Calvert Cliffs Nuclear Power Plant
Lusby, Maryland
After Action Report/Improvement Plan
Exercise Date – September 13, 2022
Radiological Emergency Preparedness (REP) Program

FEMA

Published November 16, 2022

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EXECUTIVE SUMMARY

On September 13, 2022, a full participation Plume Exposure Pathway exercise was conducted and evaluated for the 10-Mile Emergency Planning Zone (EPZ) around the Calvert Cliffs Nuclear Power Plant (CCNPP) 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 September 14, 2021, that included a remedial exercise of a Level 1 Finding conducted on November 23, 2021.

Out-of-Sequence demonstrations were conducted on September 14, 2022. The purpose of the Exercise and Out-of-Sequence demonstrations was to assess the capabilities of State, counties, and local jurisdictions to implement Radiological Emergency Response Plans (RERP) and Procedures to protect the property and lives of residents and transients in the event of an emergency at the Calvert Cliffs Nuclear Power Plant. 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, two Level 2 Findings, and no Plan Issues. The Level 2 Findings regarding individuals in leadership providing direction and control, and accurate emergency information and instructions being provided to the public and the news media in a timely manner, were successfully redemonstrated on November 3, 2022. Personnel from the Maryland Department of Emergency Management (MDEM) and Maryland Department of the Environment (MDE) participated in a remedial exercise on November 3, 2022, at the MDE Accident Assessment Center in Baltimore, MD. During the exercise, MDEM staff successfully produced four (4) error-free press releases and an Executive Order from the Maryland Governor declaring a State of Emergency. After the redemonstration, the Level 2 Findings were closed.

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

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

Finally, a Plan Issue is: “An observed or identified inadequacy in the 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 State of Maryland, and the risk county jurisdictions of Calvert County, Dorchester County, and St. Mary’s County.

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

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

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

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

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

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

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

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

SECTION 1: EXERCISE OVERVIEW

1.1 Exercise Details

Exercise Name
Calvert Cliffs Nuclear Power Plant Plume Exercise

Type of Exercise
Plume

Exercise Date
September 13, 2022

Program
Department of Homeland Security/FEMA Radiological Emergency Preparedness Program

Scenario Type
No/Minimal Radiological Release

1.2 Exercise Planning Team Leadership

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1.3 Participating Organizations

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

State Jurisdictions

State of Maryland

- Maryland Department of Agriculture (MDA)
- Maryland Department of Disabilities (MDOD)
- Maryland Department of Emergency Management (MDEM)
- Maryland Department of the Environment (MDE)
- Maryland Department of General Services (DGS)
- Maryland Department of Health (MDH)
- Maryland Department of Health Environmental Health
- Maryland Department of Health Office of Preparedness and Response
- Maryland Department of Human Services (MDHS)
- Maryland Department of Information and Technology (DoIT)
- Maryland Department of Natural Resources (DNR)
- Maryland Department of Planning (MDP)
- Maryland Department of Transportation (MDOT)
- Maryland Department of Transportation State Highway Administration (MDOT SHA)
- Maryland Energy Administration (MEA)
- Maryland National Guard (MDNG)
- Maryland Coordination and Analysis Center (MCAC)
- Maryland Institute for Emergency Medical Services Systems (MIEMSS)
- Maryland Natural Resources Police (NRP)
- Maryland Public Service Commission (PSC)
- Maryland State Department of Education (MSDE)
- Maryland State Police (MSP)

Risk-Area Jurisdictions

Calvert County

- Calvert County 911 Center
- Calvert County Commissioner
- Calvert County Community Resources Department
- Calvert County Board of Education
- Calvert County Department of Community Services
- Calvert County Department of Corrections
- Calvert County Department of Public Safety
- Calvert County Department of Public Works
- Calvert County Department of Social Services
- Calvert County Department of Technology Services
- Calvert County Division of Emergency Management
- Calvert County Health Department
- Calvert County Health Department Environmental Health
- Calvert County Public School District
- Calvert County Sheriff's Office

- Patuxent Appeal Elementary School
- Southern Middle School
- St. Leonard Elementary School

Dorchester County

- Cambridge Police Department
- Delmarva Community Services Transportation
- Dorchester County 911 Center
- Dorchester County Administrative Assistance
- Dorchester County Board of Education
- Dorchester County Board of Education Transportation
- Dorchester County Department of Emergency Services
- Dorchester County Department of Social Services
- Dorchester County Director of Social Services
- Dorchester County Emergency Medical Services
- Dorchester County Department of Health
- Dorchester County Roads
- Dorchester County Sheriff's Department
- Dorchester County Soil Conservation
- Taylor Island Department of Natural Resources

St. Mary's County

- Hollywood Elementary School
- St. Johns School
- St. Mary's County Administrator
- St. Mary's County Commission
- St. Mary's County Department of Aging & Human Services
- St. Mary's County Department of Emergency Services
- St. Mary's County Department of Public Works & Transportation
- St. Mary's County Department of Social Services
- St. Mary's County Division of Emergency Communications
- St. Mary's County Emergency Management Division
- St. Mary's County Government Public Information Office
- St. Mary's County Health Department
- St. Mary's County Metropolitan Commission
- St. Mary's County Public Schools
- St. Mary's County Recreation & Parks
- St. Mary's County Rescue Squad Association
- St. Mary's County Sheriff's Office
- St. Mary's County Volunteer Fire Service
- Town of Leonardtown

Private/Volunteer Organizations

- America Red Cross
- Constellation Energy

- Calvert Health Medical Center
- Eastern Shore Hospital Center
- MedStar St. Mary's Hospital
- University of Maryland Shore Medical Center
- Maryland Radio Amateur Civil Emergency Services (RACES)
- Calvert County Radio Amateur Civil Emergency Services (RACES)

Federal Jurisdictions

- Department of Homeland Security (DHS), Cybersecurity and Infrastructure Security Agency (CISA)
- Federal Emergency Management Agency (FEMA)
- Naval Air Station Patuxent River
- National Weather Service
- United States Coast Guard National Capital Region (NCR) (USCG-NCR)
- United States Department of Agriculture (USDA) Farm Service Agency

SECTION 2: EXERCISE DESIGN SUMMARY

2.1 Exercise Purpose and Design

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

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

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

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

C. Responding to requests by the U.S. NRC pursuant to the Memorandum of Understanding between the NRC and FEMA dated December 7, 2015 (Federal Register, Vol. 81, No. 57, March 24, 2016); and

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

Representatives of these agencies serve on the Region 3 RAC, which is Chaired by FEMA. A REP Plume Exposure Pathway Exercise was conducted during the week of September 12, 2022, to assess the capabilities of State and local emergency preparedness organizations in implementing their RERPs and procedures to protect the public health and safety during a radiological emergency involving the CCNPP. 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 Radiological Emergency Preparedness Exercise Methodology utilized in the FEMA evaluation process are contained in the following:

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

Emergency Planning Zone Description:
CCNPP is located near Maryland Highway 2-4 in Calvert County, Maryland, on the west bank of the Chesapeake Bay in Lusby, Maryland. The site is owned and operated by Constellation Energy. Two Combustion Engineering pressurized water reactors each generate an electrical output of 1,756 MW units that provide power to around 1 million residential customers. Unit 1 began commercial operation during May 1975 and Unit 2 in April 1977. On March 23, 2000, the license was renewed. Unit 1 is currently licensed through 2034, and Unit 2 is licensed through 2036. The coordinates of the site are 38°25"39.7' North and 76°26"45' West. The site covers an area of approximately 2,057 acres.

There are approximately 50,058 people in the 10-mile EPZ, 13,307 in the 5-mile EPZ, and 2,329 in the 2-mile EPZ. There are approximately 9,563 transients within the EPZ during peak seasonal activities, e.g., daytime, during the summer. No major populated cities (greater than 25,000) exist within the 10-mile EPZ.

The topography of the vicinity around the plant defines several small watersheds. The watershed containing the plant and auxiliary structures drains into the Chesapeake Bay. Chesapeake Bay has an average depth of 30 feet and receives the majority of its fresh water, sediment, and nutrients from the Susquehanna River. A majority fraction of the land in the area surrounding the site is devoted to agricultural and forest use, such as farming of tobacco, corn, soybeans, and hay. Dairy farming is of minor importance. The waters adjacent to the site are used for commercial fishing, primarily for shellfish such as clams, oysters, and crabs

2.2 Exercise Objectives, Capabilities and Activities

The objectives of the 2022 CCNPP Plume Exercise were to demonstrate the capabilities of State and local emergency management agencies to mobilize emergency management and emergency response personnel, to activate emergency operations centers and support facilities, and to protect the health, lives, and property of the citizens residing within the 10-mile EPZ.

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

An essential capability of the REP Program is to evacuate, monitor and decontaminate, if necessary, and provide temporary care and shelter to displaced residents from the EPZ. In accordance with the FEMA Radiological Emergency Preparedness (REP) Program Manual, the

State of Maryland has elected to exercise the ability of the risk/support counties to mobilize personnel and resources to establish reception, monitoring and decontamination, and mass care centers during future exercises, but within the 8-year exercise cycle.

