lead Controller is responsible for the overall organization of the NAPS VOPEX 2022. The Lead Controller monitors exercise progress and coordinates decisions regarding deviations or significant changes to the scenario caused by unexpected developments during play. The Lead Controller monitors actions by individual Controllers and ensures they implement all designated and modified actions at the appropriate time. The Lead Controller debriefs the Controllers after the exercise and oversees the setup and takedown of the exercise.

Controllers

At least one controller will be onsite with every facility and field team participating in the exercise, and at each out-of-sequence interview. The Lead Facility Controller at each location will coordinate any changes that impact the scenario or affect other areas of play through the Lead Controller. The individual controllers issue exercise materials to players as required and monitor the exercise timeline. Controllers also provide injects to the players as described in the MSEL.

Lead Evaluator

The Lead Evaluator is responsible for the overall evaluation of the NAPS VOPEX 2022. The Lead Evaluator monitors exercise progress and stays in contact with the Lead Controller regarding changes to the exercise during play. The Lead Evaluator monitors actions of individual Evaluators and ensures they are tracking progress of the players in accordance with the Extent of Play. The Lead Evaluator debriefs the evaluators after the exercise and oversees the entire evaluation and After-Action process.

Evaluators

Evaluators work under the direction of the Lead Evaluator, and as a team with Controllers. Evaluators are SMEs who record events that take place during the exercise and assess/submit documentation for review and inclusion in the After-Action Report (AAR).

Player Instructions

Before the Exercise

- Review the appropriate emergency plans, procedures, and exercise support documents.

- Be at the appropriate site at least 30 minutes before the start of the exercise if prestaging is approved. Wear appropriate uniform/identification badge.
- If you gain knowledge of the scenario before the exercise, notify a controller so that appropriate actions can be taken to ensure a valid evaluation.
- Read your Player Information Handout, which includes information on exercise safety.
- Please sign in.

During the Exercise

- Respond to the exercise events and information as if the emergency were real, unless otherwise directed by an exercise controller.
- Controllers will only give you information they are specifically directed to disseminate. You are expected to obtain other necessary information through existing emergency information channels.
- Do not engage in personal conversations with controllers, evaluators, observers, or media personnel while the exercise is in progress. If you are asked an exercise-related question, give a short, concise answer. If you are busy and cannot immediately respond, indicate so, but report back with an answer at the earliest time possible.
- If you do not understand the scope of the exercise or if you are uncertain about an organizations or agency's participation in an exercise, ask a controller.
- Parts of the scenario may seem implausible. Recognize that the exercise has objectives to satisfy and may require the incorporation of unrealistic aspects. Note that every effort has been made by the trusted agents to balance realism with safety and the creation of an effective learning and evaluation environment.
- All exercise communication will begin and end with the phrase "This is an exercise." This is a precaution taken so anyone overhearing the conversation will not mistake the exercise play for a real-world emergency.
- When communicating with the SimCell, identify the organization, agency, office, and/or individual with which you want to speak.
- Verbalize out loud when taking an action. This will ensure that evaluators are made aware of critical actions as they occur.
- Maintain a log of your activities. Many times, this log may include documentation of activities missed by a controller or evaluator.

Following the Exercise

- At the end of the exercise at your facility, participate in the brief critique with the controllers and evaluators.
- Complete the Participant Feedback Form. This form allows you to comment candidly on emergency response activities and effectiveness of the exercise. Please provide the completed form to a controller or evaluator.
- Provide any notes or materials generated from the exercise to your controller or evaluator for review and inclusion in the AAR.

Simulation Guidelines

Because the NAPS VOPEX 2022 is of limited duration and scope, the physical description of what would fully occur at the incident sites and surrounding areas will be relayed to the Players by Simulators or Controllers.

If a real emergency occurs during the exercise, the exercise at your respective venue may be suspended or terminated at the discretion of the controller(s) at each venue. If a real emergency occurs, say “Real-World Emergency” and notify the nearest Controller and Evaluator.

CHAPTER 4: EVALUATION AND POST-EXERCISE ACTIVITIES

Exercise Documentation

The goal of the NAPS VOPEX 2022 is to comprehensively exercise and evaluate the OROs' plans and capabilities as they pertain to a potential nuclear power plant incident. After the exercise, data collected by Controllers, Evaluators, the SimCell, and Players will be used to identify strengths and areas for improvement in the context of the exercise design objectives.

Exercise Evaluation Guides

FEMA recommends that REP exercise planners utilize EEGs. These EEGs are designed to maintain the integrity of the REP objectives/capability targets and to ensure provision of useful information that support the creation and maintenance of OROs' core capabilities. The FEMA REP program EEG templates will be available for download from the PrepToolkit once the system is updated to accommodate the revised Part III of the 2019 RPM. The FEMA Region decides the degree of exercise planning team and ORO involvement in tailoring the EEGs for each assessment activity. There is no requirement for OROs to be involved in the EEG development process, though such involvement is beneficial.

Players Critique

Immediately following the completion of exercise play, Controllers will facilitate a critique with Players from their assigned location. The critique is an opportunity for Players to voice their opinions on the exercise and their own performance. At this time, Controllers can also seek clarification on certain actions and what prompted Players to take them. The critique should not last more than 30 minutes. Controllers should take notes during the critique and include these observations in their analysis.

Participants Briefing and Public Meeting

44 CFR 350.9 requires a post-exercise participant briefing and public meeting. A participant's briefing will be conducted after the biennial exercise as an opportunity to present OROs with initial exercise results. The public meeting is an opportunity to discuss the evaluation of the REP exercise with the public. The RAC Chair may combine the participant briefing with the public meeting at his or her discretion. The participant's briefing will be conducted on July 21, 2022, at 3:00 PM at the Glen Allen Marriott Hotel, 4240 Dominion Blvd, Glenn Allen, VA. The Public/Media Briefing will be conducted July 21, 2022, at 4:00 PM via Zoom.

Controller and Evaluator Debriefing

Controllers, Evaluators, and selected exercise participants will attend a facilitated Controller and Evaluator Debriefing following the exercise at each respective location of play. During the debriefing these individuals will discuss their observations of the exercise in an open environment to clarify actions taken during the exercise. Evaluators will only brief preliminary findings based on their observations.

After Action Report

The AAR is the culmination of the exercise. It is a written report outlining the strengths and areas for improvement identified during the exercise. The AAR will include the timeline, executive summary, scenario description, performance issues, planning issues, deficiencies, and capability analysis. The AAR will be drafted by the FEMA region and provided to the state for review and comment within 30 days and finalized no more than 90 days after the assessment activity is conducted.

After Action Conference

The After-Action Conference (AAC), scheduled for (date TBD) will be conducted virtually. The AAC is a forum for jurisdiction officials to hear the results of the evaluation analysis, validate the findings and recommendations in the draft AAR, and begin development of the IP.

Improvement Plan

The IP is an outcome of the evaluation report. The IP contains information on how OROs will correct or improve Level 1 Findings, Level 2 Findings, and Plan Issues, who is responsible, and an anticipated timeline for correction/improvement. As FEMA documents each Level 1 Finding, Level 2 Finding, or Plan Issue within the evaluation report, OROs make a corresponding entry in the IP. The content of the IP will be negotiated during the after-action meeting (AAM), so it is not necessary for all information to be filled in when the draft evaluation report and IP goes out for comment. FEMA Regions will follow up with OROs to ensure that IP corrective actions related to the Level 1 or Level 2 Findings, or Plan Issues identified by FEMA are met.

The NAPS VOPEX 2022 participating agency officials will discuss the Improvement Plan during the AAC scheduled for (date TBD) will be conducted virtually.

APPENDIX A: EXERCISE SCHEDULE

Table A.1 *NAPS VOPEX 2022 Schedule*

Time (Tentative)	Personnel	Activity
July 19, 2022		
0800-1600	VDEM/VDH Staff	VEOC JIC SAU Protective Action Task Force
	VDH/ORH	State Field Monitoring Teams 1 & 2
	CERC	State On Scene Coordinator VDH Field Team Coordinator
	Caroline County	EOC Evaluation TCP/ACP Interviews Transportation Dependent Interviews Route Alerting Staging Area
	Hanover County	EOC Evaluation TCP/ACP Interviews Transportation Dependent Interviews Route Alerting Staging Area
	Louisa County	EOC Evaluation TCP/ACP Interviews Transportation Dependent Interviews Route Alerting School Interviews Siren Activation Staging Area
	Orange County	EOC Evaluation TCP/ACP Interviews Transportation Dependent Interviews Route Alerting Staging Area
	Spotsylvania County	EOC Evaluation TCP/ACP Interviews Transportation Dependent Interviews Route Alerting School Interviews Staging Area

Table A.2 NAPS VOPEX 2022 Out of Sequence Schedule

Time (Tentative)	Personnel	Activity
June 29, 2022		
0800 – 1200		Spotsylvania County Evacuation Assembly Center (EAC) <ul style="list-style-type: none"> • Reception Center/ Evacuee Mon/Decon • Evacuee Vehicle Mon/Decon • Emergency Worker Mon/Decon • Mass Care
June 30, 2022		
0800 – 1200		Mary Washington Hospital MS-1
0800 – 1200	Hanover County Fire/EMS	Hanover County EMS MS-1
0900 – 1300	Newport News Regional HazMat Team	Virginia State Field Teams

APPENDIX B: METHOD OF OPERATION AND EXTENT OF PLAY

OBJECTIVE 1 – Emergency Operations Management

Capability Target 1.1: Mobilization (*Vice Sub-Element 1.a.1*)

Core Capability: Operational Coordination; Planning

Recommended Evaluation Frequencies: At every assessment activity

Recommended Assessment Activities: Exercise; Drill

Planning Reference: NUREG-0654/FEMA-REP-1, Rev. 2 (A.1, A.1.a, A.1.b, A.3, A.4, A.5, C.1, C.2, C.2.a, C.2.b, C.3, E.1, E.1.a, E.3, F.1.c, H.6, and O.1)

Intent: The capability to alert, notify, and mobilize OROs to staff facilities in support of emergency operations.

