North Anna Power Station
Mineral, Virginia
After Action Report/Improvement Plan

Exercise Date – July 16, 2024

Radiological Emergency Preparedness (REP) Program

FEMA

Published September 28, 2024

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North Anna Power Station

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EXECUTIVE SUMMARY

On July 16, 2024, 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 July 19, 2022.

An Out-of-Sequence Medical Services Drill was conducted on August 15, 2024. The purpose of the Exercise and Medical Services Drill was to assess the capabilities of the Commonwealth of Virginia, county jurisdictions, and Mary Washington Hospital 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, no Level 2 Findings, and four Plan Issues. Three of the Plan Issues were assessed to the Commonwealth of Virginia Emergency Operations Center (VEOC), and one Plan Issue was assessed to the Corporate Emergency Response Center (CERC).

A Level 1 Finding is defined by the FEMA Radiological Emergency Preparedness Program Manual as follows: "An observed or identified inadequacy of organizational performance in an assessment activity 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 assessment activity 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 county jurisdictions of Caroline County, Hanover County, Louisa County, Orange County, and Spotsylvania County.

Hanover County's efforts are particularly noteworthy given the fact that their Evacuation Assembly Center demonstration was conducted in-sequence with the Exercise scenario, which provided unprecedented realism to the players involved and marked the first time that

such a challenging effort had been undertaken during a REP exercise conducted in FEMA Region 3.

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 Details”, “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 16, 2024

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) 436-1455
lee.torres@fema.dhs.gov

Daniel Rose
Senior Technological Hazards Program Specialist
DHS/FEMA Region 3
One Independence Mall, 6th Floor
615 Chestnut Street
Philadelphia, PA, 19106-4404
(202) 679-8140
daniel.rose@fema.dhs.gov

Alex Tran
Exercise Project Coordinator
Virginia Department of Emergency Management
9711 Farrar Court
North Chesterfield, VA 23236
804-229-0025
alex.tran@vdem.virginia.gov

Susan Binkley
Radiation Safety Specialist
Virginia Department of Health/Office of Radiological Health
109 Governor Street
Richmond, VA 23060
(804) 837-1067
Susan.binkley@vdh.virginia.gov

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

1.3 Participating Organizations

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

State Jurisdictions

Commonwealth of Virginia

- 211 Virginia
- Virginia Cooperative Extension
- Virginia Department of Agriculture and Consumer Services
- Virginia Department of Aviation
- Virginia Department of Conservation and Recreation
- Virginia Department of Emergency Management
- Virginia Department of Health / Office of Drinking Water
- Virginia Department of Health / Office of Radiological Health
- Virginia Department of Military Affairs
- Virginia Department of Rail and Public Transportation
- Virginia Department of Social Services
- Virginia Department of Transportation
- Virginia Emergency Support Team
- Virginia State Police
- Newport News Fire Department (State Active Duty)

Risk Jurisdictions

Caroline County

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

Hanover County

- Ashland Police Department
- Hanover County Animal Control
- Hanover County Community Emergency Response Team
- Hanover County Department of Social Services
- Hanover County Emergency Communications Center
- Hanover County Fire-EMS
- Hanover County Health Department
- Hanover County Parks and Recreation
- Hanover County Public Schools
- Hanover County Public Schools Transportation
- Hanover County Sheriff's Department
- Virginia Department of Health/Chickahominy Health District
- Virginia Medical Reserve Team

Louisa County

- Louisa County Administration
- Louisa County Department of Emergency Services
- Louisa County Department of General Services
- Louisa County Department of Health Services
- Louisa County Department of Human Services
- Louisa County Extension Office
- Louisa County Fire and Emergency Medical Services
- Louisa County, Jouett Elementary School
- Louisa County Office of Emergency Management
- Louisa County School District
- Louisa County Sheriff's Office
- Louisa County Sheriff's Office 911 Dispatch Center
- Louisa County Sheriff's Office Chaplain's Corps

Orange County

- Orange County Fire and Emergency Medical Services
- Orange County Public Transportation
- Orange County Sheriff's Office

Spotsylvania County

- American Red Cross
- Spotsylvania County, Berkeley Elementary School
- Spotsylvania County Department of Administration
- Spotsylvania County Department of Social Services
- Spotsylvania County Fire, Rescue and Emergency Management
- Spotsylvania County GIS Department
- Spotsylvania County Hazardous Materials Team
- Spotsylvania County Informational Services
- Spotsylvania County School District

- Spotsylvania County Sheriff's Department

Private/Volunteer Organizations

- American Red Cross
- AT&T First Net
- BES Study Studios Film Group
- Caroline County Radio Amateur Civil Emergency Services
- Dominion Energy
- Hanover County Radio Amateur Civil Emergency Services
- Louisa County Radio Amateur Civil Emergency Services
- Mary Washington Hospital
- Spotsylvania County Radio Amateur Civil Emergency Services

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 Radiological Emergency Preparedness (REP) Program that was established following the Three Mile Island Nuclear Generating Station accident in March 1979.

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

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

B. Determining whether such plans and procedures can be implemented based on observation and evaluation of exercises conducted by State and local governments.

C. Responding to requests by the U.S. Nuclear Regulatory Commission (NRC) pursuant to the Memorandum of Understanding between the NRC and FEMA dated July 1, 2024; and

D. Coordinating the activities of the following Federal agencies with responsibilities in the radiological emergency planning process:
- U.S. Department of Commerce
- U.S. Nuclear Regulatory Commission
- U.S. Environmental Protection Agency
- U.S. Department of Energy
- U.S. Department of Health and Human Services
- U.S. Department of Transportation
- U.S. Department of Agriculture
- U.S. Department of the Interior
- U.S. Food and Drug Administration

Representatives of these agencies serve on the Region 3 Regional Assistance Committee (RAC), which is Chaired by FEMA. A Radiological Emergency Preparedness (REP) Plume Exposure Pathway Exercise was conducted during the week of July 15, 2024, to assess the capabilities of Commonwealth and local emergency preparedness organizations in implementing their RERPs and procedures to protect the public health and safety during a radiological emergency involving the North Anna Power Station (NAPS). The purpose of this exercise report is to present the exercise results and findings on the performance of the off-site response organizations (OROs) during a simulated radiological emergency. The findings

presented in this report are based on the evaluations of the Federal evaluation team, with final determinations made by the FEMA Region 3 RAC Chairperson and approved by FEMA Headquarters.

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

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

- NUREG-0654/FEMA-REP-1, Rev. 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 5 miles 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 2024 North Anna Power Station (NAPS) Plume Exercise were to demonstrate the capabilities of Commonwealth and local emergency management agencies to mobilize emergency management and emergency response personnel, to activate emergency operations centers and support facilities, and to protect the health, lives, and property of the citizens residing within the 10-mile Emergency Planning Zone (EPZ).

Core capabilities-based planning allowed the exercise planning team to develop the objective and observe associated outcomes through a framework of specific action items. Additionally, the objective and capability target assessed met Radiological Emergency Preparedness Program Manual guidance.

The core capabilities demonstrated during this exercise were:

A. Operational Coordination
B. Planning
C. Environmental Response/Health and Safety
D. Public Information and Warning
E. Mass Care Services
F. Public Health
G. Healthcare and Emergency Medical Services

H. Situational Assessment
I. Critical Transportation
J. Operational Communications
K. Access Control/Identity Verification
L. On-Scene Security
M. Protection
N. Law Enforcement

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 Federal Emergency Management Agency (FEMA) Integrated Public Alert & Warning System (IPAWS) that provides alerting to the public using Wireless Emergency Alerts (WEAs). All these communication resources were employed and evaluated. The EAS and IPAWS were simulated, and media information was prepared but not actually released.

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

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

2.3 Scenario Summary

The scenario for this exercise, was developed by Dominion Energy, with input provided by the exercise planning team. The scenario was a plume exposure pathway scenario with a radiological release. The release exceeded the total effective dose (TED) EPA Protective Action Guidelines (PAGs) for evacuation out to three miles and exceeded committed effective dose (CED) PAGs out to five miles from the North Anna Power Station, with a Protective Action Recommendation/Protection Action Decision extension for evacuation.

Initial Conditions

The simulated scenario started with the wind from 315 degrees at 11 miles per hour (mph). Units 1 and 2 were both operating at 100% power. At 0803 Unit 1 spent fuel assembly is dropped and damaged causing a small monitored/filtered on-site release.