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

2.3 Scenario Summary

The simulated weather forecast for the exercise is mostly sunny with temperatures in the mid 80's. Wind direction is from 347 degrees at 27 miles per hour (mph). The skies will become cloudy in the evening with 100% chance of precipitation with temperatures in the mid 60's.

At 0800 the exercise begins. For the postulated event, Unit #1 and Unit #2 are both operating at 100% power.

At 0808 a solar magnetic disturbance occurs followed by a Loss of Offsite Power (LOOP) which results in a Unit 1 and 2 reactor trip. Based on these conditions, the CCNPP Shift Manager declares an ALERT Emergency Classification Level (ECL). OROs mobilize personnel and staff emergency facilities.

At 0935 the Shift Manager declares a SITE AREA EMERGENCY. OROs may make protective/precautionary actions in accordance with plans and procedures.

At 1030 the Shift Manager declares a GENERAL EMERGENCY based on plant conditions. The Licensee makes a Protective Action Recommendation (PAR) to the State. Decision makers at the State and Counties consider the Licensee PAR and other factors and OROs make protective actions based on plans and procedures.

At 1222 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 September 13, 2022, Biennial Plume Exposure Pathway 10-mile EPZ REP Exercise. These exercises were conducted to demonstrate the ability of the Offsite Response Organizations of State and local government to protect the health and safety of the public in the 10-mile EPZ surrounding the Calvert Cliffs Nuclear Power Plant.

Each jurisdiction and functional entity were evaluated based on its demonstration of the exercise objectives and capability targets contained in the REP Exercise Evaluation Methodology. Detailed information on the exercise evaluation objectives and capability targets and the Extent of Play Agreement can be found in the Exercise Plan.

3.2 Summary Results of Exercise Evaluation

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

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

Tables 3.1 - Summary of Exercise Evaluation

Table 3.1a Exercise Evaluation Findings and Issues by Classification

Location	Target	Capability Target Description	Status
Maryland Department of Emergency Management (MDEM) - Emergency Operations Center, State	1.2	Direction and Control	Level 2 Issue - Redemonstrated/Closed
Maryland Department of Emergency Management (MDEM) - Emergency Operations Center, State	3.3	Emergency Information and Instructions for the Public and News Media	Level 2 Issue - Redemonstrated/Closed

Table 3.1b Exercise Evaluation Assessments Met

Location	Target	Capability Target Description	Status
Objective 1: Emergency Operations Management			
Saint Mary's Co EOC - Emergency Operations Center, County, Risk	1.1	Mobilization	M
Maryland Joint Operations Center - Emergency Operations Center, State	1.1	Mobilization	M
Calvert County EOC - Emergency Operations Center, County, Risk	1.1	Mobilization	M
Maryland Field Monitoring Team 1 - State Field Monitoring Team	1.1	Mobilization	M
Maryland Department of Emergency Management (MDEM) - Emergency Operations Center, State	1.1	Mobilization	M
Maryland Field Monitoring Team 2 - State Field Monitoring Team	1.1	Mobilization	M
MDE Accident Assessment Center - State Accident Assessment Center	1.1	Mobilization	M

Maryland Department of Emergency Management (MDEM) - Joint Information Center	1.1	Mobilization	M
Dorchester Co EOC - Emergency Operations Center, County, Risk	1.1	Mobilization	M
Dorchester Co EOC - Route Alerting - Back-Up	1.1	Mobilization	M
Constellation Emergency Operations Facility – Emergency Operating Facility	1.1	Mobilization	M
Constellation Media Operations Center - Joint Information Center	1.1	Mobilization	M
Constellation Emergency Operations Facility - Emergency Operating Facility	1.2	Direction and Control	M
Dorchester Co EOC - Emergency Operations Center, County, Risk	1.2	Direction and Control	M
MDE Accident Assessment Center - State Accident Assessment Center	1.2	Direction and Control	M
Calvert County EOC - Emergency Operations Center, County, Risk	1.2	Direction and Control	M
Dorchester Co EOC - Route Alerting - Back-Up	1.2	Direction and Control	M
Maryland Department of Emergency Management (MDEM) - Joint Information Center	1.2	Direction and Control	M
Maryland Field Monitoring Team 1 - State Field Monitoring Team	1.2	Direction and Control	M
Maryland Field Monitoring Team 2 - State Field Monitoring Team	1.2	Direction and Control	M

Maryland Joint Operations Center - Emergency Operations Center, State	1.2	Direction and Control	M
Constellation Media Operations Center - Joint Information Center	1.2	Direction and Control	M
Constellation Emergency Operations Facility – Emergency Operating Facility	1.3	Protective Action Recommendations	M
MDE Accident Assessment Center - State Accident Assessment Center	1.3	Protective Action Recommendations	M
Maryland Department of Emergency Management (MDEM) - Emergency Operations Center, State	1.4	Protective Action Decisions for the Plume Phase	M
MDE Accident Assessment Center - State Accident Assessment Center	1.4	Protective Action Decisions for the Plume Phase	M
Southern Middle School - Schools	1.5	Protective Action Decision Implementation for the Plume Phase	M
St. Leonard Elementary School - Schools	1.5	Protective Action Decision Implementation for the Plume Phase	M
Patuxent Appeal Elementary School - Schools	1.5	Protective Action Decision Implementation for the Plume Phase	M
Hollywood Elementary School - Schools	1.5	Protective Action Decision Implementation for the Plume Phase	M
St. Johns School - Schools	1.5	Protective Action Decision Implementation for the Plume Phase	M
Maryland Department of Emergency Management (MDEM) - Emergency Operations Center, State	1.5	Protective Action Decision Implementation for the Plume Phase	M
Calvert County EOC - Emergency Operations Center, County, Risk	1.5	Protective Action Decision Implementation for the Plume Phase	M

Dorchester Co EOC - Emergency Operations Center, County, Risk	1.5	Protective Action Decision Implementation for the Plume Phase	M
Objective 2: Exposure Control			
Maryland Department of Emergency Management (MDEM) - Emergency Operations Center, State	2.1	Emergency Worker Exposure Control Decision-Making Process	M
MDE Accident Assessment Center - State Accident Assessment Center	2.1	Emergency Worker Exposure Control Decision-Making Process	M
Saint Mary's Co EOC - Emergency Operations Center, County, Risk	2.2	Emergency Worker Exposure Control Management	M
Dorchester Co EOC - Emergency Operations Center, County, Risk	2.2	Emergency Worker Exposure Control Management	M
Dorchester Co EOC - Route Alerting - Back-Up	2.2	Emergency Worker Exposure Control Management	M
Maryland Field Monitoring Team 1 - State Field Monitoring Team	2.2	Emergency Worker Exposure Control Management	M
Maryland Field Monitoring Team 2 - State Field Monitoring Team	2.2	Emergency Worker Exposure Control Management	M
Objective 3: Alert and Notification			
Maryland Field Monitoring Team 1 - State Field Monitoring Team	3.1	Communications	M
Saint Mary's Co EOC - Emergency Operations Center, County, Risk	3.1	Communications	M
Maryland Department of Emergency Management (MDEM) - Emergency Operations Center, State	3.1	Communications	M
MDE Accident Assessment Center - State Accident Assessment Center	3.1	Communications	M

Dorchester Co EOC - Emergency Operations Center, County, Risk	3.1	Communications	M
Dorchester Co EOC - Route Alerting - Back-Up	3.1	Communications	M
Constellation Media Operations Center - Joint Information Center	3.1	Communications	M
Constellation Emergency Operations Facility – Emergency Operating Facility	3.1	Communications	M
Maryland Department of Emergency Management (MDEM) - Joint Information Center	3.1	Communications	M
Maryland Joint Operations Center - Emergency Operations Center, State	3.1	Communications	M
Maryland Field Monitoring Team 2 - State Field Monitoring Team	3.1	Communications	M
Calvert County EOC - Emergency Operations Center, County, Risk	3.1	Communications	M
Dorchester Co EOC - Emergency Operations Center, County, Risk	3.2	Alert and Notification to the Public	M
Dorchester Co EOC - Route Alerting - Back-Up	3.2	Alert and Notification to the Public	M
Maryland Department of Emergency Management (MDEM) - Emergency Operations Center, State	3.2	Alert and Notification to the Public	M
Saint Mary's Co EOC - Emergency Operations Center, County, Risk	3.2	Alert and Notification to the Public	M
Maryland Joint Operations Center - Emergency Operations Center, State	3.2	Alert and Notification to the Public	M

Dorchester Co EOC - Emergency Operations Center, County, Risk	3.3	Emergency Information and Instructions for the Public and News Media	M
Constellation Media Operations Center - Joint Information Center	3.3	Emergency Information and Instructions for the Public and News Media	M
Maryland Department of Emergency Management (MDEM) - Joint Information Center	3.3	Emergency Information and Instructions for the Public and News Media	M
Calvert County EOC - Emergency Operations Center, County, Risk	3.3	Emergency Information and Instructions for the Public and News Media	M
Objective 4: Detect, Measure, Sample, Analyze, and Assess			
MDE Accident Assessment Center - State Accident Assessment Center	4.1	Field Monitoring Teams Management	M
Maryland Field Monitoring Team 1 - State Field Monitoring Team	4.2	Plume Phase Measurements and Sampling	M
Maryland Field Monitoring Team 2 - State Field Monitoring Team	4.2	Plume Phase Measurements and Sampling	M
MDE Accident Assessment Center - State Accident Assessment Center	4.5	Plume Phase Analysis and Dose Assessment	M
Constellation Emergency Operations Facility – Emergency Operating Facility	4.5	Plume Phase Analysis and Dose Assessment	M
Objective 5: Operate			
Calvert County EOC - Emergency Operations Center, County, Risk	5.4	Traffic and Access Control	M
Saint Mary's Co EOC - Emergency Operations Center, County, Risk	5.4	Traffic and Access Control	M
Maryland Department of Emergency Management (MDEM) - Emergency Operations Center, State	5.4	Traffic and Access Control	M