Demonstration and Evaluation Guidance:

1. Alert, notify, and mobilize key personnel, to include a 24-hour staffing roster, and activate facilities in a timely manner.
2. Receive and verify notifications.

3. Identify and request additional resources, as needed.
4. Determine a facility operational.

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:

5. Demonstrate the capability to receive and verify notification of an emergency from the licensee. Contact, alert, and mobilization of key emergency personnel. (VEOC will perform notification/activation of the key state agencies deemed necessary, but not physically represented in the EOC during the exercise.)
6. Demonstrate the activation of facilities for immediate use by personnel in attendance for the exercise when they arrive.
7. Activation of facilities/personnel will be performed in accordance with plans and procedures.
8. Actual mobilization of activation of facilities will be completed in accordance with the plan and/or procedures.
9. Personnel will be pre-positioned. This pre-positioning will be for all locations, to include EOC, field locations and any out-of-sequence demonstrations.
10. EOC Twenty-four (24) Hour Staffing will be demonstrated by roster.
11. In the event that, COVID-19 spikes or an executive order is issued the State EOC will be staffed both physically with key decision makers and staff as well as virtually with the remaining stakeholders to maintain continued COVID-19 protective actions, these actions will be coordinated with FEMA Region 3.
12. WebEOC will be utilized as a system of record for information that is briefed out verbally, tracking requests for assistance etc.

Risk Jurisdictions Negotiated Extent of Play:

13. Demonstrate the capability to receive and verify notification of an emergency situation from the licensee. Contact, alert, and mobilize key emergency personnel in a timely manner.
14. Demonstrate the activation of facilities for immediate use by mobilized personnel when they arrive to begin emergency operations.
15. Activation of facilities should be completed in accordance with the plans and procedures.
16. The Hanover County staging area will not be stood up due to personnel changes.
17. Personnel will be pre-positioned. This pre-positioning will be for all locations, to include EOC, field locations and any out-of-sequence demonstrations.
18. EOC Twenty-four (24) Hour Staffing will be demonstrated by roster.
19. In the event that COVID-19 spikes or an executive order is issued the Local EOCs will be staffed both physically with key decision makers and staff as well as virtually with the remaining stakeholders to maintain continued COVID-19 protective actions, these actions will be coordinated with FEMA Region 3.

Support Jurisdictions Negotiated Extent of Play:

N/A

Outstanding Issues:

N/A

Capability Target 1.2: Direction and Control (*Vice Sub-Element 1.b.1, 1.c.1, 1.e.1*)

Core Capabilities: Operational Coordination; Environmental Response/Health and Safety; Public Information and Warning; Mass Care Services; Public Health, Healthcare, and Emergency Medical Services; Situational Assessment; Critical Transportation; Planning

Recommended Evaluation Frequencies: At every assessment activity

Recommended Assessment Activities: Exercise; Drill

Planning Reference: NUREG-0654/FEMA-REP-1, Rev. 2 (A.1, A.1.a, A.1.b, A.1.c, A.2, A.3, A.5, C.2, C.2.a, C.2.b, C.3, D.4, E.1, H.6, and O.1)

Intent: The capability to provide overall direction and control of response efforts, commensurate with the responsibilities of leadership, as detailed in plans/procedures.

Demonstration and Evaluation Guidance:

1. Support protective action decision-making.
2. Conduct briefings in a timely manner.
3. Maintain situational awareness.
4. Coordinate response activities with other organizations.
5. Obtain resources to support emergency operations.
6. Provide and maintain adequate facilities and equipment to support the emergency response.

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:
<ol style="list-style-type: none">7. Designated EOC personnel should demonstrate the ability to carry out essential functions of the response effort, for example: keeping the staff informed through periodic briefings and/or other means, coordinating with other appropriate response organizations, and ensuring completion of requirements and requests.8. WebEOC will be utilized as a system of record for information that is briefed out verbally, tracking requests for assistance etc.
Risk Jurisdictions Negotiated Extent of Play:
<ol style="list-style-type: none">9. Leadership personnel should demonstrate the ability to carry out essential functions of the response effort, for example: keeping the staff informed through periodic briefings and/or other means, coordinating with other appropriate response organizations, and ensuring completion of requirement and requests.
Support Jurisdictions Negotiated Extent of Play:
N/A
Outstanding Issues:
N/A

Capability Target 1.3: Protective Action Recommendations (*Vice Sub-Element 2.b.1; 3.e.1*)

Core Capabilities: Operational Coordination; Environmental Response/Health and Safety; Situational Assessment; Planning

Recommended Evaluation Frequencies: Biennially

Recommended Assessment Activities: Biennial exercise only

Planning Reference: NUREG-0654/FEMA-REP-1, Rev. 2 (D.4, J.7, J.8, J.8.b, J.9, and O.1)

Intent: The capability to use dose assessment and field data, compare this data to the PAGs, and choose among a range of protective actions those most appropriate in a given emergency.

Demonstration and Evaluation Guidance:

Plume

1. Select and implement pre-planned precautionary protective actions.
2. Utilize the methodology in plans/procedures to select among a range of protective actions most appropriate in a given emergency. This could also include the use of preplanned precautionary protective actions contained in plans/procedures.
3. Develop PARs.
4. Transmit PARs in a timely manner.

Post Plume

1. Assess radiological consequences and provide appropriate PARs for the ingestion exposure pathway.

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:	
2.	Protective Action Recommendations will be developed in accordance with Plans and/or Procedures.
3.	If the scenario does not involve a release, this can be demonstrated by interview.
Risk Jurisdictions Negotiated Extent of Play:	
4.	Risk jurisdictions, when dictated by events, and according to procedures, officials will select and implement pre-planned precautionary protective actions.
Support Jurisdictions Negotiated Extent of Play:	
N/A	
Outstanding Issues:	
N/A	

Capability Target 1.4: Protective Action Decisions for the Plume Phase (*Vice Sub-Element 2.b.2; 2.c.1*)

Core Capabilities: Operational Coordination; Environmental Response/Health and Safety; Situational Assessment; Critical Transportation; Planning

Recommended Evaluation Frequencies: Biennially

Recommended Assessment Activities: Biennial exercise only

Planning Reference: NUREG-0654/FEMA-REP-1, Rev. 2 (D.1.b, D.4, J.6, J.7, J.8, J.8.b, J.10, J.10.a, J.10.b, J.11.c-g, and O.1)

Intent: The capability to utilize appropriate factors and necessary coordination in the decision-making process used to make PADs for the public.

Demonstration and Evaluation Guidance:

5. Coordinate and make PADs for members of the general public.
6. Coordinate and make PADs for those with access and functional needs.
7. Coordinate and make PADs for students at schools.
8. Coordinate and make subsequent or alternate PADs.
9. Coordinate and make decisions on the administration of KI (where applicable) for the public and institutionalized members of the population.

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:
<p>10. Decisions to evacuate and shelter any portion of the affected population will be demonstrated by the VDEM State Coordinator or his/her 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 PADs 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.</p> <p>11. The State will demonstrate capability to make both initial and subsequent (as needed) PADs. However, based on the recommendation by the Utility, the final decision will be made by the Commonwealth of Virginia.</p>
Risk Jurisdictions Negotiated Extent of Play:
<p>12. Risk jurisdictions, when dictated by events and according to procedures, officials (if not already completed under capability target 1.3 - will select and implement pre-planned precautionary protective actions).</p> <p>13. The PAD(s) will be coordinated between the State of Virginia and the respective risk jurisdictions.</p> <p>14. If the scenario does not involve a release this can be demonstrated through interview.</p>
Support Jurisdictions Negotiated Extent of Play:
N/A
Outstanding Issues:
N/A

Capability Target 1.5: Protective Action Decision Implementation for the Plume Phase (*Vice Sub-Element 3.b.1; 3.c.1; 3.c.2*)

Core Capabilities: Operational Coordination; Public Information and Warning; Environmental Response/Health and Safety; Critical Transportation; Health and Social Services; Housing; Natural and Cultural Resources; Planning

Recommended Evaluation Frequencies: Biennially

Recommended Assessment Activities: Exercise; Drill

Planning Reference: NUREG-0654/FEMA-REP-1, Rev. 2 (A.4, C.2.a, G.1, J.11, J.11.a, J.11.b, J.11.c, J.11.e, J.11.g, and O.1)

Intent: The capability to implement precautionary protective action and/or PADs, including evacuation and/or sheltering, for all populations within the plume and ingestion exposure pathway EPZs. The populations include those with access and functional needs, students, and institutionalized individuals.