At 0817 the Shift Manager declared an ALERT Emergency Classification Level (ECL).

At 0944 the Shift Manager declares a SITE AREA EMERGENCY ECL.

At approximately 1058 there is a loss of coolant accident in Unit 1 due to fuel failure containment radiation level >500R/hr. A General Emergency ECL is declared at 1101 and the Licensee makes a Protective Action Recommendation (PAR) to the Commonwealth of Virginia. Decision makers consider the Licensee PAR and other factors and OROs make the Protective Action Decision (PAD) to evacuate 5-miles downwind, with the potassium iodide (KI) administration decision for emergency workers and the general public in the affected evacuation order to ingest KI.

Approximately one hour later, conditions change, and the Licensee makes an upgraded PAR to the Commonwealth of Virginia. Decision makers consider the Licensee PAR and other factors and OROs make the Protective Action Decision (PAD) to evacuate 5-miles, 360 degrees and 10-miles downwind, with the potassium iodide (KI) administration decision for emergency workers and the general public in the affected evacuation order to ingest KI.

At 1450 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 16, 2024, Biennial Plume Exposure Pathway 10-mile Emergency Planning Zone (EPZ) Radiological Emergency Preparedness (REP) Exercise. These exercises were conducted to demonstrate the ability of the Offsite Response Organizations of Commonwealth 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 Evaluation Area Criteria contained in the REP Exercise Evaluation Methodology. Detailed information on the exercise evaluation area criteria and the Extent of Play Agreement can be found in the Exercise Plan.

3.2 Summary Results of Exercise Evaluation

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

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

Tables 3.1 - Summary of Exercise Evaluation

Table 3.1a Exercise Evaluation Findings and Issues by Classification

Location	Target	Capability Target Description	Status
Commonwealth of Virginia Emergency Operations Center	1.3	Protective Action Recommendations	P- Open
Commonwealth of Virginia Emergency Operations Center	1.4	Protective Action Decisions for the Plume Phase	P- Open
Commonwealth of Virginia Emergency Operations Center	2.2	Emergency Worker Exposure Control Management	P- Open
Corporate Emergency Response Center – State Accident Assessment Center	4.5	Plume Phase Analysis and Dose Assessment	P- Open

Table 3.1b Exercise Evaluation Assessments Met

Location	Capability 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 Staging Area - Traffic/Access Control/Transportation Dependent	1.1	Mobilization	M
Hanover County Emergency Operations Center	1.1	Mobilization	M
Hanover County Traffic/Access Control	1.1	Mobilization	M
Hanover County Transportation Dependent	1.1	Mobilization	M
Hanover County Evacuation Assembly Center (EAC) at Liberty Middle School	1.1	Mobilization	M
Hanover County Emergency Worker Mon/Decon Center at Liberty Middle School Evacuation Assembly Center (EAC)	1.1	Mobilization	M
Louisa County Emergency Operations Center	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 Staging Area - Traffic/Access Control/Transportation Dependent	1.1	Mobilization	M
Spotsylvania County Emergency Operations Center	1.1	Mobilization	M
Spotsylvania County Traffic/Access Control	1.1	Mobilization	M
Spotsylvania County Transportation Dependent	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
Corporate Emergency Response Center (CERC)	1.2	Direction and Control	M
Caroline County Emergency Operations Center	1.2	Direction and Control	M
Hanover County Emergency Operations Center	1.2	Direction and Control	M
Hanover County Evacuation Assembly Center (EAC) at Liberty Middle School	1.2	Direction and Control	M
Louisa County Emergency Operations Center	1.2	Direction and Control	M
Orange County Emergency Operations Center	1.2	Direction and Control	M
Spotsylvania County Emergency Operations Center	1.2	Direction and Control	M
Virginia Department of Health/Office of Radiological Health (VDH/ORH)	1.3	Protective Action Recommendations	M
Corporate Emergency Response Center (CERC)	1.3	Protective Action Recommendations	M
Virginia Department of Health/Office of Radiological Health (VDH/ORH)	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 Staging Area - 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 Action Decision	M
Louisa County Emergency Operations Center	1.5	Protective Action Decision Implementation for the Plume Phase	M
Louisa County - Jouett Elementary School	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
Orange County Emergency Operations Center	1.5	Protective Action Decision Implementation for the Plume Phase	M
Orange County Staging Area - 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 - Berkeley Elementary School	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
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 (CERC)	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
Caroline County Staging Area - Traffic/Access Control/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 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 Reception/Mass Care at Liberty Middle School Evacuation Assembly Center (EAC)	2.2	Emergency Worker Exposure Control Management	M
Hanover County Evacuee Mon/Decon at Liberty Middle School Evacuation Assembly Center (EAC)	2.2	Emergency Worker Exposure Control Management	M
Hanover County Emergency Worker Mon/Decon Center at Liberty Middle School Evacuation Assembly Center (EAC)	2.2	Emergency Worker Exposure Control Management	M
Louisa County Emergency Operations Center	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
Mary Washington Hospital	2.2	Emergency Worker Exposure Control Management	M
Orange County Emergency Operations Center	2.2	Emergency Worker Exposure Control Management	M
Orange County Staging Area - Traffic/Access Control/Transportation Dependent	2.2	Emergency Worker Exposure Control Management	M
Orange County Emergency Medical Services (EMS)	2.2	Emergency Worker Exposure Control Management	M
Spotsylvania County Emergency Operations Center	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
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 Staging Area - Traffic/Access Control/Transportation Dependent	3.1	Communications	M

Hanover County Emergency Operations Center	3.1	Communications	M
Hanover County Traffic/Access Control	3.1	Communications	M
Hanover County Transportation Dependent	3.1	Communications	M
Hanover County Reception/Mass Care at Liberty Middle School Evacuation Assembly Center (EAC)	3.1	Communications	M
Hanover County Evacuee Mon/Decon at Liberty Middle School Evacuation Assembly Center (EAC)	3.1	Communications	M
Hanover County Emergency Worker Mon/Decon Center at Liberty Middle School Evacuation Assembly Center (EAC)	3.1	Communications	M
Louisa County Emergency Operations Center	3.1	Communications	M
Louisa County Traffic/Access Control	3.1	Communications	M
Louisa County Transportation Dependent	3.1	Communications	M
Mary Washington Hospital	3.1	Communications	M
Orange County Emergency Operations Center	3.1	Communications	M
Orange County Staging Area - Traffic/Access Control/Transportation Dependent	3.1	Communications	M
Orange County Emergency Medical Services	3.1	Communications	M
Spotsylvania County Emergency Operations Center	3.1	Communications	M
Spotsylvania County Traffic/Access Control	3.1	Communications	M
Spotsylvania County Transportation Dependent	3.1	Communications	M
Commonwealth of Virginia Emergency Operations Center	3.2	Alert and Notification to the Public	M
Caroline County Emergency Operations Center	3.2	Alert and Notification to the Public	M
Hanover County Emergency Operations Center	3.2	Alert and Notification to the Public	M
Louisa County Emergency Operations Center	3.2	Alert and Notification to the Public	M
Orange County Emergency Operations Center	3.2	Alert and Notification to the Public	M
Spotsylvania County Emergency Operations Center	3.2	Alert and Notification to the Public	M
Virginia Joint Information Center (JIC)	3.3	Emergency Information and Instructions for the Public and News Media	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
Objective 5: Operate			
Hanover County Reception/Mass Care at Liberty Middle School Evacuation Assembly Center (EAC)	5.1	Monitoring, Decontamination, Sheltering, and Registration of Evacuees	M
Hanover County Evacuee Mon/Decon at Liberty Middle School Evacuation Assembly Center (EAC)	5.1	Monitoring, Decontamination, Sheltering, and Registration of Evacuees	M
Hanover County Emergency Worker Mon/Decon Center at Liberty Middle School Evacuation Assembly Center (EAC)	5.2	Monitoring and Decontamination of Emergency Workers, Equipment, and Vehicles	M
Mary Washington Hospital	5.3	Transportation and Treatment of Contaminated, Injured Individuals	M
Orange County Emergency Medical Services (EMS)	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 Staging Area - 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 Staging Area - 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

3.3 Criteria Evaluation Summaries

3.3.1 State Jurisdictions

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

3.3.1.1 Commonwealth of Virginia Emergency Operations Center (VEOC)

a. Met: 1.1, 1.2, 1.3, 1.4, 1.5, 3.1, 3.2, 5.4
b. Level 1 Findings: NONE
c. Level 2 Findings: NONE
d. Plan Issues: THREE