Dorchester Co EOC - Emergency Operations Center, County, Risk	5.4	Traffic and Access Control	M

3.3 Capability Target Evaluation Summaries

3.3.1 State Jurisdictions

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

3.3.1.1 State of Maryland

3.3.1.1.1 Maryland Department of Emergency Management State Emergency Operations Center (SEOC)

a. Met: 1.1, 1.4, 1.5, 2.1, 3.1, 3.2, 5.4
b. Level 1 Findings: None
c. Level 2 Findings: Two

ISSUE NO: 11-22-1.2-L2-002

CONDITION: Command Staff at the Maryland State Emergency Operations Center did not adequately review the Governor's Declaration of a State of Emergency.

POSSIBLE CAUSE: The Governor's Declaration of a State of Emergency was not adequately reviewed prior to approval. The Governor's Declaration had a signature date of the 12th of July 2022.

REFERENCE:

1. NUREG-0654/FEMA-REP-1, Rev. 2, planning standard 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.
2. State of Maryland Fixed Nuclear Facility Contingency Plan, June 2021
3. Calvert Cliffs Nuclear Power Plant (CCNPP) SEOC Emergency Incident Checklist

EFFECT: The public and government organizations may believe that the State of Emergency Declaration is invalid due to the expired signature date

RECOMMENDATION:

- Consider development of assurance mechanisms to ensure that an adequate review of all information, to include the Governor's Declaration of a State of Emergency should be completed by senior leadership prior to issuance.
- Conduct a remedial exercise as soon as practicable

CORRECTIVE ACTION: The Level 2 Finding was successfully redemonstrated during a remedial exercise conducted on November 3, 2022.

ISSUE NO: 11-22-3.3-L2-001

CONDITION:
The State of Maryland Public Information Officer (PIO) did not develop or disseminate a press release for the Governor's State of Emergency declared at 1015.

POSSIBLE CAUSE: The State of Maryland Public Information Officer (PIO) did not follow procedures in accordance with the CCNPP PIO SEOC Emergency Incident Checklist Step Alert 40 and Step SAE 68 to develop a press release following the Governor's State of Emergency Declaration and disseminate to the Constellation Media Operations Center. Further, this action was not mentioned by the MDEM spokesperson at either of the two media briefings held at the Constellation Media Operations Center.

REFERENCE:

1. NUREG-0654/FEMA-REP-1, Rev. 2, planning standard E.2, E.4, E.5, G.1, G.2, G.3, G.3.a, G.4, G.5, and O.1.
2. State of Maryland Fixed Nuclear Facility Contingency Plan, June 2021
3. Calvert Cliffs Nuclear Power Plant (CCNPP) SEOC Emergency Incident Checklist

EFFECT: The public and news media would not receive required information.

RECOMMENDATION:

- Checklists should be completed in accordance with plans and procedures to insure the public and news media receive all information.
- Conduct a remedial exercise as soon as practical.

CORRECTIVE ACTION: The Level 2 Finding was successfully redemonstrated during a remedial exercise conducted on November 3, 2022.

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

3.3.1.1.2 State of Maryland 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: None
f. Prior Issues - Unresolved: None

3.3.1.1.3 Maryland Department of the Environment Accident Assessment Center

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

3.3.1.1.4 Maryland Field Monitoring Team 1 (MDE)

a. Met: 1.1, 1.2, 2.2, 3.1, 4.2
b. Level 1 Findings: None
c. Level 2 Findings: None
d. Plan Issues: None

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

3.3.1.1.5 Maryland Field Monitoring Team 2 (MDE)

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

3.3.1.1.6 Maryland Joint Operations center (MJOC)

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

3.3.1.1.7 Constellation Emergency Operations Facility

a. Met: 1.1, 1.2, 1.3, 3.1, 4.5
b. Level 1 Findings: None
c. Level 2 Findings: None
d. Plan Issues: None
e. Prior Issues - Resolved: None
f. Prior Issues - Unresolved: None

3.3.1.1.8 Constellation Media Operations Center/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: None
f. Prior Issues - Unresolved: None

3.3.2 Risk Jurisdictions

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

3.3.2.1 Calvert County

3.3.2.1.1 Calvert 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

3.3.2.1.2 Patuxent Appeal 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

3.3.2.1.3 St. Leonard 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

3.3.2.1.4 Southern Middle School

a. Met: 1.5
b. Level 1 Findings: None
c. Level 2 Findings: None
d. Plan Issues: None
e. Prior Issues - Resolved: None
f. Prior Issues - Unresolved: None

3.3.2.2 Dorchester County

3.3.2.2.1 Dorchester 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

3.3.2.3 St. Mary's County

3.3.2.3.1 St. Mary's 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

3.3.2.3.2 Hollywood 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

3.3.2.3.3 St. Johns 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

SECTION 4: DEMONSTRATED STRENGTHS

4.1 State Jurisdictions

4.1.1 State of Maryland

4.1.1.1 Maryland Department of the Environment Accident Assessment Center

The AAC staff performed their tasks effectively with procedures utilized at all positions. The RHP briefed the AAC staff upon each ECL escalation and PAD, and the RHP kept the Decision Makers in the SEOC informed of all dose assessments, field team readings, and CCNPP status.

4.2 Risk Jurisdictions

4.2.1 Southern Middle School

The principal conducted an excellent face to face briefing of staff and insured that staff clearly understood their roles and responsibilities.

4.2.2 St. Mary's County EOC

The walls in the St. Mary's County EOC are covered in magnetic/dry-erase paint; this setup provides a creative and flexible format for personnel to maximize/customize use of wall space to display critical incident information inside the EOC.

SECTION 5: CONCLUSION

The State of Maryland, and risk jurisdictions except where noted in this report, demonstrated knowledge of their Radiological Emergency Response Plans (RERP) and procedures were adequately implemented during the Calvert Cliffs Nuclear Power Plant Plume Exercise evaluated on September 13, 2022, and the Out of Sequence demonstrations conducted September 14, 2022.

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

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

FEMA evaluators assessed 78 capability targets in five Objectives:

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

These resulted in a determination of no Level 1 Findings, two Level 2 Findings, and no Plan Issues assessed during the exercise period. The Level 2 Findings were successfully redemonstrated and closed on November 3, 2022.

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.

APPENDIX A: EXERCISE TIMELINES

Emergency Classification Level or Event	Time Utility Declared	*Time That Notification Was Received at the Listed Location*								
		Maryland SEOC	MDE Accident Assessment Center	Maryland MJOC	Maryland JIC	Constellation MOC	Constellation EOF	Calvert County EOC	Dorchester County EOC	St. Mary's County EOC
Unusual Event										
Alert	0808	0810	0809	0809	0810	0808	0829	0811	0812	0811
Site Area Emergency	0935	0940	0937	0937	0943	0935	0935	0941	0943	0941
General Emergency	1030	1034	1032	1033	1037	1030	1033	1036	1038	1035
Start of Simulated Radiation Airborne Release	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Terminated of Simulated Radiation Release	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Facility Declared Operational		0910	0913	N/A	0910	0833	0830	0830	0904	0829
Governor's Declaration of State of Emergency		1015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Exercise Terminated		1134	1130	1139	1155	1150	1142	1222	1139	1140
Precautionary Actions: Describe										
Shelter Livestock, poultry and comfort animals 10-miles (stored feed and water)		1015	1015	1016	1015	1020	1022	1015	1008	1015
Relocate risk schools to host schools		1015	1015	1016	1015	1020	1022	0948	1008	1015
Pause restrictions on Coast Guard Zone		1015	1015	1016	1015	1020	1022	1015	1008	1015
Close parks, marinas, and recreation areas		1015	1015	1016	1015	1020	1022	1015	1008	1015
Siren Sounding		1025	1025	1025	1025	1025	1025	1025	1025	1025
EAS Message Broadcast		1028	1028	1028	1028	1028	1028	1028	1028	1028
First Protective Actions: Describe										
Evacuate Zones 1 and 3		1112	1112	1112	1112	1140	1119	1112	1112	1115
Shelter in place Zone 7		1112	1112	1112	1112	1140	1119	1112	1112	1115
Restrict Air 10 miles, up to 10,000 feet		1112	1112	1112	1112	1140	1119	1112	1112	1115