Demonstration and Evaluation Guidance:

15. Implement PADs, ensuring communication and coordination with all appropriate jurisdictions.
16. Assist those with access and functional needs during the implementation of PADs.
17. Communicate, coordinate, and implement protective actions for schools.
18. Communicate with transportation officials.
19. Identify evacuation routes for the general public.
20. Make KI available to both institutionalized persons and the general public, in accordance with plans and procedures.

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

State Negotiated Extent of Play:

21. The State should demonstrate the capability to formulate and disseminate appropriate instruction on the use of KI for those advised to take it.
22. A decision not to take KI is an acceptable decision

Risk Jurisdictions Negotiated Extent of Play:

23. Risk jurisdictions, when dictated by events and according to procedures, officials (if not already completed under capability target 1.3 - will select and implement pre-planned precautionary protective actions).
24. Evacuation routes for the general public will be identified
25. For Hanover County Transportation Dependent and Route Alerting briefing/demonstration will be conducted from the EOC instead of the staging area.
26. If the scenario does not involve a release this can be demonstrated through interview.
27. Demonstrate the capability to alert and notify AFN populations will occur. (This will be simulated)
28. Demonstrate the capability to provide for the needs of AFN populations in accordance with plans and procedures.
29. One transportation provider will be contacted; all other calls will be simulated.
30. All simulated contacts should be logged.
31. Transportation of school children, if necessary, will be simulated.
32. Transportation dependent routes will be demonstrated through interviews.
33. The list identifying AFN populations will be available to evaluators but may not leave the EOC. Due to the nature of protected personal information the list will be a scrubbed list.
34. School officials will demonstrate the decision-making process for protective actions if not already completed under capability target 1.3.
35. Interviews with school officials will occur in sequence which will include a district and school representative for those jurisdictions.
36. Communications will be verified by the bus driver by interview.

Support Jurisdictions Negotiated Extent of Play:
N/A
Outstanding Issues:
N/A

Capability Target 1.6: Protective Action Decisions for the Post-Plume Phase (*Vice Sub-Element 2.d.1, 2.e.1*)

Core Capabilities: Operational Coordination; Environmental Response/Health and Safety; Situational Assessment; Critical Transportation; Housing; Planning

Recommended Evaluation Frequencies: At least once every 8-years

Recommended Assessment Activities: Exercise; Drill

Planning Reference: NUREG-0654/FEMA-REP-1, Rev. 2 (J.12, J.14, J.14.a-f, M.1, M.1.b, M.4, M.5, M.6, M.7, M.8, and O.1)

Intent: The capability to assess the radiological consequences for the ingestion exposure pathway and post-plume phase, relate them to the appropriate PAGs, and make and coordinate timely, appropriate PADs to mitigate exposure.

Demonstration and Evaluation Guidance:

37. Make post-plume phase decisions in a timely manner.
38. Make relocation decisions for the post-plume phase in a timely manner.
39. Make reentry decisions for the post-plume phase in a timely manner.
40. Make return decisions for the post-plume phase in a timely manner.
41. Make re-occupancy decisions for the post-plume phase in a timely manner.
42. Coordinate PADs as appropriate.

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:
N/A
Risk Jurisdictions Negotiated Extent of Play:
N/A
Support Jurisdictions Negotiated Extent of Play:
N/A
Outstanding Issues:
N/A

Capability Target 1.7: Protective Action Decision Implementation for the Post-Plume Phase (*Vice Sub-Element: 3.a.1, 3.d.1, 3.e.1, 3.e.2, 3.f.1, 5.b.1*)

Core Capabilities: Operational Coordination; Public Information and Warning; Environmental Response/Health and Safety; Critical Transportation; Health and Social Services; Housing; Natural and Cultural Resources; Planning

Recommended Evaluation Frequencies: Biennially

Recommended Assessment Activities: Exercise; Drill

Planning Reference: NUREG-0654/FEMA-REP-1, Rev. 2 (C.2, J.12, J.14, J.14.a-f, M.1, M.1.b, M.4, M.5, M.6, M.7, M.8, and O.1)

Intent: The capability to implement and coordinate PADs to mitigate exposure and address long-term radiological consequences.

Demonstration and Evaluation Guidance:

43. Communicate and implement protective actions for agribusinesses, such as dairy farms, meat and poultry producers, fisheries, fruit growers, vegetable growers, grain producers, food processing plants, and water supply intake points.
44. Formulate protective action information (e.g., brochures, email, text message, etc.) for the general public and food producers and processors.
45. Control, restrict, or prevent distribution of contaminated food by commercial sectors, ensuring communication and coordination with agencies responsible for enforcing food controls.
46. Communicate instructions to the public regarding relocation decisions and intermediate-term housing for relocated persons.
47. Coordinate and implement decisions concerning relocation, including short- and/or long-term relocation of evacuees.
48. Control reentry and exit of individuals who are authorized by the ORO to temporarily reenter the restricted area.
49. Implement policies concerning return of members of the public to areas that were evacuated during the plume phase.

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:
N/A
Risk Jurisdictions Negotiated Extent of Play:
N/A
Support Jurisdictions Negotiated Extent of Play:
N/A
Outstanding Issues:
N/A

OBJECTIVE 2 - Exposure Control

Capability Target 2.1: Emergency Worker Exposure Control Decision-Making Process (*Vice Sub-Element: 2.a.1*)

Core Capabilities: Operational Coordination; Environmental Response/Health and Safety; Situational Assessment; Planning

Recommended Evaluation Frequencies: Biennially

Recommended Assessment Activities: Exercise; Drill

Planning Reference: NUREG-0654/FEMA-REP-1, Rev. 2 (C.2.c, H.11, K.2, K.2.b, K.3, K.3.a, M.1.b, M.8, and O.1)

Intent: The capability to assess and control the radiation exposure and dose received by emergency workers and utilize a decision-making chain to authorize emergency worker exposure limits to be exceeded for specific missions.

Demonstration and Evaluation Guidance:

1. Control emergency workers' exposure and dose, including offsite workers performing duties onsite.
2. Maintain record of dose as a result of exposure.
3. Authorize exposures and dose in excess of identified limits.
4. Process for considering occupational exposures and to authorize individuals to receive doses in excess of occupational dose limits.
5. Determine a correction factor for DRD-based isotopic release mixture.
6. Control exposure and dose for temporary reentry of emergency workers, or members of the public, to restricted areas.
7. Determine the need to authorize radioprotective drugs using projected thyroid doses and field measurements. Projections are compared to previously established PAGs.
8. Adequately protect members of the public from radiological exposure and control dose for those who are authorized to temporarily reenter a restricted 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.

State Negotiated Extent of Play:

9. On July 19, 2022, VDH/ORH will demonstrate the ability to control emergency workers' exposure and dose and communicate the appropriate exposure control ratio to ORH and VDEM personnel in the CERC.
- ~~10.~~ VDH/ORH will demonstrate the capability to make decisions on the administration of KI as a protective measure based on procedures.
11. The decision for KI can be "not to administer" KI The decision for KI can be "not to administer" KI
12. The Commonwealth of Virginia has established reporting, turn back, protecting valuable property, lifesaving, voluntary lifesaving, and KI administration levels based on the EPA 2017 PAG Manual. Authorization to exceed the turnback limit must be

Exercise Plan/Extent of Play	North Anna Power Station
given by the Commonwealth of Virginia's Radiological Officer for emergency workers.	
Risk Jurisdictions Negotiated Extent of Play:	
13. Appropriate emergency workers in the risk jurisdictions will demonstrate this criterion according to their procedures.	
14. All jurisdiction EOCs are outside of the 10-mile EPZ so issuing of personal dosimetry and a radiological briefing is not necessary.	
Support Jurisdictions Negotiated Extent of Play:	
N/A	
Outstanding Issues:	
Issue Number 62-21-2a1-P-01 - An updated exposure control ratio with new administrative radiation exposure limits were determined by the personnel in the Corporate Emergency Response Center (CERC). The updated administrative radiation exposure limits were not communicated to all affected emergency workers.	

Capability Target 2.2: Emergency Worker Exposure Control Management (*VICE Sub-Element 3.a.1*)

Core Capabilities: Operational Coordination; Environmental Response/Health and Safety; Planning

Recommended Evaluation Frequencies: Biennially

Recommended Assessment Activities: Exercise; Drill

Planning Reference: NUREG-0654/FEMA-REP-1, Rev. 2 (C.2.c, H.11, H.11.b, K.2.b, K.3, K.3.a, M.1.b, and O.1)

Intent: The capability of emergency workers to manage dose and exposure, use equipment (e.g., dosimetry, radio protective drugs), and identify procedures to monitor their exposure and dose, including following procedures to obtain authorization to receive emergency exposures in excess of the PAGs.

Demonstration and Evaluation Guidance:

1. Maintain an appropriate inventory of DRDs that are leak-tested or current in calibration.
2. Maintain an appropriate inventory of PRDs.
3. Retain an adequate supply of radioprotective drugs.
4. Adequately distribute appropriate DRDs and PRDs.
5. Adequately distribute radioprotective drugs to emergency workers.
6. Record and report exposures in the field.
7. Implement decisions to administer radioprotective drugs.
8. Report to individual responsible for managing exposure and dose when limits are reached.
9. Implement exposure control decisions to members of the public from radiological exposure and control dose for those who are authorized to temporarily reenter a restricted 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.

State Negotiated Extent of Play:

10. On July 19, the VDH/ORH staging area personnel will demonstrate the capability to manage dose and exposure and equip emergency workers with appropriate dosimetry and radioprotective drugs, as per procedures.