ISSUE NO: 41-24-1.3-P-002

CAPABILITY TARGET 1.3: Protective Action Recommendations

CONDITIONS: The VDH/ORH modified their decision-making process for the administration of KI by both emergency workers and the general public (which includes institutionalized individuals) to be that KI will be recommended for ingestion as soon as the utility has declared a General Emergency. The VDH/ORH RERP/EPIP states the following:

- Appendix 6 §2.1 "The administration of KI is based on calculations using the child thyroid dose conversion factor of 3.2E+6 in accordance with guidance contained in EPA's PAG Manual: Protective Action guides and Planning Guidance for Radiological Incidents, EPA-400/R-17/001, January 2017."
- Appendix 17.2 Office of Radiological Health Virginia Emergency Operations Center (VEOC), ESF8 Lead Checklist and Assistant ESF8 Lead Checklist, Under General Emergency, between Task #1 and #2, "Ingestion of Potassium Iodide (KI) should be recommended for emergency workers and the general public as soon as the utility has upgraded to a General Emergency."
- Appendix 17.2 Office of Radiological Health Virginia Emergency Operations Center (VEOC), ESF8 Lead Checklist and Assistant ESF8 Lead Checklist, Under General Emergency, Task #2, "If necessary, obtain authorization for the administration of KI for emergency workers and the general public from the VDH Commissioner and complete the "Report of KI Decision and Administration" (refer to Appendix 17.12) and give to the VDEM REP Advisor." (NOTE: this form is being removed from the plan (both VDH/ORH and COVRERP), the authorization is included in the Report of Protective Action Decision form (COVRERP, Appendix 5, Tab F) as item 5.)
- Appendix 17.2 Office of Radiological Health Virginia Emergency Operations Center (VEOC), Radiological Operations Officer (ROO) Checklist, Under Alert, Site Area Emergency or General Emergency, Task #4, "Be aware that a release… to determine if exceedance of the following PAGs have been noted:"
    - "1 rem TED/TEDE – evacuation"
    - "5 rem thyroid CED/Adult Thyroid CDE – evacuation"

  - "5 rem child thyroid CED/Child Thyroid CDE – potassium iodide (KI)"
- Appendix 17.2 Office of Radiological Health Virginia Emergency Operations Center (VEOC), Radiological Operations Officer (ROO) Checklist, Under Alert, Site Area Emergency or General Emergency, Task #5, "If dose assessment indicates an exceedance of the 5 REM Child Thyroid prior to the declaration of a General Emergency, notify the PATF and discuss whether any protective measures are needed."

POSSIBLE CAUSE: The VDH/ORH modified their KI decision-making process but did not ensure all parts of their procedures were updated. Coordination with VDEM and the risk jurisdictions for modification of their plans and procedures to be consistent with the changes was not performed.

REFERENCE:
- NUREG-0654/FEMA-REP-1, Rev. 2 (D.1.b, D.4, J.6, J.7, J.8, J.8.b, J.9, J.10, J.10.a, J.10.b, J.11.c-g, and O.1)
- Commonwealth of Virginia Radiological Emergency Response Plan (COVRERP) Hazard Specific Annex #1, May 2024, Revision 1.7.
- Virginia Department of Health/Office of Radiological Health (VDH/ORH) Radiological Emergency Response Plan and Emergency Plan Implementing Procedures (RERP/EPIP), May 2024.
- Risk County Radiological Emergency Response Plans, April/May 2024.

EFFECT: Confusion as to the actual basis of the KI decision may lead to the improper use of KI.

RECOMMENDATION: Ensure that all plans and procedures are updated to the most current KI decision-making process as specified by the VDH.

ISSUE NO: 41-24-1.4-P-003

CAPABILITY TARGET 1.4: Protective Action Decisions for the Plume Phase

CONDITIONS: In the COVRERP, the details of the KI recommendation process are located in Appendix 8, Potassium Iodide (KI) Administration.
- III. Concept of Operations, A. Overview, 2. Emergency Activities, a. "Radiation levels will be monitored and assessed against KI administration thresholds. If those levels appear imminent or are exceeded, protective action decisions regarding KI will be transmitted to local government Emergency Operation Centers (EOCs) and broadcast to the general public ANS, as provided for in this document…"
- III. Concept of Operations, C. Virginia Department of Health (VDH), 2. Emergency Phase
  a. Assess the radiological consequences of an event, relate them to the appropriate Environmental Protection Agency Protective Action Guides (PAGs), and discuss/evaluate utility PAR on use of KI for the public with VDH representative at the VEOC. The PAR is

normally communicated by Dominion Energy from the CERC to the VEOC using a Report of Emergency Form.

b. The VDH representative at the VEOC will advise State and local officials on the implementation of pertinent protective actions based on accident assessment.
d. The State Health Commissioner or designated representative may recommend or advise potassium iodide to be ingested by emergency workers if a radiological release is in progress or imminent and for the general public when the child thyroid exposure threshold of 5 rem is met from a field sample thyroid dose calculation. The January 2017 EPA-400/R-17/001 PAG Manual recommends the supplementary administration of prophylactic drugs at 5 rem projected child thyroid dose.
    - Tab A provides Recommended KI Dosing
    - Tab D provides the Report of KI Decision and Administration form.

In the risk county RERP ESF#8 procedures, there is a note that states: "A General Emergency is expected to result in a recommendation that Evacuation Assembly Centers be opened. This does not automatically mean KI will be disseminated. KI is issued when authorized by the Health Commissioner/designee, when a radiological release is projected or in progress and the dose from that release is expected to exceed 5 Rem thyroid exposure. The following guidelines are intended to clarify the distribution of KI within the EAC once authorization is given."

POSSIBLE CAUSE: The VDEM COVRERP was not updated to reflect the changes in the VDH/ORH KI decision-making process. Coordination with VDH/ORH and the risk jurisdictions for modification of their plans and procedures to be consistent with the changes was not performed.

REFERENCE:

- NUREG-0654/FEMA-REP-1, Rev. 2 (D.1.b, D.4, J.6, J.7, J.8, J.8.b, J.9, J.10, J.10.a, J.10.b, J.11.c-g, and O.1)
- Commonwealth of Virginia Radiological Emergency Response Plan (COVRERP) Hazard Specific Annex #1, May 2024, Revision 1.7.
- Virginia Department of Health/Office of Radiological Health (VDH/ORH) Radiological Emergency Response Plan and Emergency Plan Implementing Procedures (RERP/EPIP), May 2024.
- Risk County Radiological Emergency Response Plans, April/May 2024.

EFFECT: Confusion as to the actual basis of the KI decision may lead to the improper use of KI.

RECOMMENDATION: Ensure that all plans and procedures, including risk jurisdictions plans, are updated to the most current KI decision-making process as specified by the VDH.

ISSUE NO: 41-24-2.2-P-001

CAPABILITY TARGET 2.2: Emergency Worker Exposure Control Management

CONDITIONS: The change of administrative dose limits for emergency workers due to a modification of the default exposure control ratio was communicated from the State On-Scene Coordinator (SOSC) at the Corporate Emergency Response Center (CERC) to the Virginia Department of Health/Office of Radiological Health (VDH/ORH) personnel at the Virginia Emergency Operations Center (VEOC) and to the ESF 10 (Oil and Hazardous Materials Response) Lead in the Protective Action Task Force (PATF) room at the VEOC. The change was made at 1210. In turn, the ESF 10 Lead emailed the change to the Radiological Officers at Louisa, Spotsylvania, Hanover, and Caroline Counties (it did not go to Orange County) and to select Virginia Department of Emergency Management (VDEM) personnel at 1259 as part of a "Conditions Report to Local Radiological Officers." The change was posted on Web EOC at 1300. A facility (VEOC) announcement of the change was not made.

There is no documentation showing that the change was communicated to possible state emergency worker supervisors such as the Virginia State Police (VSP) nor to the Orange County Radiological Officer for dissemination to their emergency workers.

POSSIBLE CAUSE: There is not a specific procedure for communication of the change of administrative dose limits for all emergency workers.

The Exposure Control Officer (ECO) assigned to the VEOC has a checklist that shows how new administrative limits may be calculated based on a change in the exposure control ratio; however, no instructions are given on how this information is to be communicated to anyone. The Dose Assessment Officer (DAO) at the CERC has the same calculation procedure as the ECO. The DAO is to provide the current administrative limits to the Radiological Assessment Officer (RAO) and the Field Team Coordinator (FTC). The RAO is to provide the limits to the SOSC and the Radiological Operations Officer (ROO) at the VEOC. The ROO checklist does not include instructions on disseminating this information to any other state or local personnel.