Shelter Livestock, poultry and comfort animals 0 to 50-miles for Sectors H, J, and K (stored feed and water)	1112	1112	1112	1112	1140	1119	1112	1112	1115
Siren Sounding	1122	1122	1122	1122	1122	1122	1122	1122	1122
EAS Message Broadcast	1125	1125	1125	1125	1125	1125	1125	1125	1125
KI Decision Emergency Workers	1015	1015	1016	1015	1020	1020	1015	1004	1015
KI Decision General Public/Special populations Zones 1,3 and 7	1112	1112	1112	1112	1140	1119	1112	1112	1112

APPENDIX B: EXERCISE EVALUATORS AND TEAM LEADERS

The following is the list of Evaluators and Team Leaders for the Calvert Cliffs Nuclear Power Plant 2022 Radiological Emergency Preparedness Plume Pathway Exercise evaluated on September 13, 2022, and Out of Sequence Exercise on September 14, 2022. The following constitutes the managing staff for the Exercise Evaluation:

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

Calvert Cliffs Nuclear Power Plant

PLUME EXERCISE DEMONSTRATION September 13, 2022		
LOCATION	**EVALUATOR**	**AGENCY**
Maryland Department of Emergency Management (MDEM) State Emergency Operations Center (SEOC), Baltimore, MD	Lee Torres (TL)	FEMA R3
	Zachary Corle	FEMA R3
	Kevin Reed	ICF
	Rebecca Thomson	ICF
Maryland Joint Information Center (JIC) Baltimore, MD	Michele Sturman	FEMA R2
Maryland Department of the Environment (MDE) Accident Assessment Center (AAC) Baltimore, MD	John Wills (TL)	ICF
	Reggie Rodgers	ICF
Maryland Joint Operations Center (MJOC)	Bridget Ahlgrim	ICF
State Field Monitoring Team 1 (MDE)	Gary Goldberg	ICF
State Field Monitoring Team 2 (MDE)	Roger Winkelmann	ICF
Constellation Emergency Operations Facility (EOF) Coatesville, PA	Taylor Griffiths	FEMA R3
Constellation Media Operations Center/Joint Information Center Coatesville, PA	Rahuel Preciado	FEMA R3
Calvert County Emergency Operations Center Prince Frederick, MD	Tina Thomas	FEMA R3
	Mark Dalton	ICF
	Brian Hasemann	FEMA R2
	Gary Bolender	ICF
Dorchester County Emergency Operations Center Cambridge, MD	Joseph Suders	FEMA R3
	Robert Zucker	FEMA R3
	Larry Broockerd	FEMA HQ
	Bruce Swiren	ICF
St. Mary's County Emergency Operations Center Leonardtown, MD	Daniel Rose	FEMA R3
	Kerry Holmes	FEMA R3

	Kathy Duran	FEMA R3
	Paul Ringheiser	ICF

OUT OF SEQUENCE DEMONSTRATION Schools – September 14, 2022		
LOCATION	**EVALUATOR**	**AGENCY**
Calvert County Patuxent Appeal Elementary School Lusby, MD	Bruce Swiren	ICF
Calvert County St. Leonard Elementary School Saint Leonard, MD	David Kayen	ICF
Calvert County Southern Middle School Lusby, MD	Paul Ringheiser	ICF
St. Mary's County Hollywood Elementary School Hollywood, MD	Gary Bolender	ICF
St. Mary's County St. Johns School Hollywood, MD	Herb Massie	ICF

APPENDIX C: ACRONYMS AND ABBREVIATIONS

Acronym	Meaning
AAC	Accident Assessment Center
ACP	Access Control Point
ALC	Annual Letter of Certification
ANS	Alert and Notification System
ARC	American Red Cross
ARES	Amateur Radio Emergency Services
CCNPP	Calvert Cliffs Nuclear Power Plant
CERT	Community Emergency Response Team
CFR	Code of Federal Regulations
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
ICF	International Consulting Firm

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
MDE	Maryland Department of the Environment
MDEM	Maryland Department of Emergency Management
MOC	Media Operations Center
MOU	Memorandum of Understanding
MSEL	Master Scenario Events List
NPP	Nuclear Power Plant
NRC	Nuclear Regulatory Commission
OOS	Out of Sequence
ORO	Offsite Response Organization
OSD	Optically Stimulated Dosimeter
PAD	Protective Action Decision
PAG	Protective Action Guide
PAR	Protective Action Recommendation
CCNPP	Calvert Cliffs Nuclear Power Plant
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
WEA	Wireless Emergency Alerts

APPENDIX D: EXTENT-OF-PLAY AGREEMENT

The 2022 Calvert Cliffs Nuclear Power Plant Plume Exercise Extent-of-Play (EOP) Agreement is a document created by the Maryland Department of Emergency Management that sets the parameters for exercise demonstration. The EOP agreement was signed by the FEMA Region 3 and Maryland Department of Emergency Management planning team members.

Maryland
DEPARTMENT OF EMERGENCY MANAGEMENT

FEMA

CALVERT CLIFFS NUCLEAR POWER PLANT
PLUME EXERCISE

By signing this Extent of Play Agreement, the State of Maryland 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 Capability Targets as agreed upon for the September 13, 2022, Calvert Cliffs Nuclear Power Plant Biennial Plume Exercise.

ALEXANDER B HAZARD Digitally signed by ALEXANDER B HAZARD Date: 2022.08.23 07:54:51 -04'00'

FEMA Site Specialist Date

Marci Catlett Digitally signed by Marci Catlett Date: 2022.08.31 18:58:32 -04'00'

Lead State Planner Date

DANIEL A ROSE Digitally signed by DANIEL A ROSE Date: 2022.08.24 11:42:48 -04'00'

FEMA Team Leader Date

State of Maryland

Exercise Plan

For

Calvert Cliffs Nuclear Power Plant Exercise (CALVEX) 2022

September 2022

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Preface

The Calvert Cliffs Nuclear Power Plant Exercise (CALVEX) is a Full Participation Plume Exposure Pathway Exercise sponsored by the Maryland Department of Emergency Management (MDEM). This Exercise Plan (ExPlan) was produced with input, advice, and assistance from the Exercise Planning Team (EPT), which followed the guidance outlined in the by the U.S. Department of Homeland Security (DHS) Federal Emergency Management Agency (FEMA), Homeland Security Exercise and Evaluation Program (HSEEP).

This Radiological Emergency Preparedness (REP) exercise and design process included establishing an EPT led by MDEM with representatives from the licensee, Offsite Response Organizations (OROs), and FEMA REP Regional staff to include identification of trusted agents that have access to confidential exercise-specific information.

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

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

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

Chapter 1: General Information

I. Introduction

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

This Exercise Plan (ExPlan) was produced at the direction of the Technological Hazards Unit with the input, advice, and assistance of the Exercise Planning Team (EPT). This exercise represents the growing partnership between State and Local Jurisdictions for response to the threats to our Nation and communities.

The exercise will take place at various State and local Emergency Operations Centers (EOCs). The Maryland Department of Emergency Management (MDEM) facility which contains with the State Emergency Operations Center (SEOC) is currently under renovation which started in July of 2022 and will continue through 2024. The entire MDEM. MDEM implemented our Continuity of Operations Plan (COOP) to prepare for this temporary long-term departure and our staff are either teleworking at home or occupying temporary office space. The SEOC staff will relocate to the Maryland Department of the Environment (MDE) Accident Assessment Center (AAC) for the CALVEX 2022 Full Participation Exercise. The MDE AAC houses the Electronic Offsite Notification System (EONS) and the Emergency Network (EMnet) System and contains the same hardware and software equipment used in MDEM's SEOC and the Maryland Joint Operations Center (MJOC) for a radiological incident. The use of MDE's space is beneficial for both MDE and MDEM as the entire MDE AAC Team including their decision-makers are all located in one location versus when we are in MDEM the team is split between the SEOC and the AAC. The MDE AAC was evaluated by FEMA in 2019, so it will not need to be evaluated again.

The Maryland Joint Operations Center (MJOC) relocated to the State Highway Administration (SHA) Special Operations Center (SOC) in Hanover, Maryland. This site contains all the communication systems and the Radiological Emergency Preparedness Program (REPP) computer software and hardware, including the EONS, EMnet, the National Warning System (NAWAS), the Integrated Public Alert & Warning System (IPAWS), satellite and radio capabilities.

A. Confidentiality and Handling Instructions

CALVEX is an *unclassified exercise*. The control of information is based on public sensitivity regarding the nature of the exercise than on the actual exercise content. This ExPlan is not a restricted document but, is for the use for Exercise participants only. Players may view other materials deemed necessary for their performance. The ExPlan provides the Players and Evaluators information on what Exercise Objectives will be evacuated and to what the extent of play (EOP) of each objective is for the Players. The information contained in this ExPlan should be handled as sensitive information, not to be disclosed. This document should be safeguarded, handled, transmitted, and stored in accordance with appropriate security directives. Reproduction of this document, in whole or in part, without prior approval from MDEM is prohibited.

There are other exercise materials that are intended for the exclusive use of exercise Planners, Controllers, and Evaluators. The Controller Handbook is a restricted document intended for Controllers only. It contains the site-specific scenario information, including the injects and Out of Sequence (OOS) exercise materials designed to drive exercise play. It is considered a confidential document and is limited to use by the Controllers and Trusted Agents designated by the EPT to avoid compromising exercise activities.