Risk Jurisdictions Negotiated Extent of Play:

11. Emergency Workers who are assigned dosimetry will demonstrate the procedures to monitor and record dosimetry readings. The workers may be interviewed by the evaluator to determine their knowledge of radiological exposure control, radiation exposure limits, turnback values and whom to contact in the event authorization is needed to exceed their limits.
12. OROs will demonstrate the actions described in their plans and procedures by determining whether to replace the worker, to authorize the worker to incur additional exposures or to take actions.
13. If scenario events do not require emergency workers to seek authorization for additional exposure, evaluators will interview one emergency worker to determine their knowledge of whom to contact in the event authorization is needed.
14. Emergency workers may use any available resources.
15. Dosimeter Cards will be available at the field locations to demonstrate the use of dosimetry.
16. The supply of KI will be available at the jurisdiction EOCs and reviewed during the in-sequence evaluations.
17. Demonstrate through interview with the radiological officer and/or respective ESF how KI would be distributed to the EPZ Emergency Worker.
18. Simulated KI will be used.

Support Jurisdictions Negotiated Extent of Play:

N/A

Outstanding Issues:

None

OBJECTIVE 3 - Alert and Notification

Capability Target 3.1: Communications (*Vice Sub-Element: 1.d.1*)

Core Capabilities: Operational Communications; Operational Coordination; Situational Awareness; Planning

Recommended Evaluation Frequencies: At every assessment activity

Recommended Assessment Activities: Exercise; Communication Drill (N.4.e)

Planning Reference: NUREG-0654/FEMA-REP-1, Rev. 2 (E.1.a, E.3, F.1, F.1.a, F.1.b, F.1.c, F.3, and O.1)

Intent: The capability to provide and maintain reliable communications with emergency personnel.

Demonstration and Evaluation Guidance:

- Utilize communication systems that are fully functional, continuously available, and redundant.
- Maintain periodic test results and corrective actions on a real time basis.
- Access at least one communication system that is independent of the commercial telephone system.
- Manage the communication systems and ensure that all message traffic is handled without delays that might disrupt emergency operations.
- Identify and address any failures of the systems.
- Transmit, receive, and understand messages (i.e., “content check”).

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 Commonwealth of Virginia will demonstrate this area in accordance with plans/procedures.
- Telephone and at least one additional communications system will be available for demonstration.
- Demonstrate the capability to manage the communication systems and ensure that all message traffic is handled without delays that might disrupt the conduct of emergency operations.

Risk Jurisdictions Negotiated Extent of Play:

- Risk Jurisdictions will demonstrate this area in accordance with plans/procedures.
- Telephone and at least one additional communications system will be available for demonstration.
- Demonstrate the capability to manage the communication systems and ensure that all message traffic is handled without delays that might disrupt the conduct of emergency operations.
- Communications associated with medical support facilities will be demonstrated during the Out-of-sequence events on June 30, 2022.

Support Jurisdictions Negotiated Extent of Play:
N/A
Outstanding Issues:
None

Capability Target 3.2: Alert and Notification of the Public (*Vice Sub-Element: 5.a.1; 5.a.3; 5.a.4*)

Core Capabilities: Public Information and Warning; Planning

Recommended Evaluation Frequencies: Biennially

Recommended Assessment Activities: Biennial exercise only

Planning Reference: NUREG-0654/FEMA-REP-1, Rev. 2 (E.2, E.4, E.5, F.3, and O.1)

Intent: The capability to provide instructions to the public.

Demonstration and Evaluation Guidance:

Alert and Notification System

5. Sequentially provide an alert signal followed by an initial instructional message to populated areas.
6. Alert and notify the general public.
7. Identify and address any failures of the system(s) or portion of a system(s).
8. Actual testing of the mobile public address system will be conducted at an agreed upon location.

EAS

50. Identify the process to activate the EAS.
51. Ensure that updated emergency information is disseminated in a timely manner.
52. Ensure that current emergency information is repeated at pre-established intervals.
53. Identify the process to activate the EAS, to include the process to receive and then broadcast updated information/ messages and verification of the message, if applicable.
54. EAS/NWS Station.
55. Broadcast the message on a 24-hour basis.

Route/Alternate Alerting

- Complete route alerting, whether because of failure for system/portion of a system or for exception areas, as needed to demonstrate all routes are capable of being run in allotted time. Emphasis on the most challenging routes and demonstration of these routes will be varied from assessment activity to assessment activity. Challenging routes are defined as those that may be difficult to accomplish, such as those that are lengthy or with conditions (physical or otherwise) that may affect the speed and accuracy with which the route can be completed (e.g., traffic patterns and/or capacity, road conditions, etc.).

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:

Exercise Plan/Extent of Play	North Anna Power Station
<ul style="list-style-type: none"> • Coordination will occur between the Virginia EOC and the affected counties with respect to the Alert and Notification System (ANS) process. • Louisa County (primary) and Spotsylvania County (Secondary) have the control equipment for activation of sirens. Sirens will be coordinated, and the sounding <u>SIMULATED</u> at the appropriate time with the <u>SIMULATED</u> 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) will NOT be demonstrated. • ANS activation will be done in accordance with plans/procedures and in a timely manner. • All actions to broadcast stations will be simulated. • Systems that use automatic sending technology may be demonstrated by interview. 	
Risk Jurisdictions Negotiated Extent of Play:	
<ul style="list-style-type: none"> • Siren activation will be explained, sirens will not be sounded. • Risk Jurisdictions will demonstrate one primary, one backup and one exception area route as applicable to their plans/procedures. • Exception area routes must be demonstrated within 45 minutes once the initial decision is made to notify the public of an incident. • Route alerting will be demonstrated in sequence. • Risk Jurisdictions will demonstrate route alerting for hearing-impaired residents within their jurisdiction by interview therefor hearing-impaired notification teams will not be deployed. 	
Support Jurisdictions Negotiated Extent of Play:	
N/A	
Outstanding Issues:	
None	

Capability Target 3.3: Emergency Information and Instructions for the Public and News Media
(Vice Sub-Element: 5.b.1; 3.e.2)

Core Capabilities: Public Information and Warning; Planning

Recommended Evaluation Frequencies: Biennially

Recommended Assessment Activities: Biennial exercise only

Planning Reference: NUREG-0654/FEMA-REP-1, Rev. 2 (E.2, E.4, E.5, G.1, G.2, G.3, G.3.a, G.4, G.5, and O.1)

Intent: The capability to disseminate emergency information and instructions to the public during all phases of an incident.

Demonstration and Evaluation Guidance:

Plume Phase

- Deliver coordinated, prompt, reliable, and actionable information in a timely manner.
- Provide clear, concise, accessible messaging using plain language.
- Messaging addresses appropriate cultural and linguistic considerations.

- Ensure subsequent messaging is consistent with protective actions.
- Update information as the incident progresses, to include validating previously identified protective areas and clearly identifying any new protective action areas, any information that is no longer valid, and any changes to previously provided information (e.g., rerouting of evacuation routes due to impediments, etc.).
- Respond to media and public inquiries.

Post-Plume Phase

1. Rapidly disseminate of ingestion exposure pathway information to predetermined individuals and businesses.
2. Provide information to the public that addresses temporary reentry to a restricted area, permanent relocation from areas not evacuated, and return to formerly restricted areas will be communicated.

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:

3. News releases will be coordinated and exchanged with local jurisdictions.
4. Dissemination of news releases may be accomplished by the use of fax or other means.
5. 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.
6. A 2-1-1 call center will be staffed at one of the two call centers but will not be evaluated at the facility.
7. Some calls will be designed as to allow public inquiry staff to demonstrate the capability to identify trends and rumors.
8. The hotline staff will demonstrate the capability to provide or obtain accurate information for callers or refer them to an appropriate source.
9. Public inquiry telephone number(s) will be designated and published at the appropriate time.
10. Public information staff will simulate monitoring EAS broadcasts to determine whether false or misleading information is being disseminated to the public.
11. 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 the EAS Stations.
12. All subsequent emergency information and instruction will be provided to the public and the media in a timely manner.
13. All emergency information and instructions will be consistent with protective action decisions made by appropriate officials. The information will contain all necessary and applicable instructions.
14. The Commonwealth of Virginia will demonstrate the capability to use familiar landmarks and boundaries to describe protective action areas that are still valid as well as new areas and that current emergency information is repeated at pre-established intervals.

15. The Commonwealth of Virginia will demonstrate the capability to ensure that emergency information that is no longer valid is rescinded and not repeated by broadcast media.

16. One simulated media briefing will occur at the Virginia EOC.

Risk Jurisdictions Negotiated Extent of Play:

17. Each jurisdiction will establish a public inquiry phone line and will respond to calls.
18. Public inquiry telephone number(s) will be designated and published according to plans/procedures.
19. Public inquiries will be demonstrated at the EOC.
20. Trends and rumors will be identified, if applicable.
21. One simulated media briefing will occur at the risk jurisdiction EOC.