REFERENCES:

- Virginia Department of Health/Office of Radiological Health (VDH/ORH) *Radiological Emergency Response Plan and Emergency Plan Implementing Procedures* (RERP/EPIP), May 2024. Appendix 7, Radiological Exposure Control and Instrumentation.
- Commonwealth of Virginia Radiological Emergency Response Plan (COVRERP) Hazard Specific Annex #1, May 2024, Revision 1.7. Appendix 17.2, Virginia Emergency Operations Center (VEOC) and Appendix 17.4, Corporate Emergency Response Center (CERC).
- 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)

EFFECT: The administrative limits changed significantly (the default reporting limit was 1.5 R whereas the new reporting limits was 0.10 R). Since the new limits were not communicated to all emergency workers, exposures above the limits could have occurred without the workers knowledge.

RECOMMENDATIONS: Ensure that the responsibility for communicating changes in the administration dose limits are assigned so that to all supervisory personnel at both the state level and the local level are aware of the changes. Ensure that these changes are immediately briefed at the state and local EOCs.

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

3.3.1.2 Commonwealth of Virginia Joint Information Center

a. Met: 1.1, 1.2, 3.1, 3.3
b. Level 1 Findings: NONE
c. Level 2 Findings: NONE
d. Plan Issues: NONE
e. Prior Issues – Resolved: ONE (41-22-3.3-L2-002)
f. Prior Issues - Unresolved: NONE

3.3.1.3 Virginia Accident Assessment - Virginia Department of Health/Office of Radiological Health (VDH/ORH) at the State EOC

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, 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, 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) Accident Assessment

a. Met: 1.1, 1.2, 1.3, 2.1, 3.1, 4.1, 4.5
b. Level 1 Findings: NONE
c. Level 2 Findings: NONE
d. Plan Issues: ONE

ISSUE NO: 41-24-4.5-P-004

CAPABILITY TARGET: 4.5**:** Plume Phase Analysis and Dose Assessment

CONDITIONS: FMT measured plume gamma exposure rate data was not used to verify and modify the RASCAL model calculations. VDH stated that this was not necessary as the source terms provided to them by NAPS came from a MIDAS projection that had been validated by NAPS FMT data. However as evidenced in the exercise the RASCAL results were still significantly different than the field validated MIDAS results. This shows that the RASCAL results still need to be verified by FMT data as MIDAS and RASCAL model the event differently even though they start with the same source term.

In the VDH Plan and procedures there is no mention or description of an alternate calculation capability to RASCAL

The method in VDH procedure Appendix 17.4 used to calculate thyroid dose from FMT air samples assumed that the sample was exclusively that of Iodine-131. This is not correct as Iodine 131 can be only 10 percent of the total iodine present within a few hours after reactor shutdown. Also, more importantly this assumption can significantly overestimate the thyroid dose by a factor of twelve. Also, this will result in an error in verifying the dose projection model.

POSSIBLE CAUSE: VDH/ORH Plan and procedures are not adequately addressing the applicable planning criteria in NUREG 0654 and FEMA Program Manual Section II.

REFERENCES:

- NUREG-0654/FEMA-REP-1, Rev. 2 December 2019 Section II Criterion I.
- FEMA Program Manual, Radiological Emergency Preparedness Part II Criterion I.8 and Part III Capability Target 4.5
- Virginia Department of Health/Office of Radiological Health (VDH/ORH) Radiological Emergency Response Plan Appendix 5 and Emergency Plan and Implementing Procedures, Appendix 17.4 May 2024.

EFFECT: Dose projection model results will not be verified by FMT data. Hence the inherent significant uncertainty in the model results will go uncorrected. Thyroid dose calculations from FMT air samples will significantly overestimate the dose. If there is a failure in the capability to use RASCAL there is no alternate method available for VDH to perform dose estimates. All of these conditions will affect the VDH/ORH capability to provide accurate radiological protective action recommendations.

RECOMMENDATIONS:

1. VDH/ORH should obtain an alternate dose assessment capability and include it in the procedures. The use of the NAPS MIDAS model is acceptable provided VDH/ORH has access to it and can demonstrate its use. Hand calculation methods are also acceptable.
2. Procedures should address how the dose projection model will be verified and modified with FMT data such as exposure rate and air sample data (iodine concentrations or thyroid dose).
3. Procedures should provide a method for thyroid dose calculations from FMT air samples. This method should use a dose conversion factor (DCF) that assumes there is a mixture of iodine isotopes. This DCF will increase with time after reactor shutdown (e.g., see material presented in the FEMA RAC training course).
4. VDH/ORH personnel assigned to dose assessment and FMT coordination should be trained in the revised procedures and should be ready to demonstrate this capability in exercises.

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

3.3.2 Risk Jurisdictions

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

3.3.2.1 Caroline County Emergency Operations Center

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 Staging Area – Traffic/Access Control/Transportation Dependent

a. Met: 1.1, 1.5, 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

3.3.2.3 Hanover County Emergency Operations Center

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

3.3.2.4 Hanover 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

3.3.2.5 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

3.3.2.6 Hanover County Evacuation Assembly Center (EAC) at Liberty Middle School

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

3.3.2.7 Hanover County Evacuee Monitoring/Decontamination Center at Liberty Middle School Evacuation Assembly Center (EAC)

a. Met: 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

3.3.2.8 Hanover County Reception/Mass Care Center at Liberty Middle School Evacuation Assembly Center (EAC)

a. Met: 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

3.3.2.9 Hanover County Emergency Worker Monitoring/Decontamination Center at Liberty Middle School Evacuation Assembly Center (EAC)

a. Met: 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

3.3.2.10 Louisa County Emergency Operation Center

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

3.3.2.11 Louisa County – Jouett Elementary 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

3.3.2.12 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

3.3.2.13 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

3.3.2.14 Orange County Emergency Operations Center

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

3.3.2.15 Orange County Staging Area – Traffic/Access Control/Transportation Dependent

a. Met: 1.1, 1.5, 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

3.3.2.16 Spotsylvania County Emergency Operations Center

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

3.3.2.17 Spotsylvania County - Berkeley Elementary 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

3.3.2.18 Spotsylvania 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

3.3.2.19 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

3.3.3 North Anna Power Station Medical Services Assessments

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

3.3.3.2 Orange County Emergency Medical Services (EMS)

a. Met: 1.2, 2.2, 3.1, 5.3
b. Level 1 Findings: NONE
c. Level 2 Findings: NONE
d. Plan Issues: NONE
e. Prior Issues - Resolved: NONE
f. Prior Issues - Unresolved: NONE

SECTION 4: DEMONSTRATED STRENGTHS

4.1 State Jurisdictions

4.1.1 Commonwealth of Virginia Emergency Operations Center

Despite the potential for confusion with the release early on related to the fuel assembly drop in the Fuel Handling building, the Protective Action Task Force (PATF) group understood this was not related to anything with the Unit 1 RX trip and subsequent series or events. The PATF members also recognized that the release was a noble gas issue and discussed that among the team members.

4.1.2 Virginia Accident Assessment - Virginia Department of Health/Office of Radiological Health (VDH/ORH) at the State EOC

The Virginia Department of Health, Virginia Department of Environmental Quality, and Virginia Department of Emergency Management established an incident command in response to a real-world HAZMAT incident, while simultaneously participating in the exercise.

4.1.3 Corporate Emergency Response Center (VDEM/VDH/ORH) Accident Assessment

The Virginia Department of Health, Radiological Assessment Officer and the Virginia Department of Emergency Management State on Scene Coordinator were experienced persons who interfaced effectively with the Dominion personnel at the Corporate Emergency Response Center.

4.2 Risk Jurisdictions

4.2,1 Caroline County Emergency Operations Center

The Caroline County EOC Manager performed exceptionally in their first lead role during the exercise. The EOC Manager effectively managed briefings, incident logs, public information messaging, special needs monitoring, and public updates for the North Anna incident.

4.2.2 Hanover County Evacuation Assembly Center at Liberty Middle School

The Hanover County Emergency Communication mobile vehicle was deployed to the Evacuation Assembly Center (EAC) to allow for technology resources to be deployed. This allowed for the EAC Manager to talk live with the Hanover County Emergency Operations Center, monitor evacuation bus routes in real time, computer added dispatching monitoring, and video monitoring of the outside operations at the EAC.