At a minimum, materials will be disseminated only on a need-to-know basis. When unattended, they will be stored in an area offering sufficient protection against theft, compromise, inadvertent access, and unauthorized disclosure. Public release of exercise materials to third parties is at the discretion of the FEMA and MDEM.

B. Purpose

The purpose of this exercise is to evaluate player actions to demonstrate that the State and Local; Departments, Agencies, and, Organizations can provide reasonable assurance that we can protect the public during a NPP emergency. These actions are based on current response plans and capabilities, complying with the requirements of 44 CFR 350, and the planning standards of NUREG-0654/FEMA-REP-1, Rev. 2, and the 2019 Radiological Emergency Preparedness (REP) Program Manual. This ExPlan provides clear consistent expectations of the EOP that the Maryland off-site response organizations (OROs) will utilize to meet the exercise Capability Targets.

C. Capability Targets

The establishment of the National Preparedness System (NPS) priorities have steered the focus of homeland security toward a capabilities-based planning

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

Capability Targets for this exercise have been identified from the listing below and selected by the EPT for evaluation from the Capability Targets identified in Maryland's IPW, and the 2019 REP Program Manual, based on required exercise frequency and noted in the Extent of Play Agreement (EOPA). These Capability Targets provide the foundation for development of the exercise objectives and scenario, as the purpose of this exercise is to measure and validate performance of these capabilities and their associated critical tasks. Currently the State of Maryland does not have any past exercise or planning issues from the previous CALVEX of September of 2021.

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 the FEMA Region 3 Assistance Committee (RAC) Chair. This assessment strategy supports FEMA's regulatory responsibilities and successfully aligns REP evaluation methodology with the doctrine of the NPS.

Table 1 Objectives and their Capability Targets

Capability Target Number	Capability Target Objective
Objective 1: Emergency Operations Management	
Capability Target 1.1	Mobilization
Capability Target 1.2	Direction and Control
Capability Target 1.3	Protective Action Recommendations (PAR)
Capability Target 1.4	Protective Action Decisions (PAD) for the Plume Phase
Capability Target 1.5	Protective Action Decision Implementation for the Plume Phase
Capability Target 1.6	Protective Acton Decisions for the Post-Plume Phase
Capability Target 1.7	Protective Action Decision Implementation for the Post-Plume Phase
Objective 2: Exposure Control	
Capability Target 2.1	Emergency Worker Exposure Control Decision-Making Process
Capability Target 2:2	Emergency Worker Exposure Control Management
Objective 3: Alert and Notification	
Capability Target 3.1	Communications
Capability Target 3.2	Alert and Notification of the Public
Capability Target 3.3	Emergency Information and Instructions for the Public and News Media
Objective 4: Detect, Measure, Sample, Analyze, and Assess	
Capability Target 4.1	Field Monitoring Teams Management
Capability Target 4.2	Plume Phase Measurements and Sampling
Capability Target 4.3	Post-Plume Phase Measurements and Sampling
Capability Target 4.4	Laboratory Operations
Capability Target 4.5	Plume Phase Analysis and Dose Assessment
Capability Target 4.6	Post-Plume Phase Sampling Plan Development and Analysis
Objective 5: Operate	
Capability Target 5.1	Monitoring, Decontamination, Sheltering, and Registration of Evacuees
Capability Target 5.2	Monitoring and Decontamination of Emergency Workers, Equipment, and Vehicles
Capability Target 5.3	Transportation and Treatment of Contaminated, Injured Individuals
Capability Target 5.4	Traffic and Control: Appropriate traffic and access control is established.

Chapter 2: Exercise Logistics

I. Exercise Summary

A. General

The CALVEX 2022 Full Participation Plume Exercise is designed to establish a learning environment for players to exercise their plans and procedures for responding to an incident at an NPP. This exercise will be conducted on September 13, 2022. Exercise play is scheduled for four (4) hours or until MDEM determines that the exercise objectives have been met at each of the venues.

A. Assumptions

In any exercise, assumptions and artificialities may be necessary to complete exercise play in the time allotted. During CALVEX 2022, the following apply:

- The exercise will be graded against the 2019 RPM Objectives and Capability Targets.
- Elements outside the scope of the 2019 RPM criteria will not be graded.
- Exercise simulation and the Simulation Cell (SimCell) will be realistic and plausible, containing sufficient detail from which to respond.
- Exercise players will react to the information and situations as they are presented, in the same manner as if this had been a real event.
- There is no hidden agenda.
- There are no trick questions.
- Only communication methods listed in the Communications Directory are available for players to use during the exercise.
- The exercise is conducted in an environment wherein capabilities, plans, systems, and processes will be evaluated.
- Exercise communication and coordination is limited to participating exercise organizations and venues.

B. Constructs and Constraints

Constructs are exercise devices designed to enhance or improve exercise realism. Alternatively, constraints are exercise limitations that may detract from exercise realism. Constraints may be the inadvertent result of a faulty construct or may pertain to financial and staffing issues. Although there are a number of constructs and constraints (also known as exercise artificialities) for any exercise, the EPT recognizes and accepts the following as necessary for this exercise:

- The Public Inquiry SimCell will be staged at the MDE AAC. They will call the Local Jurisdictions and the Maryland Public Inquiry phone numbers acting as concerned citizens to ensure that Public Information Group (PIO) Groups are able to identity trends in public questions regarding the radiological incident.
- Out-of-Sequence play is authorized on different dates based on prior approval.
- Certain simulations are allowed based on prior approval.
- All siren sounding will be simulated during the exercise.
- Any siren failures included in the exercise will be artificial.
- Any road impediments included in the exercise will be artificial and used to demonstrate certain exercise objectives.

C. Exercise Participants

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

Players: Players are agency personnel who have an active role in responding to the simulated emergency and perform their regular roles and responsibilities during the exercise. Players initiate actions that will respond to and mitigate the simulated emergency.

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

Controllers: Controllers set up and operate the exercise site; plan and manage exercise play; act in the roles of response individuals and agencies not playing in the exercise. Controllers direct the pace of exercise play and routinely include members from the exercise planning team. The individual Controllers issue exercise materials to players as required and monitor the exercise timeline. Controllers also provide injects to the players as described in the Master Scenario Events List (MSEL).

Lead Controller: The Lead Controller is responsible for the overall organization of the CALVEX Plume Exercise. The Lead Controller monitors exercise progress and coordinates decisions regarding deviations or significant changes to the scenario caused by unexpected developments during play. The Lead Controller monitors actions by individual Controllers and ensures they implement all

designated and modified actions at the appropriate time. The Lead Controller debriefs the Controllers after the exercise and oversees the setup and takedown of the exercise.

Trusted Agents: An individual on the exercise planning team who is trusted not to reveal exercise and scenario details to players or third parties before and during exercise conduct.

Simulators: SimCell Participants are control staff personnel who role-play as nonparticipating organizations or individuals. They most often operate out of the SimCell but may occasionally have face-to-face contact with players. Simulator's function semi-independently under the supervision of SimCell Controllers, enacting roles (e.g., as media reporters or next of kin) in accordance with instructions provided in the MSEL. All simulators are ultimately accountable to the Exercise Director and/or the Lead Controller.

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

Evaluators: Evaluators are chosen to evaluate and provide feedback on a designated functional area of the exercise. They are chosen based on their expertise in the functional area(s) they have been assigned to review during the exercise and their familiarity with local emergency response procedures. Evaluators assess and document participants' performance against established emergency plans and exercise evaluation criteria, in accordance with Homeland Security and Exercise and Evaluation (HSEEP) standards and within the bounds of REP Program guidance and regulations. They are typically chosen from amongst planning committee members or the agencies/organizations that are participating in the exercise. FEMA Evaluators will not serve as Controllers.

Actors: Actors are exercise participants who act or simulate specific roles during exercise play. They are typically volunteers, who have been recruited to play the role of victims.

Observers: Observers for this exercise will be MDEM employees, who will be shadowing certain participants in the exercise. Observers will view selected segments or all of the exercise. Observers do not play in the exercise, and do not perform any control or evaluation functions

D. Exercise Tools

Controller Handbook: The CALVEX Plume Exercise Controller Handbook is designed to help exercise Controllers conduct an effective exercise. This Handbook also enables Controllers to understand their roles and responsibilities in exercise execution. Should a Player, Observer, or media representative find an unattended Controller Handbook, it should be delivered to the nearest Controller.

Extent of Play Agreement (EOPA): The EOPA will document and define the agreed-upon approach to demonstrating and evaluating the REP Program Objectives/Capability Targets. These documents are intended to define the commitment of participants in advance and should outline those commitments, as well as the facilities to be evaluated or utilized and the anticipated level of participation. The EOPA should also capture activities that may deviate in demonstration from plans and procedures as currently written, such as pre-staging personnel at or near a facility prior to activation during an exercise. These EOPA for each Capability Target are listed in Appendix B and will provide reliable information for developing the assessment activity and ensure appropriate evaluation.

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

Simulation Guidelines: Because CALVEX 2022 is of limited duration and scope, the physical description of what would fully occur at the incident site and surrounding areas will be relayed to the Players by Simulators and or Controllers.