Support Jurisdictions Negotiated Extent of Play:

N/A

Outstanding Issues:

None

OBJECTIVE 4 - Detect, Measure, Sample, Analyze, and Assess

Capability Target 4.1: Field Monitoring Teams Management (*Vice Sub-Elements: 4.a.2*)

Core Capabilities: Operational Coordination; Environmental Response/Health and Safety; Planning

Recommended Evaluation Frequencies: Biennially

Recommended Assessment Activities: Exercise; Drill

Planning Reference: NUREG-0654/FEMA-REP-1, Rev. 2 (H.11, H.13, I.5, I.6, I.9, I.10, M.7, M.8, and O.1)

Intent: The capability to provide overall management of FMTs to direct movements and measurements to characterize the plume and its impacts.

Demonstration and Evaluation Guidance:

1. Brief FMTs on predicted plume location and direction, plume travel speed, equipment operational checks, background measurement, and exposure control procedures before deployment.
2. Direct the FMTs to monitoring locations, predesignated points or otherwise, at times and locations sufficient to characterize the plume.
3. Obtain peak plume measurements from FMTs.
4. Direct FMTs to collect air samples at locations and times sufficient to characterize the plume.
5. Keep Incident Command informed of FMTs activities and location(s) during a HAB incident or other instances when an ICP or other may be in use.
6. Coordinate and share information amongst all FMTs (licensee, Federal, state, and local).
7. Coordinate sample analysis from field to those responsible for assessing radiological data.
8. Coordinate transfer of sample media to locations and organizations responsible for assessing radiological data.
9. Assist with development and modification of sampling plans, as appropriate.

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:

10. Field Team Data will be provided to the field team coordinator by controller inject.
11. On July 19, the VDH/ORH staging area personnel will provide a radiological safety briefing to the state field monitoring teams prior to deployment. The state field team coordinator, located in the CERC will direct field monitoring teams to established monitoring points. State field monitoring teams will operate in accordance with procedures and will be provided controller injects to facilitate exercise play. The state field teams will demonstrate the ability to relay readings to the state field team coordinator and will return to the staging area when directed to a low background area following the air sample collection. Chain of custody and sample receipt will be demonstrated at the staging area in accordance with procedures.

Risk Jurisdictions Negotiated Extent of Play:

N/A

Support Jurisdictions Negotiated Extent of Play:
N/A
Outstanding Issues:
<p>The Commonwealth of Virginia must clear the Level 2 Finding listed below.</p> <p>Issue Number 41-21-4a2-L2-01 - a revised dosimeter-to-TEDE correction factor of 25 was calculated, which changed the Reporting Limit of 1.5R to 120mR and the Turn-Back Limit from 2.5R to 200mR. The VDEM Assistant State On-Scene Coordinator posted the revisions on Microsoft Teams, however, did not ensure Local FMTs received the information by directly contacting the counties.</p>

Capability Target 4.2: Plume Phase Measurements and Sampling (*Vice Sub-Element: 4.a.3*)

Core Capabilities: Environmental Response/Health and Safety; Planning

Recommended Evaluation Frequencies: Biennially

Recommended Assessment Activities: Exercise; Environmental Monitoring Drill (N.4.d)

Planning Reference: NUREG-0654/FEMA-REP-1, Rev. 2 (H.9, H.11, H.11.a, H.11.b, H.12, H.13, I.2, I.5, I.6, I.7, I.8, I.9, I.10, and O.1)

Intent: The capability to make and report measurements of ambient radiation.

Demonstration and Evaluation Guidance:

1. Maintain emergency equipment including calibration and operational checks according to manufacturer's specifications or per national standards.
2. Maintain inventory for emergency kits.
3. Operate and monitor radiation survey instruments to detect changes in radiation exposure rate while moving and in stationary positions.
4. Use appropriate contamination control and PPE.
5. Be in location(s) at the appropriate time(s) to detect and characterize the active release (plume).
6. Obtain peak plume measurements either directly or from licensee field teams.
7. Correctly interpret survey instrument readings to determine submersion in the active plume.
8. Collect representative air samples in the active plume on particulate media (e.g., glass or paper filter) and iodine selective media (e.g., silver zeolite cartridge).
9. Handle sample media and equipment to avoid sample cross-contamination, contamination of equipment and personnel contamination.
10. Determine an appropriate low background location to count sample media.
11. Count iodine and particulate media using appropriate and effective instrumentation and counting geometries or have samples analyzed by a supporting laboratory within four hours.
12. Report to field monitoring team manager all survey and counting results in format and units suitable for use by the organization's dose assessor.
13. Procedures, qualified collection and counting efficiencies, and calculations are capable of detecting airborne radioactive iodine concentrations as low as 10^{-7} $\mu\text{Ci/cc}$.

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:
<ul style="list-style-type: none"> Field monitoring personnel will the ability to maintain emergency equipment including calibration records and field monitoring team kits. The two state field monitoring teams will demonstrate the ability to conduct operational checks on monitoring equipment, operate radiation survey instruments and use appropriate contamination control procedures. One member of state field teams will demonstrate donning/doffing of PPE. If the field team personnel provide their own PPE, all donning/doffing will follow their agency specific procedures. If field team personnel utilize VDH/ORH provided PPE, donning/doffing will follow VDH/ORH procedures. The state field teams will demonstrate the ability to relay readings to the state field team coordinator and will return to the staging area when directed to a low background area following the air sample collection. The state field team demonstration will end following the return of the sample to the sample receipt officer. Sample receipt and chain-of-custody will be demonstrated. A controller will accompany each team and provide the necessary radiological data.
Risk Jurisdictions Negotiated Extent of Play:
N/A
Support Jurisdictions Negotiated Extent of Play:
N/A
Outstanding Issues:
None

Capability Target 4.3: Post-Plume Phase Measurements and Sampling (*Vice Sub-Element: 4.b.1*)

Core Capabilities: Environmental Response/Health and Safety; Planning

Recommended Evaluation Frequencies: At least once every 8-years

Recommended Assessment Activities: Exercise; Environmental Monitoring Drill (N.4.d)

Planning Reference: NUREG-0654/FEMA-REP-1, Rev. 2 (H.11, H.11.a, H.11.b, H.12, H.13, I.2, I.5, I.6, I.8, M.7, and O.1)

Intent: The capability to report measurements of ambient radiation and collect environmental, food, and drinking water samples for laboratory analyses that support decision-making.

Demonstration and Evaluation Guidance:

1. Maintain and prepare instruments, equipment, and supplies for use, including performing pre-operational checks of radiation survey instruments.
2. Use appropriate contamination control and PPE.
3. Execute the sampling plan.
4. Collect each type of sample necessary to assess the ingestion exposure pathway and to support reentry, relocation, and return decisions. The types of samples necessary are based on the exercise scenario and may include drinking water, soil, vegetation, milk, crops, or other agriculture samples.
5. Obtain and record ambient radiation measurements at each sample location and at other locations, as directed.

6. Handle sample media to avoid sample cross-contamination and equipment/personnel contamination.
7. Prepare and package samples appropriately (e.g., geometries specific to those used in the processing samples, including sample identification, and chain-of-custody forms) to ensure the integrity of samples throughout transportation and transfer.

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:
N/A
Risk Jurisdictions Negotiated Extent of Play:
N/A
Support Jurisdictions Negotiated Extent of Play:
N/A
Outstanding Issues:
N/A

Capability Target 4.4: Laboratory Operations (*Vice Sub-Element: 4.c.1*)

Core Capabilities: Environmental Response/Health and Safety; Planning

Recommended Evaluation Frequencies: At least once every 8-years

Recommended Assessment Activities: Laboratory Drill (N.4.c)

Planning Reference: NUREG-0654/FEMA-REP-1, Rev. 2 (C.4, H.11, H.11.b, H.13, I.2, I.6, M.7, and O.1)

Intent: The capability to perform laboratory analyses of radioactivity in environmental, food, and drinking water samples to support decision-making.

Demonstration and Evaluation Guidance:

1. Prepare analytical equipment for use, including performing calibrations, quality control checks, and background counts, as appropriate.
2. Receive and track samples, including completing chain-of-custody records.
3. Prepare and process each type of sample necessary to assess the ingestion plume exposure pathway and to support reentry, relocation, and return decisions. The types of samples necessary are based on the exercise scenario and may include drinking water, soil, vegetation, milk, crops, or other agriculture samples.
4. Analyze samples to determine the concentration of each radionuclide in each sample. Minimum detection limits (MDLs) for various radionuclides must be low enough to support ORO decisions.
5. Provide analysis results to the appropriate organization.
6. If the laboratory is used to count air samples during the early phase of an incident and prepare, process, and analyze air filters and cartridges, provide analysis results in a timely manner to support ORO decisions.

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:
7. Laboratory Operations will not be demonstrated during VOPEX 2022
Risk Jurisdictions Negotiated Extent of Play:
N/A
Support Jurisdictions Negotiated Extent of Play:
N/A
Outstanding Issues:
None

Capability Target 4.5: Plume Phase Analysis and Dose Assessment (*Vice Sub-Element: 2.b.1*)

Core Capabilities: Environmental Response/Health and Safety; Planning

Recommended Evaluation Frequencies: Biennially

Recommended Assessment Activities: Exercise; Drill

Planning Reference: NUREG-0654/FEMA-REP-1, Rev. 2 (A.3, H.13, I.6, I.8, I.10, K.3, and O.1)

Intent: The capability to collect data, project doses to members of the public and emergency workers and analyze and communicate the results.