Hanover County uses an application and equipment that allows it to conduct real-time GPS tracking of the buses assigned to pick up transportation dependent residents in rural and remote parts of the county. This allows the EOC, Staging Area and EAC to monitor the progress of the routes being run without having to contact the bus drivers for updates. Should there be a communications failure, the location of the bus could be determined, and a unit could be dispatched for a welfare check.

The Hanover County Evacuation Assembly Center (EAC) had multiple resources on hand to handle registration, monitoring, decontamination, and temporary sheltering of pets. This allowed for residents of Hanover County to feel safe that they can bring their pet to the EAC and not be discouraged from an evacuation order and what to do with their pets.

4.2.3 Louisa County Emergency Operation Center

The Louisa County Sheriff's Office has assembled a Chaplain's Corps. The members of this volunteer Corps consist of 16 clergy of various denominations. The members are provided emergency management and other training throughout the year and on a continuous basis, and are activated upon request by the Sheriff's Office. They provide spiritual, emotional, and other support to the County in emergency situations. For this exercise, two Corps members maned the Rumor Control phones, answering numerous calls and providing appropriate coordination, information, and responses.

A temporary staging area (Louisa County Fairgrounds) was used for the exercise, located outside the EPZ. Through this demonstration they realized that this is a better location and are considering changing it in the plan.

4.2.4 Orange County Emergency Operations Center

The EOC Communications Director identified that Orange County could use a reverse 911 system to quickly contact five households with individuals who have AFN within the EPZ. The use of the system would notify the households more quickly than deploying law enforcement, thereby saving manpower and reducing the potential for exposure.

4.2.5 Spotsylvania County Emergency Operations Center

Spotsylvania County effectively utilized drone technology to assess the area directly impacted by the impediment. The footage captured by the drones was displayed on TV monitors in the EOC, showcasing their creative approach to maintaining real-time situational awareness.

SECTION 5: CONCLUSION

The Commonwealth of Virginia and the local jurisdictions, except where noted in this report, demonstrated knowledge of their Radiological Emergency Response Plans (RERP) and procedures were adequately implemented during the North Anna Power Station Plume Exercise evaluated on July 16, 2024, and the Medical Services Drill conducted on August 15, 2024.

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/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.

Federal Emergency Management Agency (FEMA) evaluators assessed 120 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, no Level 2 Findings, and four Plan Issues.

Based on the results of the exercise and a review of the offsite radiological emergency response plans and procedures submitted, FEMA Region 3 has determined they are adequate (meet the planning and preparedness standards of NUREG-0654/FEMA-REP-1, Revision 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

Action	Utility Declared	VA EOC	CERC	VDH/ ORH	VA JIC	CC EOC
Unusual Event	N/A	N/A	N/A	N/A	N/A	N/A
Alert	0817	0825	0831	0825	0825	0826
Site Area Emergency	0944	0952	0947	0952	0952	0951
General Emergency	1101	1106	1103	1106	1106	1108
Simulated Radiation Release Started	1202	1208	1202	1208	1208	1211
Simulated Radiation Release Ended	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing
Facility Declared Operational	N/A	0854	0847	0854	0854	0853
Governor's Declaration of State of Emergency	N/A	0958	1018	0958	0958	1015
Declaration of Local Emergency	N/A	N/A	N/A	N/A	N/A	1004
Precautionary Actions						
• Close parks		1023	-	1023	1023	1024
• Restrict water traffic		1040	-	1040	1040	-
• Restrict rail traffic		1122	-	1122	1122	-
• Restrict airspace		1247	-	1247	1247	-
• Shelter livestock/stored feed & water		0955	1018	0955	0955	1024
• Relocate risk schools & cancel school activities		1000	N/A	N/A	1000	1038
1st PAD Decision: Evac PAZ's 6,7,8,9,10,11,25		1157	1200	1157	1157	1202
• 1st Primary Notification (IPAWS/WEA)		1205	1205	1205	1205	1205
• 1st Backup Notification (Resident Connect)		1205	1205	1205	1205	1205
• 1st EAS		1205	1205	1205	1205	1205
2nd PAD Decision: Evac PAZ's 4,6,7,8,9,10,11,12,13,14,15,22,23,24,25,26		1314	1318	1314	1314	1314
• 2nd Primary Notification (IPAWS/WEA)		1321	1321	1321	1321	1321
• 2nd Backup Notification (Resident Connect)		1321	1321	1321	1321	1321
• 2nd EAS		1321	1321	1321	1321	1321
KI Administration Decision #1: EWs advised to take KI, and General Public in affected PAZ's		1200	1157	1157	1202	1202
KI Administration Decision #2; EWs take KI, and General public in affected PAZ's		1314	1318	1314	1314	1314
KI Administration Decision: EWs, General Public/Institutionalized advised NOT to take KI		N/A	N/A	N/A	N/A	N/A
Exercise Terminated		1450	1420	1450	1450	1450

Action	Utility Declared	HC EOC	HC EAC	LC EOC	OC EOC	SC EOC
Unusual Event	N/A	N/A	N/A	N/A	N/A	N/A
Alert	0817	0825	0835	0825	0827	0826
Site Area Emergency	0944	0951	0956	0951	0953	0952
General Emergency	1101	1106	1108	1107	1107	1108
Simulated Radiation Release Started	1202	1207	1209	1219	1217	1219
Simulated Radiation Release Ended	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing
Facility Declared Operational	N/A	0845	0844	0901	0845	0845
Governor's Declaration of State of Emergency	N/A	1017	1200	1011	0958	0958
Declaration of Local Emergency	N/A	1021	1021	0956	1006	0900
Precautionary Actions						
• Close parks		-	-	1040	-	1008
• Restrict water traffic		-	-	-	-	1008
• Restrict rail traffic		-	-	1122	-	-
• Restrict airspace		-	-	1247	-	-
• Shelter livestock/stored feed & water		1030	-	1018	1002	0903
• Relocate risk schools & cancel school activities		-	N/A	0830	0900	0902
1st PAD Decision: Evac PAZ's 6,7,8,9,10,11,25		1202	1200	1205	1204	1204
• 1st Primary Notification (IPAWS/WEA)		1205	1205	1205	1205	1205
• 1st Backup Notification (Resident Connect)		1205	1205	1205	1205	1205
• 1st EAS		1205	1205	1205	1205	1205
2nd PAD Decision: Evac PAZ's 4,6,7,8,9,10,11,12,13,14,15,22,23,24,25,26		1319	1303	1321	1321	1318
• 2nd Primary Notification (IPAWS/WEA)		1321	1321	1321	1321	1321
• 2nd Backup Notification (Resident Connect)		1321	1321	1321	1321	1321
• 2nd EAS		1321	1321	1321	1321	1321
KI Administration Decision #1: EWs advised to take KI, and General Public in affected PAZ's		1200	1205	1204	1204	1157
KI Administration Decision #2; EWs take KI, and General public in affected PAZ's		1319	1303	1321	1321	1318
KI Administration Decision: EWs, General Public/Institutionalized advised NOT to take KI		N/A	N/A	N/A	N/A	N/A
Exercise Terminated		1458	1427	1450	1450	1457

APPENDIX B: EXERCISE EVALUATORS AND TEAM LEADERS

The following is the list of Evaluators and Team Leaders for the North Anna Power Station Radiological Emergency Preparedness Plume Pathway Exercise evaluated on July 16, 2024. 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

LOCATION	TEAM LEADER	AGENCY
Commonwealth of Virginia Emergency Operations Center (VEOC) Commonwealth of Virginia Joint Information Center at the VEOC	Daniel Rose	FEMA Region 3
Commonwealth of Virginia Accident Assessment at the VEOC State Field Monitoring Team 1 State Field Monitoring Team 2 Corporate Emergency Response Center (CERC)	Reggie Rodgers	REP Support Team
Caroline County Emergency Operations Center	Joseph Suders	FEMA Region 3
Hanover County Emergency Operations Center	Alexander Hazard	FEMA Region 3
Hanover County Evacuation Assembly Center	Taylor Griffiths	FEMA Region 3
Louisa County Emergency Operations Center	Brian Hasemann	FEMA Region 2
Orange County Emergency Operations Center	Zachary Corle	FEMA Region 3
Spotsylvania County Emergency Operations Center	Tina Thomas	FEMA Region 3
LOCATION	**EVALUATOR**	**AGENCY**
Commonwealth of Virginia Emergency Operations Center (VEOC)	Daniel Rose	FEMA Region 3
	Melody Geer	REP Support Team
	Steve Candurra	FEMA Region 2
Commonwealth of Virginia Joint Information Center at the VEOC	PJ Nied	REP Support Team