E. Exercise Implementation

Exercise Play: Exercise play will begin at the utility at 0800hrs. The ORO's will not receive a notification until the CCNPP reaches an Alert Emergency Classification Level (ECL). Once the EONS for the Alert ECL is sent to the ORO's, the exercise will begin for the Local Jurisdictions, MDE, the MJOC, MDEM Staff, State Agency SEOC Representatives and the SEOC. The exercise will proceed according to the events outlined in the MSEL, in accordance with established plans and procedures. Even though the exercise may have ended on the plant, the ORO

portion will not end until completion of operations and attainment of the exercise objectives as determined by the MDEM Controllers and FEMA Evaluators at the AAC and in the EOCs. The exercise will end with a notification from the plant to the MDEM Lead Controller. The Lead Controller will notify the other Controllers that the exercise has concluded via a group chat.

Safety Requirements: Exercise participant safety takes priority over exercise events. Although the organizations involved in the CALVEX Plume Exercise come from various response agencies, they share the basic responsibility for ensuring a safe environment for all personnel involved in the exercise. In addition, aspects of an emergency response are dangerous. Professional health and safety ethics should guide all participants to operate in their assigned roles in the safest manner possible. All exercise Controllers, Evaluators, and staff will serve as Safety Observers while the exercise activities are underway. All safety concerns must be immediately reported to the Lead Controller.

- Anyone who observes a participant who is seriously ill or injured will immediately notify emergency services and the closest Controller. They can render aid if necessary.
- Any Controller who is made aware of a real emergency will notify all Controllers of the emergency via phone. They will provide the following information to the Lead Controller:
    - Venue/function
    - Location within the venue/function
    - Condition
    - Requirements
- If the nature of the emergency requires a suspension of the exercise at the venue/function, all exercise activities at that facility will immediately cease as per the Controller. Exercise play may resume at that venue/function once the "Real-World Emergency" situation has been addressed.
- Exercise play at other venues/functions should not cease if one venue/function has declared a "Real-World Emergency" unless they are reliant on the affected venue.

Exercise Setup: Exercise setup involves the pre-staging and dispersal of exercise materials, including registration materials, documentation, signage, and other equipment as appropriate. The local EOCs may set up their facilities and equipment prior to the exercise.

Site Access: Directions and addresses for each venue is in Appendix D. The SEOC Exercise Participants will be provided parking and building access to MDE from an SEOC Controller located within the MDE AAC. The SEOC players will pre-stage

either in the MDE parking lot or in the AAC hallway. The Local EOC representatives will pre-stage outside their local EOCs and gain access into the building by local exercise personnel upon arrival.

F. Communications Plan

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

Player Communication: The need to maintain capability for a real-world response may preclude the use of certain communication channels or systems that would usually be available for an actual emergency incident. Exercise communication will never interfere with real-world emergency communications. Each venue will coordinate its own internal communication networks and channels.

Players will use routine, normal agency communication systems. Additional communication assets may be made available as the exercise progresses. The need to maintain capability for a real-world response may preclude the use of certain communication channels or systems that would usually be available for an actual emergency incident. Exercise communication will never interfere with real-world emergency communications. Each venue will coordinate its own internal communication networks and channels. The primary means of communication among the SimCell, Controllers, Evaluators, and the venues will be telephone. A list of key telephone, email, and radio call signs if applicable will be available as a Communication Directory before the start of the exercise.

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

Public Affairs: This exercise enables Players to demonstrate an increased readiness to deal with a NPP incident. Any NPP exercise may be a newsworthy event. Special attention must be given to the needs of the media, allowing them to get as complete and accurate a story as possible while ensuring their activities do not compromise the exercise realism, safety, or objectives. FEMA will provide a Press Release to the ORO's about the CALVEX 2022 Full Participation Exercise for dissemination to their citizens and the media about the exercise.

Chapter 3 Player Guidelines:

I. Player Instructions

A. Before the Exercise

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

Arrive at the appropriate site at least 30 minutes before the start of the exercise and pre-stage.

Wear an appropriate uniform/identification badge.

If you gain knowledge of the scenario before the exercise, notify a Controller so that appropriate actions can be taken to ensure a valid evaluation.

Please sign the roster when you arrive.

Respond to the scenario using your knowledge of current plans and capabilities (i.e., you may use only existing assets) and insights derived from your training.

B. During the Exercise

Exercise players will comply with real-world emergency procedures, unless otherwise directed by the control staff.

- All communications (including written, telephone, and e-mail) during the exercise will begin and end with the statement "THIS IS AN EXERCISE"
- Respond to the exercise events and information as if the NPP incident is real, unless otherwise directed by an exercise Controller.
- Controllers can only provide information they are specifically directed to disseminate. You are expected to obtain other necessary information through existing emergency information channels.
- Do not engage in personal conversations with Controllers, Evaluators, Observers, or media personnel while the exercise is in progress.
- The practice of consulting REP Plans is a real-world solution to problems. When Players are asked a question, they do not know the answer to, they do not have to provide a quick response. Rather, they can inform the Evaluator that they will check their Emergency Plans to provide an answer.
- Parts of the scenario may seem implausible. Recognize that the exercise has objectives to satisfy and may require the incorporation of unrealistic aspects.
- Verbalize aloud to the Evaluator when taking an action. This will ensure that Evaluators are made aware of critical actions as they occur.
- Maintain a log of your activities. Many times, this log may include documentation of activities missed by a Controller or Evaluator.

C. After the Exercise

- At the end of the exercise at the hospital, all participants will partake in the Debrief/Hotwash with the Controllers and Evaluators.
- Provide any notes or materials generated from the exercise to your controller or evaluator for review for inclusion in the After-Action Report (AAR).

Chapter 4 Evaluation and Post-Exercise Activities

I. Exercise Documentation

The goal of the CALVEX 2022 is to comprehensively exercise and evaluate the OROs' plans and capabilities as they pertain to a potential NPP incident. After the exercise, the data collected by Controllers, Evaluators, the SimCell, and Players will be used to identify strengths and areas for improvement in the context of the exercise design objectives. Examples of documents that will be collected are the EONS forms, State Support Plans, Incident Briefings, Emergency Alert System (EAS) messaging, email correspondence, and the Protective Action Decision (PAD) forms.

II. Players Critique

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

Participants Briefing and Public Meeting

44 CFR 350 requires a post-exercise participant briefing and public meeting. A participant's briefing will be conducted after the biennial exercise as an opportunity to present OROs with initial exercise results. The public meeting is an opportunity to discuss the evaluation of the REP exercise with the public. The Regional Assistance Committee (RAC) Chair may combine the participant briefing with the public meeting at his or her discretion. The Post Participants Briefing will be conducted virtually on September 16, 2022 at 9:00 am. The Public Meeting will be conducted on virtually on September 16, 2022 at 10:30am.

After Action Report

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

Improvement Plan

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

Appendix A: General SEOC and Local Jurisdictions EOCs Extent of Play Activities

- Players and Controllers will pre-stage at various locations to reduce the amount of travel time.
- Pre-staging within an Emergency Operations Center facility is permitted (preferable outside the actual EOC room). However, the EOCs should not initiate activation until notification is received to mobilize and respond.
- MDEM will staff the SEOC with a hybrid design of key in-person MDEM Branches, State Coordinating Functions (SCFs), and Agencies, along with virtual MDEM Staff and additional SCFs.
    - The virtual MDEM staff and SCFs will demonstrate communications with the SEOC via the Operations Section Chief on the electronic group conferencing message system in accordance with the SEOC Nuclear Power Plant Emergency Checklist.
    - The in-person Key State SCFs and other Agencies for the Graded Exercise are:
        - Maryland Department of Agriculture (MDA)
        - Maryland Department of Emergency Management (MDEM)
        - Maryland Department of the Environment (MDE)
        - Maryland Department of Health (MDH)
        - Maryland Department of Natural Resources (DNR)
        - Maryland Department of Transportation (MDOT)
        - Maryland State Police (MDSP)
        - The Maryland Institute for Emergency Medical Services Systems (MIEMSS)
        - United States Coast Guard Baltimore U.S. Coast Guard (USCG) Sector Maryland-National Capital Region (NCR)
    - The in Person MDEM SEOC Branches for the Graded Exercise are:
        - The MJOC
        - The SEOC Commander
        - The Executive Liaison
        - The Executive Liaison Administrator
        - The Operations Section Chief
        - The Local Liaison Unit Leader
        - The Planning Section Chief
        - The Public Information Officer (PIO)
        - The External Affairs Manager
        - The Joint Information Center (JIC) Manager
        - Media Inquiries and Press Releases Officer

- The virtual SCFs and other Agencies for the Graded Exercise are:
    - The Maryland Department of Human Services (MDHS)
    - Maryland Department of Disability (MDOD)
    - Maryland Department of Education (MSDE)
    - Maryland Department of General Services (MDGS)
    - Maryland Department of Information Technology (MDOIT)
    - Maryland Energy Administration (MEA)
    - Maryland Military Department (MMD) Maryland National Guard (MDNG)
    - The American Red Cross (ARC)
    - The Maryland Department of Planning (MDP)
    - The Public Service Commission (PSC)
    - The Department of Homeland Security- Cybersecurity and Infrastructure Security Agency (DHS-CISA)
    - The Radio Amateur Civil Emergency Service (RACES)
- The virtual MDEM SEOC Branches are:
    - The Resource and Logistics Section Chief
    - The Deputy Planning Section Chief
    - Finance & Admin Section Chief
    - The Situation Unit Leader
    - The GIS Unit Officer
    - The Risk Analysts

- The MDE AAC Field Monitoring Teams (FMTs) will demonstrate their operational checks and air sampling operations the day before the Exercise on September 12, 2022 at 12pm at the MDE AAC in Baltimore.
- The FMTs will pre-stage in the counties prior to the Exercise on September 13, 2022. There will be two (2) teams deployed.
- FEMA Evaluators will receive the broadcast notifications from all the EOCs. An Evaluator list with their contact information will be provided to the EOCs.
- If possible, the MJOC and the local jurisdictions will add the FEMA Evaluator's cell phone and email to their Alert and Notification systems.
- The FEMA Evaluator and the MDEM Controller will negotiate the immediate re-demonstration of issues during the exercise with the Regional Assistance Committee (RAC) Chair concurrence.
    - Issues that will not be allowed to be re-demonstrated are issues that would lead to immediate death and/or have an adverse impact on public health and safety of civilians.