Demonstration and Evaluation Guidance:

1. Obtain adequate data to make dose projections.
2. Use software and/or other methods (e.g., manual calculations) to make dose projections for members of the public (both TED and thyroid dose) based on plant data.
3. Compare dose projections to members of the public to EPA PAGs.
4. Compare dose projections to the public with those of the licensee and discuss differences greater than a factor of ten with the licensee and explain reasons for the difference.
5. Make initial PARs based on recommendations of the licensee, release data, meteorological data, and other pertinent information.
6. Promptly communicate PARs to decision-makers.
7. Receive ambient exposure rates from FMTs and compare to model projections.
8. Calculate iodine and particulate concentrations from FMT air samples.
9. Calculate plume ratios of noble gas, iodine's, and particulates, and compare to model projections.
10. Adjust PARs, as necessary, based on analysis of field data.
11. Calculate an incident-specific correction factor for emergency workers inside the plume exposure pathway EPZ.

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:
12. VDH/ORH staff at the CERC will obtain adequate data to make dose projections in accordance with procedures and relay information to decision-makers located in ESF8.

13. The state field team coordinator will demonstrate the ability to calculate iodine and particulate concentrations from field monitoring air samples. A controller will provide the necessary radiological data per inject.
Risk Jurisdictions Negotiated Extent of Play:
N/A
Support Jurisdictions Negotiated Extent of Play:
N/A
Outstanding Issues:
None

Capability Target 4.6: Post-Plume Phase Sampling Plan Development and Analysis (*Vice Sub-Element: New*)

Core Capabilities: Environmental Response/Health and Safety; Planning

Recommended Evaluation Frequencies: At least once every 8-years

Recommended Assessment Activities: Exercise; Environmental Monitoring Drill (N.4.d)

Planning Reference: NUREG-0654/FEMA-REP-1, Rev. 2 (A.3, H.13, I.2, I.6, I.8, I.10, J.12, J.14.b, J.14.c, K.3, M.7, M.8, and O.1)

Intent: The capability to identify and prioritize sampling, collect data, determine areas where relocation is recommended, identify food that is contaminated above federally approved limits, and analyze and communicate the results.

Demonstration and Evaluation Guidance:

1. Periodically conduct radiological assessment of public exposure.
2. Estimate projected doses in contaminated areas and identify areas where projected doses exceed relocation PAGs.
3. Develop and modify sampling plan to assess the radiological consequences of a release on the food and drinking water supplies.
4. Determine areas to be restricted based on factors such as mix of radionuclides in deposited materials, calculated exposure rates compared to PAGs, and analysis of vegetation and soil samples.
5. Evaluate the radiological analyses of representative samples of drinking water, food, and other ingestible substances of local interest from potentially impacted areas.
6. Compare radiological impacts of analysis on food and water and other representative samples to appropriate ingestion PAGs.

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:
N/A
Risk Jurisdictions Negotiated Extent of Play:
N/A
Support Jurisdictions Negotiated Extent of Play:
N/A

Unclassified
Radiological Emergency Preparedness Program (REP)

Exercise Plan/Extent of Play

North Anna Power Station

Outstanding Issues:	
N/A	

OBJECTIVE 5 - Operate

Capability Target 5.1: Monitoring, Decontamination, Sheltering, and Registration of Evacuees
(*Vice Sub-Element: 6.a.1; 6.c.1*)

Core Capabilities: Operational Coordination; Environmental Response/Health and Safety; Mass Care; Planning

Recommended Evaluation Frequencies: Biennially*

Recommended Assessment Activities: Exercise; Drill

Planning Reference: NUREG-0654/FEMA-REP-1, Rev. 2 (J.11.d, J.13, K.4, and O.1)

Intent: The capability to implement radiological monitoring and decontamination of evacuees, and to identify, register, temporarily shelter, and provide congregate care for evacuees at reception centers.

Demonstration and Evaluation Guidance:

1. Set-up operations.
2. Operationally check instruments and equipment.

Monitoring

- Attain and sustain the overall monitoring productivity rate per hour needed to monitor 20 percent of the plume exposure pathway EPZ population, including transients, within a 12-hour period at each facility. The monitoring productivity rate per hour is the number of evacuees that can be monitored, per hour, per location, by the total complement of monitors using an appropriate procedure.
- Monitor evacuees, service animals, pets, vehicles, and possessions.
- Utilize trigger/action levels for determining the need for decontamination.

Decontamination

1. Decontaminate evacuees, and personal belongings, while limiting the spread of contamination.
2. Follow-up with any evacuee(s) who cannot be appropriately decontaminated for assessment; ensure the capability to provide evacuee-referrals.

Vehicles

1. Monitor and decontaminate vehicles.
2. Provide adequate, separate space for both contaminated and non-contaminated vehicles.
3. Monitor emergency worker personnel and their equipment and vehicles for contamination.
4. Decontaminate evacuee vehicles based on trigger/action levels.

Sheltering and Congregate Care

1. Coordinate for incoming evacuees who have been monitored and, if necessary, decontaminated.
2. Establish shelter operations.

3. Congregate care centers and operations in host/support jurisdictions are sufficient to support the expected number of evacuees.

Registration

22. Register evacuees.
23. Ensure the registration area is clean and controlled.

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.

*Exercise participation may be rotated among facilities, but each facility designated in the plan must be evaluated no less than once every eight years.

State Negotiated Extent of Play:	
N/A	
Risk Jurisdictions Negotiated Extent of Play:	
24. Evacuation Assembly Center (Massaponax High School) will be demonstrated June 29, 2022, from 0800 – 1200 approximately.	
25. Setup of facilities may be done prior to the out-of-sequence evaluations.	
26. Decontamination of evacuees/emergency workers may be simulated and conducted by interview.	
27. The availability of provisions for separately showering should be demonstrated or explained.	
28. Personnel will be pre-staged for EAC demonstration.	
29. The staff should demonstrate provisions for limiting the spread of contamination.	
30. Provisions should also exist to separate contaminated and uncontaminated individuals, provide changes of clothing (simulated) for individuals whose clothing is contaminated, and store contaminated clothing and personal belongings to prevent further contamination of evacuees or facilities.	
31. Any individual found to be contaminated, procedures should be discussed concerning the handling of potential contamination of vehicles and personal belongings.	
32. Monitoring personnel should also explain the use of action levels for determining the need for decontamination.	
33. Monitoring personnel should also explain the procedures for referring to evacuees who cannot be adequately decontaminated for assessment and follow up.	
34. One monitoring station will be established.	
35. The capability to register individuals will be demonstrated.	
36. Contamination of one individual will be determined by controller inject and not simulated with any low-level radiation source.	
37. One vehicle and one individual decontamination area will be established.	
38. A total of six (6) people will be monitored at the EAC. At least one (1) will be contaminated.	
39. Decontamination of personnel/equipment will be explained at all locations. Actual decontamination will be simulated.	
40. One contaminated vehicle and one non-contaminated vehicle will be processed according to plans/procedures.	

Exercise Plan/Extent of Play

North Anna Power Station

41. EAC staff will demonstrate the capability to ensure that evacuees have been monitored for contamination, have been decontaminated as appropriate, and have been registered before entering the facility. This capability will be determined through an interview process.
Support Jurisdictions Negotiated Extent of Play:
N/A
Outstanding Issues:
None

Capability Target 5.2: Monitoring and Decontamination of Emergency Workers, Equipment, and Vehicles (*Vice Sub-Element: 6.b.1*)

Core Capabilities: Operational Coordination; Environmental Response/Health and Safety; Planning

Recommended Evaluation Frequencies: Biennially

Recommended Assessment Activities: Exercise; Drill

Planning Reference: NUREG-0654/FEMA-REP-1, Rev. 2 (K.4 and O.1)

Intent: The capability to implement radiological monitoring and decontamination of emergency workers, equipment, and vehicles.

Demonstration and Evaluation Guidance:

1. Set-up operations.
2. Operationally check instruments and equipment.
3. Monitor emergency worker personnel and their equipment and vehicles for contamination.
4. Decontaminate emergency worker personnel and their equipment and vehicles based on trigger/action levels.
5. Control the spread of contamination.
6. Create and maintain a record of monitoring and decontaminating workers upon completion of monitoring and decontamination activities.
7. Process for prioritizing emergency workers and equipment before the public in facilities where the public and emergency workers are both processed for contamination.

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.

*Exercise participation may be rotated among facilities, but each facility designated in the plan must be evaluated no less than once every eight years.

State Negotiated Extent of Play:
N/A
Risk Jurisdictions Negotiated Extent of Play:
8. The Emergency Worker Decontamination will take place during the EAC out-of-sequence evaluations on June 29, 2022, from approximately 0800-1200 at Massaponax High School.