Commonwealth of Virginia Accident Assessment at the VEOC	Cheryl Weaver	REP Support Team
	Carol Shepard	REP Support Team
State Field Monitoring Team 1	Jeff Clark	FEMA Region 7
State Field Monitoring Team 2	Roger Winkelmann	REP Support Team
Corporate Emergency Response Center	Reggie Rodgers	REP Support Team
	Janise Stoliarova	FEMA HQ
Caroline County Emergency Operations Center	Joseph Suders	FEMA Region 3
	David Zarnick	FEMA Region 3
	Roy Smith	REP Support Team
Caroline County Staging Area TCP/ACP/Transportation Dependent	Herb Massie	REP Support Team
Hanover County Emergency Operations Center	Alexander Hazard	FEMA Region 3
	Kevin Reed	REP Support Team
	Steve Watts	REP Support Team
Hanover County Staging Area TCP/ACP/Transportation Dependent	Bill McDougall	REP Support Team
	David Kayen	REP Support Team
Hanover County Evacuation Assembly Center (EAC) at Liberty Middle School	Taylor Griffiths	FEMA Region 3
	Barbara Thomas	FEMA Region 1
	Sam Paletta	REP Support Team
Hanover County Emergency Worker Monitoring/Decontamination Center	Ken Evans	REP Support Team
Louisa County Emergency Operations Center	Brian Hasemann	FEMA Region 2
	Peter Connell	FEMA Region 3
	Bruce Swiren	REP Support Team
Louisa County, Jouett Elementary School	Tom Hegele	REP Support Team
Louisa County Staging Area TCP/ACP/Transportation Dependent	Tom Hegele	REP Support Team
	Gary Goldberg	REP Support Team
Mary Washington Hospital	Daniel Rose	FEMA Region 3
Orange County Emergency Operations Center	Zachary Corle	FEMA Region 3
	Christopher Bellone	FEMA HQ
	Lenora Borchardt	REP Support Team
Orange County Staging Area TCP/ACP/Transportation Dependent	Doc Burriss	REP Support Team
Orange County Emergency Medical Services (EMS)	Lee Torres	FEMA Region 3
Spotsylvania County Emergency Operations Center	Tina Thomas	FEMA Region 3
	James Fumbanks	FEMA HQ
	Matthew Welshans	FEMA HQ
Spotsylvania County, Berkeley Elementary School	Don Carlton	REP Support Team

Spotsylvania County Staging Area TCP/ACP/Transportation Dependent	Lynn Steffensen	REP Support Team
	Don Carlton	REP Support Team

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
CERT	Community Emergency Response Team
CFR	Code of Federal Regulations
CERC	Corporate Emergency Response Center
CNS	Commonwealth Notification System
CPM	Counts per Minute
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
GIS	Geographic Information Systems
HazMat	Hazardous Materials

IPAWS	Integrated Public Alert & Warning System
IPX	Ingestion Pathway Zone
JIC	Joint Information Center
KI	Potassium Iodide
LOA	Letter of Agreement
MCC	Mass Care 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
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
VDH	Virginia Department of Health
VHF	Very High Frequency
WEA	Wireless Emergency Alerts

APPENDIX D: EXTENT OF PLAY AGREEMENT

The 2024 North Anna Power Station Plume Exercise Extent-of-Play (EOP) Agreement is a document created by the Commonwealth of Virginia Department of Emergency Management 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.

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 July 16, 2024, North Anna Power Station Plume Exercise and the August 15, 2024, Medical Services Drill.

LEE A TORRES Digitally signed by LEE A TORRES Date: 2024.07.16 15:16:10 -04'00'

FEMA Site Specialist Date

State Coordinator 7/11/2024 Date

DANIEL A ROSE Digitally signed by DANIEL A ROSE Date: 2024.07.16 18:28:27 -04'00'

FEMA Team Leader Date

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:

- Alert, notify, and mobilize key personnel, to include a 24-hour staffing roster, and activate facilities in a timely manner.
- Receive and verify notifications.
- Identify and request additional resources, as needed.
- 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:

• **VEOC**
  ○ **Pre-staging is not allowed.**
  ▪ Exercise Players may be present on-site; however, they must utilize a designated holding area until proper procedures are completed to be 'activated,' mirroring real-world emergency protocols.
  ▪ Mobilization of staff will be in accordance with plans and procedures. Equipment used to notify staff will be shown and explained to the FEMA Evaluator.
  ▪ A shift change will not be demonstrated; however, a 24-hour staffing roster will be shown to the FEMA Evaluator.
• **VDH-ORH**
  ○ Field Monitoring Teams will be demonstrated at the Newport News EOC

Risk Jurisdictions Negotiated Extent of Play:

• **Pre-staging is not allowed.**
  ○ Exercise Players may be present on-site; however, they must utilize a designated holding area until proper procedures are completed to be 'activated,' mirroring real-world emergency protocols.
  ▪ Mobilization of staff will be in accordance with plans and procedures. Equipment used to notify staff will be shown and explained to the FEMA Evaluator.

▪ A shift change will not be demonstrated; however, a 24-hour staffing roster will be shown to the FEMA Evaluator. • Hanover Counter EAC players will be pre-staged in Liberty Middle School at 0915.
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:

- Support protective action decision-making.
- Conduct briefings in a timely manner.
- Maintain situational awareness.
- Coordinate response activities with other organizations.
- Obtain resources to support emergency operations.
- 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:
• In accordance with plans and procedures.
Risk Jurisdictions Negotiated Extent of Play:
• In accordance with plans and procedures.
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

- Select and implement pre-planned precautionary protective actions.
- 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.
- Develop PARs.
- Transmit PARs in a timely manner.

Post Plume

- 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:
• In accordance with plans and procedures.
Risk Jurisdictions Negotiated Extent of Play:
• In accordance with plans and procedures.
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:

- Coordinate and make PADs for members of the general public.
- Coordinate and make PADs for those with access and functional needs.
- Coordinate and make PADs for students at schools.

- Coordinate and make subsequent or alternate PADs.
- 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:
• In accordance with plans and procedures.
Risk Jurisdictions Negotiated Extent of Play:
• In accordance with plans and procedures.
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:

- Implement PADs, ensuring communication and coordination with all appropriate jurisdictions.
- Assist those with access and functional needs during the implementation of PADs.
- Communicate, coordinate, and implement protective actions for schools.
- Communicate with transportation officials.
- Identify evacuation routes for the general public.
- 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:

• In accordance with plans and procedures.
Risk Jurisdictions Negotiated Extent of Play:
• One transportation provider will be contacted; all other calls will be simulated. • All simulated contacts should be logged. • One bus driver should be available at the staging areas to receive a radiological briefing and will be interviewed. • For the purpose of the exercise, schools are in session. • Transportation of school children, if necessary, will be simulated. • Interviews with school officials will occur in sequence which will include a district and school representative. • Demonstrate the capability to alert and notify Access and Functional Needs (AFN) populations (This will be simulated). • Transportation dependent routes will be demonstrated through interviews, with the exception of Hanover County who will run one route in sequence with the scenario. • The list identifying AFN populations will be available to evaluators but will not leave the EOC. Due to the nature of protected personal information the list will be a scrubbed list.
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:

- Make post-plume phase decisions in a timely manner.
- Make relocation decisions for the post-plume phase in a timely manner.
- Make reentry decisions for the post-plume phase in a timely manner.
- Make return decisions for the post-plume phase in a timely manner.
- Make re-occupancy decisions for the post-plume phase in a timely manner.
- 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:

- 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.
- Formulate protective action information (e.g., brochures, email, text message, etc.) for the general public and food producers and processors.
- Control, restrict, or prevent distribution of contaminated food by commercial sectors, ensuring communication and coordination with agencies responsible for enforcing food controls.
- Communicate instructions to the public regarding relocation decisions and intermediate-term housing for relocated persons.
- Coordinate and implement decisions concerning relocation, including short- and/or long-term relocation of evacuees.
- Control reentry and exit of individuals who are authorized by the ORO to temporarily reenter the restricted area.
- 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:

- Control emergency workers' exposure and dose, including offsite workers performing duties onsite.
- Maintain record of dose as a result of exposure.
- Authorize exposures and dose in excess of identified limits.
- Process for considering occupational exposures and to authorize individuals to receive doses in excess of occupational dose limits.
- Determine a correction factor for DRD-based isotopic release mixture.
- Control exposure and dose for temporary reentry of emergency workers, or members of the public, to restricted areas.
- Determine the need to authorize radioprotective drugs using projected thyroid doses and field measurements. Projections are compared to previously established PAGs.
- 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:
• In accordance with plans and procedures.
Risk Jurisdictions Negotiated Extent of Play:
• In accordance with plans and procedures.
Support Jurisdictions Negotiated Extent of Play:
• N/A
Outstanding Issues:
62-23-2.1-P-009

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:

- Maintain an appropriate inventory of DRDs that are leak-tested or current in calibration.
- Maintain an appropriate inventory of PRDs.
- Retain an adequate supply of radioprotective drugs.
- Adequately distribute appropriate DRDs and PRDs.
- Adequately distribute radioprotective drugs to emergency workers.
- Record and report exposures in the field.
- Implement decisions to administer radioprotective drugs.
- Report to individual responsible for managing exposure and dose when limits are reached.
- 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:
• If the exercise scenario does not require emergency workers to seek authorization for additional exposure, evaluators will require one emergency worker to demonstrate the process to seek authorization to exceed dose limits via an exercise inject.
Risk Jurisdictions Negotiated Extent of Play:
• The Louisa County Staging Area Evaluation will be conducted at the Louisa Fair Grounds located at 208 Fredericksburg Ave, Louisa, VA 23093. • If the exercise scenario does not require emergency workers to seek authorization for additional exposure, evaluators will require one emergency worker to demonstrate the process to seek authorization to exceed dose limits via an exercise inject. • Simulated KI will be distributed. Actual KI will be shown to the evaluator.
Support Jurisdictions Negotiated Extent of Play:
N/A
Outstanding Issues:
N/A

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:
• One primary communication system and one backup system will be demonstrated. • During the exercise all calls will be actual except where noted in the extent of play.
Risk Jurisdictions Negotiated Extent of Play:
• One primary communication system and one backup system will be demonstrated. • During the exercise all calls will be actual except where noted in the extent of play.
Support Jurisdictions Negotiated Extent of Play:
N/A
Outstanding Issues:
N/A

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

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

EAS

- Identify the process to activate the EAS.
- Ensure that updated emergency information is disseminated in a timely manner.
- Ensure that current emergency information is repeated at pre-established intervals.
- 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.
- EAS/NWS Station.
- 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:
• The capability of the primary notification system to broadcast an instructional message on a 24-hour basis will be verified during an interview with the SAU appropriate players. • The VDEM SAU will produce and transmit a non-public activation of the primary alert and notification system via the FEMA IPAWS-WEA/EAS, by sending the messages to the FEMA IPAWS Open Gateway at the Technical Support Services Facility. A screen shot of the message and result of receipt will be provided to the FEMA evaluator. A test message to the FEMA evaluators will not be required. • The VDEM SAU will produce a non-public exercise message through Resident Connect to a group of pre-identified exercise evaluators and controllers. • Redundant activation methods for IPAWS/WEA and EAS will be explained to the evaluator through interview.
Risk Jurisdictions Negotiated Extent of Play:
• Risk jurisdictions should be able to explain process to validate success of alert signal and instructional message. • Demonstration of the capability to alert and notify AFN populations will be simulated.
Support Jurisdictions Negotiated Extent of Play:
• N/A
Outstanding Issues:

- N/A

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

- Rapidly disseminate of ingestion exposure pathway information to predetermined individuals and businesses.
- 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:
• Trends and rumors will be identified and properly addressed through media briefings and/or press releases. • At a minimum at least one media briefing will occur and be conducted at the General Emergency (GE) Emergency Classification Level (ECL) during exercise play.
Risk Jurisdictions Negotiated Extent of Play:
• Each jurisdiction will establish a public inquiry phone line and will respond to calls. • Trends and rumors will be identified and addressed accordingly per plans and procedures. • At a minimum at least one media briefing will occur and be conducted at the General Emergency (GE) Emergency Classification Level (ECL) during exercise play. • Exercise Evaluators may ask questions specific to the scenario and relevant to the media briefing comments.
Support Jurisdictions Negotiated Extent of Play:

N/A
Outstanding Issues:
N/A

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:

- Brief FMTs on predicted plume location and direction, plume travel speed, equipment operational checks, background measurement, and exposure control procedures before deployment.
- Direct the FMTs to monitoring locations, predesignated points or otherwise, at times and locations sufficient to characterize the plume.
- Obtain peak plume measurements from FMTs.
- Direct FMTs to collect air samples at locations and times sufficient to characterize the plume.
- 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.
- Coordinate and share information amongst all FMTs (licensee, Federal, state, and local).
- Coordinate sample analysis from field to those responsible for assessing radiological data.
- Coordinate transfer of sample media to locations and organizations responsible for assessing radiological data.
- 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:
• State FMT's will be demonstrated at the Newport News EOC (513 Oyster Point Rd, Newport News, VA 23602). • State FMT's will simulate deployment to NAPS EPZ monitoring points.
Risk Jurisdictions Negotiated Extent of Play:
N/A
Support Jurisdictions Negotiated Extent of Play:
N/A
Outstanding Issues:
N/A

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:

- Maintain emergency equipment including calibration and operational checks according to manufacturer's specifications or per national standards.
- Maintain inventory for emergency kits.
- Operate and monitor radiation survey instruments to detect changes in radiation exposure rate while moving and in stationary positions.
- Use appropriate contamination control and PPE.
- Be in location(s) at the appropriate time(s) to detect and characterize the active release (plume).
- Obtain peak plume measurements either directly or from licensee field teams.
- Correctly interpret survey instrument readings to determine submersion in the active plume.
- 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).
- Handle sample media and equipment to avoid sample cross-contamination, contamination of equipment and personnel contamination.
- Determine an appropriate low background location to count sample media.
- Count iodine and particulate media using appropriate and effective instrumentation and counting geometries or have samples analyzed by a supporting laboratory within four hours.
- Report to field monitoring team manager all survey and counting results in format and units suitable for use by the organization's dose assessor.
- Procedures, qualified collection and counting efficiencies, and calculations are capable of detecting airborne radioactive iodine concentrations as low as 10-7 μCi/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:
• State FMT's will be demonstrated at the Newport News EOC (513 Oyster Point Rd, Newport News, VA 23602). • State FMT's will simulate deployment to NAPS EPZ monitoring points. • One member from each field monitoring team will demonstrate donning and doffing of PPE. This may be conducted at the beginning or conclusion of the exercise. • Field Monitoring Teams will be demonstrated at the Newport News EOC
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:

- Maintain and prepare instruments, equipment, and supplies for use, including performing pre-operational checks of radiation survey instruments.
- Use appropriate contamination control and PPE.
- Execute the sampling plan.
- 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.
- Obtain and record ambient radiation measurements at each sample location and at other locations, as directed.
- Handle sample media to avoid sample cross-contamination and equipment/personnel contamination.
- 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:

- Prepare analytical equipment for use, including performing calibrations, quality control checks, and background counts, as appropriate.
- Receive and track samples, including completing chain-of-custody records.
- 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.
- 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.
- Provide analysis results to the appropriate organization.
- 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:
• Laboratory operations will not be demonstrated.
Risk Jurisdictions Negotiated Extent of Play:
N/A
Support Jurisdictions Negotiated Extent of Play:
N/A
Outstanding Issues:
N/A

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:

- Obtain adequate data to make dose projections.
- 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.

- Compare dose projections to members of the public to EPA PAGs.
- 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.
- Make initial PARs based on recommendations of the licensee, release data, meteorological data, and other pertinent information.
- Promptly communicate PARs to decision-makers.
- Receive ambient exposure rates from FMTs and compare to model projections.
- Calculate iodine and particulate concentrations from FMT air samples.
- Calculate plume ratios of noble gas, iodine's, and particulates, and compare to model projections.
- Adjust PARs, as necessary, based on analysis of field data.
- 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:
In accordance with plans and procedures.
Risk Jurisdictions Negotiated Extent of Play:
N/A
Support Jurisdictions Negotiated Extent of Play:
N/A
Outstanding Issues:
N/A

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:

- Periodically conduct radiological assessment of public exposure.
- Estimate projected doses in contaminated areas and identify areas where projected doses exceed relocation PAGs.
- Develop and modify sampling plan to assess the radiological consequences of a release on the food and drinking water supplies.
- 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.