- 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.
- The Annual Letter of Certification (ALC) which is presented to and approved by FEMA annually, contains information from the local Jurisdictions, MDE, Constellation, and MDEM including:
    - Inventory and expiration dates of Potassium iodide (KI)
    - Inventory, calibration, expiration dates, and leakage checks of dosimeters and Meters.
    - Communication tests results that are held throughout the year
- Protective Action Recommendation (PARs) discussions for the State begin at a Site Area Emergency (SAE) Emergency Classification Level (ECL) prior to the Calvert Cliffs Nuclear Power Plant (CCNPP) issuing a PAR for the State and their Local Jurisdictions.
- Relocating Risk Schools to Host Schools is an early SAE ECL Protective Action Decision (PAD) that Maryland practices, as it frees up the Local Jurisdictions buses to evacuate the general population at a General Emergency (GE) ECL.
- Dorchester County does not have any risk schools within the Plume EPZ
- Dorchester County does not have any institutions within the ten (10)-mile EPZ.
- In accordance with the MDEM Fixed Nuclear Facility Consequence Management plan, MDEM
- As the Emergency Operations Facility (EOF) Joint Information Center (JIC) in Coatesville is progressing towards a more virtual operations, MDEM and the local jurisdictions will not deploy any staff to the EOF JIC. However they will remain connected to the EOF JIC via electronic video conferencing means.
- The Maryland Department of the Environment will deploy 2 liaisons from their office to the EOF.
- Public inquiry calls will be initiated at a SAE and at the GE ECL by the Public inquiry SimCell.
- The Public inquiry SimCell will make no less than eight phone calls to the MDEM, and the three jurisdictions (Four [4] at an SAE and four [4] at a GE ECL).
    - The Public inquiry SimCell will provide a trend of rumors for the PIOs to identify and act upon.
- There are no post-plume/ingestion graded criteria for this exercise.

Appendix B: Method of Operation and Extent of Play (EOP)

I. Objective 1 Emergency Operations Management

A. Capability Target 1.1: Mobilization

Core Capability: Operational Coordination; Planning

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

Table 2 Capability Target 1.1 for the Extent of Play (EOP) for the State of Maryland

State of Maryland Extent of Play (EOP)
• All activities are 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. • Players and Controllers can pre-stage at the SEOC located at the MDE AAC but will not initiate activation until notification to mobilize and respond has been received. • FEMA Evaluators will be added to the MDEM Notification System. • The MDEM SEOC has been relocated to the MDE AAC. The SEOC will operate with a hybrid staff as per the Fixed Nuclear Facility (FNF) State Plan. • The MJOC has been relocated to the SHA State Operations Center (SOC), the designated Continuation of Operations (COOP) alternative facility. • The MJOC and SEOC participants will discuss backup conference call platforms with the FEMA Evaluator. • The Operations Section Chief will provide a designated an electronic group conferencing method with the virtual SCF's, which will be created after all SEOC representatives have received the "SEOC Activation" notification message. • A 24-hour staffing roster will be provided to the FEMA evaluator • The information for the SCF electronic group conferencing method will be sent via email to our FEMA Evaluators and State Partners. • The Planning Section Chief will open an electronic group conferencing method and maintain contact with the virtually activated SEOC General Staff. • The SEOC Commander will maintain contact with the MJOC via an electronic group conferencing method. • The MDEM PIO Group will establish contact with the EOF JIC and the Local Jurisdiction's PIOs. • The MJOC and Local Jurisdictions will provide FEMA Evaluators with all electronic notification records.

Locations Evaluated:

- MDEM SEOC and JIC at the MDE AAC
- MJOC at the SHA SOC
- Constellation's EOF

Table 3 Capability Target 1.1 for the Extent of Play (EOP) for Calvert, Dorchester, and St. Mary's Counties

Calvert, Dorchester, and St. Mary's Counties Extent of Play EOP
• All activities are 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. • Players and Controllers can pre-stage at the Local Jurisdiction's EOCs, however, EOCs will not initiate activation until notification to mobilize and respond has been received. • FEMA Evaluators will be added to the local Jurisdiction's Notification System. • The Local Jurisdictions OOS Risk School drills will not include the electronic notification process. However, personnel will describe their notification and mobilization process. • The Local Jurisdictions will provide FEMA Evaluators with electronic notification records. Locations Evaluated: • Calvert County EOC • Dorchester County EOC • St. Mary's County EOC

2. Capability Target 1.2: Direction and Control

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

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

Table 4 Capability Target 1.2 Direction and Control for the EOP for the State of Maryland

State of Maryland Extent of Play (EOP)
• All activities associated with direction and control will be performed based on the ORO's plans and procedures and completed as they would be in an actual emergency. • The Operations Section Chief will have an electronic group conferencing method open with all virtual SCFs to maintain open communication with our virtual supporting State Agencies. Locations Evaluated: • MDEM SEOC and JIC at the MDE AAC • MDE AAC • MJOC at the SHA SOC • Constellation's EOF

Table 5 Capability Target 1.2 Direction and Control for the EOP for Calvert, Dorchester, and St. Mary's

Calvert, Dorchester, and St. Mary's Counties Extent of Play (EOP)
• All activities associated with direction and control will be performed based on the ORO's plans and procedures and completed, as they would be in an actual emergency. Locations Evaluated: • Calvert County EOC • Dorchester County EOC • St. Mary's County EOC

B. Capability Target 1.3 Protective Action Recommendations

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

Intent: The capability to use dose assessment and field data, compare this data to the Environmental Protection Agency (EPA) Protective Action Guidelines (PAGs), and choose among a range of protective actions those most appropriate in a given emergency.

Table 6 Capability Target 1.3 PARs for the EOP for the State of Maryland

State of Maryland Extent of Play (EOP)
• All activities are 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. Locations Evaluated: • MDEM SEOC and JIC at the MDE AAC • MDE AAC • Constellation's EOF

Table 7 Capability Target 1.3 PARs for the EOP for Calvert, Dorchester, and St. Mary's Counties

Calvert, Dorchester, and St. Mary's Counties EOP
• All activities are 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. • The Local Jurisdictions will play an active role in the PAR to Protective Action Decision (PAD) discussions and may decide on a different PAD than what the Decision-Makers for the State have recommended as Maryland is a Home Rule State. • If the Local Jurisdictions do not accept the State PAD they are still required to provide reasonable assurance that their populations will be protected. Locations Evaluated: • Calvert County EOC • Dorchester County EOC • St. Mary's County EOC

C. Capability Target 1.4 Protective Action Decisions for the Plume Phase

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

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

Table 8 Capability Target 1.4 PADs for the Plume Phase for the EOP for the State of Maryland

State of Maryland Extent of Play (EOP)
• All activities are 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. Locations Evaluated: • MDEM SEOC and JIC at the MDE AAC • MDE AAC

Table 9 Capability Target 1.4 PADs for the Plume Phase for the EOP for Calvert, Dorchester, and St. Mary's Counties

Calvert, Dorchester, and St. Mary's Counties EOP

• All activities are 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.
• School EOC representatives will call the School Administrator or Superintendent for the FEMA Evaluator during the EOC Exercise.
  ○ During the OOS Risk School Evaluations on September 14, 2022 the FEMA Evaluators will be able to see the how the notification process continues down to the Principals of the individual schools for the evacuation order.
• During the OOS Risk School Evacuation Drills for Calvert and St. Mary's Counties, the Principal, school facilities employee, a bus driver, and the school nurse will discuss their evacuation procedures using a mini scenario.
  ○ This will include information about ensuring KI is provided to the children and bus drivers.
  ○ One bus driver will be available to discuss the evacuation route with a FEMA Evaluator.
• The OOS Risk School evaluations will occur on September 14, 2022, at the Risk schools in Calvert and St. Mary's Counties.

Locations Evaluated:

- Calvert County EOC
- Dorchester County EOC
- St. Mary's County EOC

D. Capability Target 1.5 Protective Action Decision (PAD) Implementation for the Plume Phase

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

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.