Exercise Plan/Extent of Play	North Anna Power Station
<p>9. Two Emergency Workers will be monitored for contamination. Discussions on the need for decontamination will be made based on controller injected radiation levels. One will be contaminated.</p> <p>10. Contamination control and record-keeping procedures will be demonstrated.</p> <p>11. Decontamination of emergency workers will be demonstrated through interview.</p> <p>12. One contaminated and one non-contaminated emergency worker vehicle will be processed, and decontamination will occur in accordance with plans and procedures.</p> <p>13. The sequence for monitoring/decontamination efforts and the decision to refer individuals who cannot be decontaminated to medical facilities will be demonstrated via inquiries.</p> <p>14. One emergency worker vehicle will be monitored and decisions regarding the need for decontamination will be made as radiation levels are presented via controller injects.</p> <p>15. Decontamination of personnel/equipment will be explained at all locations. Actual decontamination will be simulated.</p> <p>16. Should outside weather conditions exist that create a potential health hazard, PPE usage will be verbalized.</p>	
Support Jurisdictions Negotiated Extent of Play:	
N/A	
Outstanding Issues:	
None	

Capability Target 5.3: Transportation and Treatment of Contaminated, Injured Individuals
(*Vice Sub-Element: 6.d.1*)

Core Capabilities: Environmental Response/Health and Safety; Public Health, Healthcare, Emergency Medical Services; Planning

Recommended Evaluation Frequencies: Biennially

Recommended Assessment Activities: Medical Services Drill (N.4.b)

Planning Reference: NUREG-0654/FEMA-REP-1, Rev. 2 (C.2.d, F.2, H.11, H.12, J.2, K.3, K.4, L.1, L.3, L.4, and O.1)

Intent: The capability to provide medical transport and treatment services to contaminated, injured individuals.

Demonstration and Evaluation Guidance:

Transportation

- Transport contaminated, injured individuals to medical facilities.
- Maintain communications between the medical transportation provider and the receiving medical facility.

Medical Facility

3. Operationally check instruments and equipment.
4. Set-up, activate, and operate an REA.
5. Monitor and decontaminate the individual, equipment, and other items.

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:	
N/A	
Risk Jurisdictions Negotiated Extent of Play:	
6. All personnel will be pre-staged. 7. Radiological Officer will give briefing and then leave due to previously scheduled commitments. 8. Hanover County Fire/EMS will demonstrate the ability to respond to a simulated injured/contaminated individual 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. Communications between the ambulance/dispatcher and the receiving medical facility should be demonstrated. 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.	
Support Jurisdictions Negotiated Extent of Play:	
N/A	
Outstanding Issues:	
None	

Capability Target 5.4: Traffic and Access Control (*Vice Sub-Element: 3.d.1; 3.d.2*)

Core Capabilities: Critical Transportation; Access Control/Identity Verification; Environmental Response/Health and Safety; On-Scene Security, Protection, and Law Enforcement; Operational Coordination; Planning; Situational Assessment.

Recommended Evaluation Frequencies: Biennially

Recommended Assessment Activities: Exercise; Drill

Planning Reference: NUREG-0654/FEMA-REP-1, Rev. 2 (H.12, J.8, J.8.b, J.10, J.10.a, J.11.c, J.11.e, J.11.f, J.14.d, J.14.e, M.1.b, and O.1)

Intent: The capability to select, establish, and staff traffic and access control points and removing impediments to the flow of evacuation traffic.

Demonstration and Evaluation Guidance:

1. Select, establish, and staff appropriate TCP/ACPs, consistent with current conditions and PADs (e.g., evacuating, sheltering, and relocation), in a timely manner.
2. Provide instructions to TAC staff on actions to take, including when modifications in protective action strategies necessitate changes in evacuation patterns or in the area(s) where access is controlled.
3. Contact the state or Federal agencies that have the authority for the different transportation modes (e.g., rail, water, and air traffic).

Exercise Plan/Extent of Play	North Anna Power Station
<ol style="list-style-type: none"> 4. Identify and take appropriate actions concerning impediments that affect the evacuation and evacuation routes. 5. Make the decision to re-route traffic and coordinate with key decision-makers and the JIC to ensure the alternate route information is appropriately communicated to evacuees. 6. Establish procedures to control access to and monitor people and vehicles from the evacuated and restricted areas. 7. Authorize reentry of individuals into the restricted areas. 8. Establish exit procedures. 	
<p>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.</p>	
State Negotiated Extent of Play:	
N/A	
Risk Jurisdictions Negotiated Extent of Play:	
<ol style="list-style-type: none"> 9. Risk jurisdictions, driven by Protective Action Decisions (PADs) to activate traffic/access control points will activate one traffic control point (TCP) and one access control point (ACP) simulated at the staging area. Both the TCP/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 TCP/ACP 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. This will be demonstrated in sequence. 10. One impediment inject will be provided to the local EOC for rerouting of evacuation routes. 	
Support Jurisdictions Negotiated Extent of Play:	
N/A	
Outstanding Issues:	
None	

APPENDIX C: PARTICIPATING AGENCIES AND SITE MAPS

Federal Agencies	
Federal Emergency Management Agency (FEMA)	
State Jurisdictions	
Virginia Emergency Support Team (VEST)	
Virginia Department of Agriculture and Consumer Services	
Virginia Department of Emergency Management	
Virginia Department of Health/Office of Radiological Health	
Virginia Department of Military Affairs	
Virginia Department of Social Services	
Virginia Department of Transportation	
Virginia State Police	
Risk Jurisdictions	
Caroline County	
Hanover County	
Louisa County	
Orange County	
Spotsylvania County	
Support Jurisdictions	
N/A	
Private Sector Organizations	
Dominion Energy	
2-1-1 Virginia	
Mary Washington Hospital	
Volunteer Organizations/NGO	
N/A	

APPENDIX D: DIRECTIONS/ADDRESSES

List all Exercise Locations with Addresses

State Locations	
Venue	Address
Virginia EOC JIC SAU Protective Action Task Force	7700 Midlothian Turnpike Richmond, VA
State Field Teams	VDOT Cuckoo Area HQ 11084 Jefferson Highway Mineral, VA 23117
Corporate Emergency Response Center (CERC)	5000 Dominion Blvd Glen Allen, VA 23060

Risk Locations	
Venue	Address
Spotsylvania County EOC	9119 Dean Ridings Lane 2 nd Floor Spotsylvania, VA 22533
Post Oak Middle School	9119 Dean Ridings Lane 2 nd Floor Spotsylvania, VA 22533
Spotsylvania County Staging Area	Fire Company 1 7200 Courthouse Commons Blvd. Spotsylvania, VA 22533
Caroline County EOC	17202 Richmond Turnpike Milford, VA 22514
Caroline County Staging Area	Ladysmith Fire Station 17401 Jefferson Davis Highway Ladysmith, VA 22501
Louisa County EOC	1 Woolfolk Ave Louisa, VA 23093
Louisa County Staging Area	17202 Richmond Turnpike Milford, VA 22514
Louisa County High School	757 Davis Hwy Mineral, Virginia 23117
Hanover County EOC	Hanover County Fire Administration Bldg. 13326 Hanover Courthouse Rd. Hanover, VA 23069
Hanover County Staging Area	Hanover County EOC 13326 Hanover Courthouse Rd. Hanover, VA 23069
Orange County EOC	1282 Government Center Drive

Unclassified
Radiological Emergency Preparedness Program (REP)

Exercise Plan/Extent of Play

North Anna Power Station

	Orange, VA 22960
Orange County Staging Area	East Orange Ruritan Club 24124 Constitution Highway Unionville, VA 22567

Support Locations	
Venue	Address
N/A	

Out of Sequence Locations	
Venue	Address
Spotsylvania County Evacuation Assembly Center (EAC) June 29, 2022, 0800-1200 (approx.)	Massaponax High School 8201 Jefferson Davis Highway Fredericksburg, VA 22407
Mary Washington Hospital June 30, 2022, 0800 – 1200 (approx.)	1001 Sam Perry Blvd. Fredericksburg, VA 22401
Hanover County Fire/EMS June 30, 2022, 0800 – 1200 (approx.)	Hanover County EOC Hanover County Fire Administration Bldg. 13326 Hanover Courthouse Rd. Hanover, VA 23069

APPENDIX E: OPEN ISSUES

Issue Number	Capability Target	Location	Assessment Date	Brief Description
41-21-4a2-L2-01	4.1	Corporate Emergency Response Center (VDEM & VDH/ORH)	May 4-5, 2021	At 1140, a revised dosimeter-to-TEDE correction factor of 25 was calculated, which changed the Reporting Limit of 1.5R to 120mR and the Turn-Back Limit from 2.5R to 200mR. The VDEM Assistant State On-Scene Coordinator posted the revisions on Microsoft Teams, however, did not ensure Local FMTs received the information by directly contacting the counties.
62-21-2a1-P-01	2.1	Corporate Emergency Response Center (VDEM & VDH/ORH)	October 26, 2021	An updated exposure control ratio with new administrative radiation exposure limits were determined by the personnel in the Corporate Center (CERC). The updated administrative radiation exposure limits were not communicated to all affected emergency workers.