- Evaluate the radiological analyses of representative samples of drinking water, food, and other ingestible substances of local interest from potentially impacted areas.
- 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
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:

- Set-up operations.
- 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

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

Vehicles

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

Sheltering and Congregate Care

- Coordinate for incoming evacuees who have been monitored and, if necessary, decontaminated.
- Establish shelter operations.
- Congregate care centers and operations in host/support jurisdictions are sufficient to support the expected number of evacuees.

Registration

- Register evacuees.

- 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:
• Evacuation Assembly Center ▪ Liberty Middle School in Hanover County will serve as the evaluated Evacuation Assembly Center (EAC) in sequence on July 16, 2024. Special considerations by FEMA will be afforded to this evaluation due to it being the first ever in-sequence evaluation. Re-demonstrations will be encouraged as needed. ▪ EAC can be setup prior to the start of the exercise. ▪ EAC staff will stage per Capability Target 1.1. • One bus route will be demonstrated. The evaluator and controller will ride the bus route without passengers. At the completion of the route, the bus will proceed to Patrick Henry High School to pick up evacuees and transport evacuees to the EAC. The bus driver will simulate turning off the air conditioning during the bus route with the controller and FEMA evaluator due to high temperatures.
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:

- Set-up operations.
- Operationally check instruments and equipment.
- Monitor emergency worker personnel and their equipment and vehicles for contamination.
- Decontaminate emergency worker personnel and their equipment and vehicles based on trigger/action levels.

- Control the spread of contamination.
- Create and maintain a record of monitoring and decontaminating workers upon completion of monitoring and decontamination activities.
- 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:
• The Emergency Worker Monitoring/Decontamination will take place during the Evacuation Assembly Center (EAC) evaluations: The EAC is located at Liberty Middle School and will be demonstrated **In Sequence** on July 16th, during the evaluated exercise. Special considerations by FEMA will be afforded to this evaluation due to it being the first ever in-sequence evaluation. Re-demonstrations will be encouraged as needed.
Support Jurisdictions Negotiated Extent of Play:
N/A
Outstanding Issues:
N/A

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

- Operationally check instruments and equipment.
- Set-up, activate, and operate an REA.

- 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:
Conducted out of sequence on August 15, 2024, at Mary Washington Hospital
Risk Jurisdictions Negotiated Extent of Play:
Conducted out of sequence on August 15, 2024. • Orange County EMS Crew will demonstrate the ability to respond to a simulated injured/contaminated individual requiring transport to Mary Washington Hospital. 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. Additionally, the ambulance crew should demonstrate, by interview, knowledge of where the ambulance and crew would be monitored and decontaminated, if required, or whom to contact for such information. • Mary Washington Hospital will demonstrate the ability to treat a simulated injured/contaminated individual. Contamination levels will be provided to hospital personnel by controller inject. Hospital personnel will demonstrate appropriate contamination control measures while treating the victim. Communications between the ambulance/dispatcher and the receiving medical facility should be demonstrated.
Support Jurisdictions Negotiated Extent of Play:
N/A
Outstanding Issues:
N/A

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:

- Select, establish, and staff appropriate TCP/ACPs, consistent with current conditions and PADs (e.g., evacuating, sheltering, and relocation), in a timely manner.
- 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.

- Contact the state or Federal agencies that have the authority for the different transportation modes (e.g., rail, water, and air traffic).
- Identify and take appropriate actions concerning impediments that affect the evacuation and evacuation routes.
- 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.
- Establish procedures to control access to and monitor people and vehicles from the evacuated and restricted areas.
- Authorize reentry of individuals into the restricted areas.
- Establish exit 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:
• In accordance with plans and procedure.
Risk Jurisdictions Negotiated Extent of Play:
• TCP/ACP evaluation will be conducted at the respective staging areas. • Both the TCP/ACP will be evaluated via interview conducted with one player per plans and procedures. • Each risk jurisdiction will demonstrate the capability to take appropriate actions concerning impediments that affect the evacuation and evacuation routes. The impediment must remain on the evacuation route long enough for a traffic diversion plan to be implemented and communicated to the public.
Support Jurisdictions Negotiated Extent of Play:
N/A
Outstanding Issues:
N/A

Participating Agencies and Site Maps

Federal Agencies
Federal Emergency Management Agency (FEMA)
State Agencies
Virginia Emergency Support Team (VEST)
Virginia Department of Emergency Management (VDEM)
Virginia Department of Health – Office of Radiological Health
Risk Jurisdictions
Caroline County
Hanover County
Louisa County
Orange County
Spotsylvania County
Support Jurisdictions
N/A
Private Sector Organizations
Dominion Energy
Olson Group Ltd.
Volunteer Organizations/NGO
N/A

Appendix D: Directions/Addresses

List all Exercise Locations with Addresses

State Locations	
Venue	**Address**
Virginia Emergency Operations Center (VEOC)	7700 Midlothian Turnpike North Chesterfield, VA 23235
Dominion Energy Corporate Emergency Response Center (CERC)	5000 Dominion Blvd Glen Allen, VA 23060
VDH Field Teams	Newport News EOC 513 Oyster Point Road Newport News, VA

Risk Locations	
Venue	**Address**
Caroline County EOC	17202 Richmond Turnpike Milford, VA 22514
Caroline County Staging Area	Ladysmith Fire Station 17401 Jefferson Davis Highway Ladysmith, VA 22501
Hanover County EOC	Hanover County Fire Administration Bldg. 13326 Hanover Courthouse Rd. Hanover, VA 23069
Hanover County EAC	Liberty Middle School 13496 Liberty School Rd. Ashland, VA 23005
Hanover County Staging Area	Patrick Henry High School 12449 W. Patrick Henry Rd. Ashland, VA 23005
Louisa County EOC	1 Woolfolk Ave Louisa, VA 23093
Louisa County Staging Area	Louisa Fair Grounds 208 Fredericksburg Ave Louisa, VA 23903
Orange County EOC	11282 Government Center Drive Orange, VA 22960
Louisa County School	**Jouett Elementary School** 315 Jouett School Road Mineral, VA 23117
Orange County Staging Area	East Orange Ruritan Club 24124 Constitution HWY Unionville, VA 22567
Spotsylvania County EOC	9119 Dean Ridings Lane 2nd Floor Spotsylvania, VA 22533
Spotsylvania County Staging Area	Fire Company 1 – 7200 Courthouse Commons Blvd., Spotsylvania, VA 22533
Spotsylvania County School	**Berkeley Elementary School**

	5979 Partlow Road Spotsylvania, VA 22551

Support Locations	
Venue	**Address**
N/A	

Out of Sequence Locations	
Venue	**Address**
N/A	

Open Issues

Issue Number	Capability Target	Issue Type	Exercise	Brief Description
62-23-2.1-P-009	2.1	Planning	2023 VOPEX	Evaluation Criterion K.2.b requires that plans/procedures reference or include the process for authorizing and documenting emergency workers volunteering to receive doses more than the specified dose limits described in the plans/procedures, including providing a description of the full reporting and decision chain process (i.e., from the emergency worker requesting and obtaining authorization to communicating back to the emergency worker with the final decision).

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
BURA	Back Up Route Alerting
BZ	Buffer Zone
CAD	Computer Aided Display
C/E	Controller and Evaluator
CED	Committed Effective Dose
CC	Core Capabilties
CCC	Congregate Care Center
CDC	U.S. Center for Disease Control and Prevention
CCL	Core Capabilities List
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
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
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
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 Exerise
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
LHD	Local Health Department
LOA	Letter of Agreement
MCC	Mass Care Center
MDDT	Mobile Data Display Terminal
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
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
PD	Police Department
PDAFN	Persons with Disabilities/Access and Funtional Needs
PED	Personal Electronic Dosimeter
PII	Personally Identifiable Information
PIO	Public Information Officer
PPE	Personal Protective Equipment
PPP	Post-Plume Phase
PRA	Primary Route Alerting
PRD	Permanent Record Dosimeter
PS	Planning Standard
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 Oficer
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
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
SSO	Social Services Officer
STARS	Statewide Area Radio System
SPS	Surry Power Station
Sv	Sievert (sv)
SWAN	State Warning Alert Notification
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
TO	Transportation Officer
TSC	Technical Support Center
TTD/TTY	Telecommunication Device for the Deaf/TeleType
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
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