APPENDIX F: ACRONYMS

Acronym	Description
AAC	Accident Assessment Center
AAM	After-Action Meeting
AAR	After-Action Report
ACP	Access Control Point
ALARA	As Low As Reasonably Achievable
ALC	Annual Letter of Certification
ANS	Alert and Notification System
ANSI	American National Standards Institute
ARC	American Red Cross
ARES	Amateur Radio Emergency Services
A-Team	Advisory Team for Environment, Food, and Health
BRP	Bureau of Radiation Protection
BURA	Back Up Route Alerting
BVPS	Beaver Valley Power Station
BZ	Buffer Zone
CAD	Computer Aided Display
C/E	Controller and Evaluator
CED	Committed Effective Dose
CC	Core Capabilities
CCC	Congregate Care Center
CDC	U.S. Center for Disease Control and Prevention
CCL	Core Capabilities List
CCNP	Cisco Certified Network Professional
CCNPP	Calvert Cliffs Nuclear Power Plant
C/E	Controller Evaluator
CDE	Committed Dose Equivalent
CDV	Civil Defense Victoreen
CERC	Corporate Emergency Response Center
CERT	Community Emergency Response Team
CFR	Code of Federal Regulations
CNS	Commonwealth Notification System
C&O	Concepts and Objectives Meeting
CO	Communication Officer
COL	Combined Operating License
CPG	Comprehensive Preparedness Guide
CPM	Counts Per Minute
CRCC	Commonwealth Response Coordination Center
CST	Civil Support Team
DAC	Dose Assessment Coordinator
DAD	Digital Alarming Dosimetry
DAS	Director of Auxillary Services

DCPM	Disintegrating Counts Per Minute
DDHS	U.S. Department of Health and Human Services
DEMA	Delaware Emergency Management Agency
DHS	U.S. Department of Homeland Security
DIL	Derived Intervention Level
DIR	Disaster Initiated Review
DOE	U.S. Department of Energy
DOT	U.S. Department of Transportation
DRD	Direct Reading Dosimeter
DRF	Dosimetry Record Form
DRL	Derived Response Level
DSP	Delaware State Police
EA	Exception Area
EA	Exclusion Area
EA	External Affairs
EAC	Evacuation Assembly Center
EAL	Emergency Action Level
EARA	Exception Area Route Alerting
EAS	Emergency Alert System
EC	Emergency Coordinator
EEG	Exercise Evaluation Guide
ECL	Emergency Classification Level
ECO	Exposure Control Officer
EDE	Effective Dose Equivalent
EMC	Emergency Management Coordinator
EMD	Emergency Management Director
EMnet	Emergency Management Network
EMS	Emergency Medical Services
ENS	Emergency Notification System
EOC	Emergency Operations Center
EOF	Emergency Operations Facility
EOP	Extent of Play
EPA	U.S. Environmental Protection Agency
EPT	Exercise Planning Team
EPZ	Emergency Planning Zone
ER	Emergency Room
ERDS	Emergency Response Data System
ERM	Emergency Response Manager
ERO	Emergency Response Organization
ERV	Emergency Response Vehicle
ESC	Emergency Services Coordinator
ESF	Emergency Support Function
ESP	Early Site Permit
ETA	Estimated Time of Arrival
ETE	Evacuation Time Estimate

EW	Emergency Workers
EWMDS	Emergency Worker Monitoring and Decontamination Station
ExPlan	Exercise Plan
FBI	Federal Bureau of Investigation
FCC	U.S. Federal Communications Commission
FD	Fire Department
FDA	U.S. Food and Drug Administration
FE	Functional Exercise
FEMA	Federal Emergency Management Agency
FMT	Field Monitoring Team
FPE	Full Participation Exercise
FPM	Final Planning Meeting
FRMAC	Federal Radiological Monitoring Assessment Center
FRPCC	Federal Radiological Preparedness Coordinating Committee
FSE	Full Scale Exercise
FST	Field Sampling Team
FTC	Field Team Coordinator
GE	General Emergency
GIS	Geographic Information Systems
GM	Guidance Memorandum
G-M	Geiger-Mueller
GPS	Global Positioning System
Gy	Gray
HAB	Hostile Action Based
HAN	Health Alert Network
HHS	U.S. Health and Human Services
HazMat	Hazardous Materials
HF	High Frequency
HP	Health Physicist
HSEEP	Homeland Security Exercise and Evaluation Program
HSPD	Homeland Security Presidential Directive
IC	Incident Commander
ICP	Incident Command Post
ICS	Incident Command System
IP	Improvement Plan
IPAWS	Integrated Public Alert and Warning System
IPM	Initial Planning Meeting
IPZ	Ingestion Pathway Zone
IWP	Initial Warning Point
JIC	Joint Information Center
JIS	Joint Information System

KI	Potassium Iodide
LCD	Liquid Crystal Display
LEOF	Local Emergency Operations Facility
LGS	Limerick Generating Station
LHD	Local Health Department
LOA	Letter of Agreement
MCC	Mass Care Center
MDDT	Mobile Data Display Terminal
MDE	Maryland Department of Environment
MDEM	Maryland Department of Emergency Management
MDT	Mobile Data Terminals
MJOC	Media Joint Operations Center
MHz	Megahertz
MIDAS	Meteorological Information Dose Assessment System
MOU	Memorandum of Understanding
MS-1	Medical Services Hospital
MSEL	Master Scenario Events List
MSP	Maryland State Police
NAPS	North Anna Power Station
NAWAS	National Warning System
NEP	National Exercise Program
NGO	Non-Governmental Organization
NIMS	National Incident Management System
NNSA	National Nuclear Security Administration
NOAA	National Oceanic and Atmospheric Administration
NPD	National Preparedness Directorate
NOUE	Notification of Unusual Event
NPP	Nuclear Power Plant
NPS	National Preparedness System
NRC	U.S. Nuclear Regulatory Commission
NRIA	Nuclear Radiological Incident Annex
NUREG	Nuclear Regulatory
NWS	National Weather Service
OCA	Owner Controlled Area
OJT	On-The-Job Training
OOS	Out of Sequence
ORH	Office of Radiological Health
ORO	Offsite Response Organization
OSC	Operations Support Center
OSD	Optically Stimulated Dosimeter
OSHA	U.S. Occupational Safety and Health Administration
OSLD	Optically Stimulated Luminescence Dosimeter
PA	Public Affairs

PAD	Protective Action Decision
PAG	Protective Action Guideline
PAR	Protective Action Recommendation
PARA	Primary Area Route Alerting
PAZ	Protective Action Zone
PCA	Preliminary Capabilities Assessment
PBAPS	Peach Bottom Atomic Powers Station
PD	Police Department
PDAFN	Persons with Disabilities/Access and Functional Needs
PED	Personal Electronic Dosimeter
PEMA	Pennsylvania Emergency Management Agency
PII	Personally Identifiable Information
PIO	Public Information Officer
PPD	Presidential Policy Directive
PPE	Personal Protective Equipment
PPP	Post-Plume Phase
PRA	Primary Route Alerting
PRD	Permanent Record Dosimeter
PS	Planning Standard
PSP	Pennsylvania State Police
R	Roentgen
RA	Regional Administrator
R/h	Roentgen per hour
RAC	Regional Assistance Committee
RACES	Radio Amateur Civil Emergency Services
RAD	Radiation Absorbed Dose
RAO	Radiation Assessment Officer
RC	Reception Center or Relocation Center
RDO	Radiation Defense Officer
REA	Radiation Emergency Area
REC	Radiation Exposure Control
REM	Roentgen Equivalent Man (rem)
REP	Radiological Emergency Plan
REPP	Radiological Emergency Preparedness Program
RERP	Radiological Emergency Response Plan
RHP	Radiological Health Program
RML	Radiological Mobile Laboratory
RO	Radiological Officer
ROO	Radiological Operations Officer
RPM	Radiological Emergency Preparedness Program Manual
RSO	Radiation Safety Officer
RTF	Radiological Task Force
SA	Staging Area

SAC	Staging Area Coordinator
SAE	Site Area Emergency
SAIC	Science Applications International Corporation
SAM	Staging Area Manager
SAV	Staff Assistance Visit
SCBA	Self-Contained Breathing Apparatus
SEOC	State Emergency Operations Center
SERS	State Emergency Radio System
SEVAN	State Emergency Voice Activation Network
SFMT	State Field Monitoring Team
SHC	Salem Hope Creek
SIP	Shelter In Place
SIRS	Statewide Interoperability Radio System
SME	Subject Matter Expert
SO	State Official
SOP	Standard Operating Procedure
SPS	Surry Power Station
SRO	School Resources Officer
SSES	Susquehanna Steam Electric Station
SSO	Social Services Officer
STARS	Statewide Area Radio System
SPS	Surry Power Station
Sv	Sievert (sv)
SWAN	State Warning Alert Notification
TAC	Technical Assistance Center
TACP	Traffic and Access Control Point
TCP	Traffic Control Point
TED	Total Effective Dose (whole body dose)
TEDE	Total Effective Dose Equivalent
TEP	Training and Exercise Plan
TEPW	Training and Exercise Planning Workshop
THD	Technological Hazards Division
THIRA	Threat and Hazard Identification and Risk Assessment
TLD	Thermoluminescent Dosimeter
TMI	Three Mile Island
TO	Transportation Officer
TSC	Technical Support Center
TTD/TTY	Telecommunication Device for the Deaf/TeleType
TTX	Tabletop Exercise
UEM	Utility Emergency Manager
USDA	U.S. Department of Agriculture
UTL	Universal Task List
VDEM	Virginia Department of Emergency Management
VDH	Virginia Department of Health

Unclassified
Radiological Emergency Preparedness Program (REP)

Exercise Plan/Extent of Play

North Anna Power Station

VDOT	Virginia Department of Transportation
VEOC	Virginia Emergency Operations Center
VERT	Virginia Emergency Response Team
VEST	Virginia Emergency Support Team
VHF	Very High Frequency
VMS	Variable Message Sign
VSP	Virginia State Police
VOAD	Voluntary Organizations Active in Disaster
VOIP	Voice Over Internet Protocol
WEA	Wireless Emergency Alerts
WVDEP	West Virginia Department of Environmental Protection
WVDHHR	West Virginia Department of Health and Human Resources
WVDHSEM	West Virginia Division of Homeland Security and Emergency Management
WVSP	West Virginia State Police