Table 10 Capability Target 1.5 PAD Implementation for the EOP for the State of Maryland

State of Maryland Extent of Play (EOP)
• All activities are 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. • MDOT is the decision-maker for restricting air space and railways within the State.   ○ MDOT and MSP will assist in the evacuation efforts if requested by the Local Jurisdictions. • All implementation of PADs will be executed at the local level with the exception of the State MDE AAC Field Monitoring Teams receiving their Emergency Briefing and Protective Measure Packets which include dosimetry and Potassium Iodide (KI) and the KI form. Locations Evaluated: • MDEM SEOC and JIC at the MDE AAC • MDE AAC

Table 11 Capability Target 1.5 PAD Implementation for the EOP for Calvert, Dorchester, and St. Mary's Counties

Calvert, Dorchester, and St. Mary's Counties EOP
• All activities are 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. • Protective actions for risk schools, including the evacuation to host schools, will be implemented at the Local level.

- All three jurisdictions will discuss their measures for implementing the PADs, which includes protective actions for those with disabilities and access and functional needs.
- Local Jurisdictions will demonstrate how evacuation routes are identified.
- These evacuation routes will be shown on a map at the local's EOC.
- KI distribution for the Emergency Workers will be discussed during the Emergency Worker Brief.
- School bus drivers and school representatives will conduct a school drill using a mini scenario as part of the evaluation in the OOS School Drill. This will cover the implementation of the school-based protective actions.

Locations Evaluated on September 13, 2022:

- Calvert County EOC
- Dorchester County EOC
- St. Mary's County EOC

OOS Risk School Locations Evaluated on September 14, 2022:

- St. Leonard Elementary School
  5370 St. Leonard Road Saint Leonard, MD 20685
- Southern Middle School
  9615 H G Trueman Road Lusby, MD 20657
- Patuxent Appeal Elementary School
  11655 H G Trueman Road Lusby, MD 20657
- Hollywood Elementary School
  44345 Joy Chapel Road Hollywood, MD 20636
- St. Johns School (pre K through 7th grade)
  43900 St. Johns Road Hollywood, MD 20636

Objective 2: Exposure Control

A. Capability Target 2.1: Emergency Worker Exposure Control Decision Making Process

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

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.

Table 12 Capability Target 2.1: Emergency Worker Exposure Control Decision-Making Process for the EOP for the State of Maryland

State of Maryland Extent of Play (EOP)
• All activities are 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. • The State MDE AAC Field Monitoring Teams will receive their Emergency Worker Briefing and Protective Measure Packets which include dosimetry and Potassium Iodide (KI) and the KI form. • If the Scenario does not result in a release of radiation from CCNPP, MDE will demonstrate the process to determine a correction factor for a Direct Reading Dosimeter (DRD) Permanent Recording Dosimeter (PRD)-based isotopic release mixture • All protective actions are based on the 2017 EPA PAGs. Locations Evaluated: • MDE AAC • FMTs sampling locations

Table 13 Capability Target 2.1: Emergency Worker Exposure Control Decision-Making Process for the EOP for Calvert, Dorchester, and St. Mary's Counties

Calvert, Dorchester, and St. Mary's Counties EOP
• • All activities are 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. • Each Jurisdiction will provide an actual Emergency Worker Briefing to Emergency Workers so the FEMA Evaluator may view it.

- The Local Jurisdictions will discuss with the FEMA Evaluator turn back levels and times.
- Emergency Workers will discuss with the FEMA Evaluator how they would gain Re-entry permission from the Environmental Health Radiological Officer (RO).

Locations Evaluated:

- Calvert County EOC
- Dorchester County EOC
- St. Mary's County EOC

B. Capability Target 2.2: Emergency Worker Exposure Control Management

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

Intent: The capability of emergency workers to manage dose and exposure, use equipment (e.g., dosimetry, radioprotective 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.

Table 14 Capability Target 2.2 Emergency Worker Exposure Control Management for the EOP for the State of Maryland

State of Maryland Extent of Play (EOP)
• All activities are 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. • The AAC will deliver the Emergency Worker Brief for the FMTs and demonstrate the distribution of their dosimetry, KI, and forms. • Actual KI will not be disseminated to FMT members, simulated KI will be used. • One FMT member will demonstrate donning and doffing of their Personal Protective Equipment (PPE) on September 12,2022 at 12pm during the OOS equipment Checks at the MDE AAC in Baltimore. • The two (2) FMTs will pre-stage throughout the counties. Locations Evaluated: • MDE AAC • FMTs sampling locations

Table 15 Capability Target 2.2 Emergency Worker Exposure Control Management for the EOP for Calvert, Dorchester, and St. Mary's Counties

Calvert, Dorchester, and St. Mary's Counties EOP
• All activities are 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. • The Local Jurisdictions will deliver the Emergency Worker Brief for the Emergency Workers and demonstrate the distribution of the dosimetry, KI and forms.

- Actual KI will not be disseminated to Emergency Workers or civilians, simulated KI will be used.
- KI will be available for inspection at the respective storage location.

Locations Evaluated:

- Calvert County EOC
- Dorchester County EOC
- St. Mary's County EOC

Objective 3: Alert and Notification

A. Capability Target 3.1: Communications

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

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

Table 16 Capability Target 3.1 Communications for the EOP for the State of Maryland

State of Maryland Extent of Play (EOP)
• All activities are 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. • Written and electronic communication will begin with **"THIS IS AN EXERCISE".** • MDEM/MJOC uses a notification system to notify our state partners and MDEM Staff. • FEMA Evaluators will receive all notifications for the Exercises at the State Level. • The MJOC will present the FEMA Evaluators with the electronic log of the notification system notices. • The MDE FMTs use an electronic group conferencing method and radios as their primary communication methods. • Primary communication failures are not injected into the scenario. • MDEM will demonstrate to the FEMA Evaluator their use of the Bridge Line, electronic group conferencing methods, and WebEOC as primary communication methods. Locations Evaluated: • MDEM SEOC and JIC at the MDE AAC • MDE AAC • MJOC at the SHA SOC • Constellation's EOF

Table 17 Capability Target 3.1 Communication for the EOP for Calvert, Dorchester, and St. Mary's Counties

Calvert, Dorchester, and St. Mary's Counties EOP
• All activities are 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. • FEMA Evaluators will be provided access to reports and/or notification logs from the local Jurisdictions Alert and Notification Systems. • Written and electronic communication will begin with **"THIS IS AN EXERCISE".** Locations Evaluated: • Calvert County EOC • Dorchester County EOC • St. Mary's County EOC

B. Capability Target 3.2: Alert and Notification of the Public

Core Capabilities: Public Information and Warning; Planning

Intent: The capability to provide instructions to the public

Table 18 Capability Target 3.2 Alert and Notification of the Public for the EOP for the State

State of Maryland Extent of Play (EOP)
• All activities are 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. • The actual sounding of the siren sounding will be simulated. • Calvert County will take the lead on sounding the siren for all three (3) counties and the State. • MDEM's PIO will develop the EAS message for all three (3) Jurisdictions and have it approved. • The MJOC will demonstrate the message being sent out via the EMNET system to the EAS radio station WSMD 98.3 Star for all three (3) counties.   ○ The MJOC will provide the FEMA Evaluator with the receipt of delivery confirmation. Locations Evaluated: • MDEM SEOC and the MDEM JIC (at the MDE AAC) • MJOC at the SHA SOC

Table 19 Capability Target 3.2 Alert and Notification of the Public for the EOP for Calvert, Dorchester, and St. Mary's Counties

Calvert, Dorchester, and St. Mary's Counties EOP
• All activities are 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. • Calvert County will take the lead on simulating the sounding the siren for all three (3) counties and the State. • The siren failure inject will be provided to the Communications Center or the Communications Center EOC representative.   ○ The MDEM Controller will ensure the FEMA Evaluator is present when the siren failure inject is provided • Calvert and St. Mary's County will demonstrate the use of the FEMA approved Reverse 911 Notification System in the event of a siren failure by using the FEMA Evaluator contact information.

- Dorchester County will demonstrate their Siren Failure and Route Alerting.
    - A Deputy Sheriff and the FEMA Evaluator will pre-stage at the Madison Volunteer Fire Company (Madison Volunteer Fire Company, 1154 Taylors Island Road, Madison MD 21648).
    - The Dorchester County Sheriff Deputy will complete the Emergency Worker brief at the EOC prior to going to the Madison Volunteer Fire Company for staging.
        - The demonstration will not begin until after the Dorchester County's Sheriff's Department and FEMA Evaluator are at the staging area.
    - The Dorchester County Sheriff will await notification of the siren failure location which will be demonstrated by radio communication to the field Deputy.
    - The FEMA Evaluator will travel with the Deputy Sheriff to where the siren has failed and demonstrate how they alert people of the evacuation.
    - The EOC Sheriff Rep will let the EOC Director know the route alerting has been completed.

Locations Evaluated:

- Calvert County EOC
- Dorchester County EOC
- Dorchester County Sheriff's Deputy on the Route Alerting in Taylors Island
- St. Mary's County EOC

C. Capability Target 3.3: Emergency Information and Instructions for the Public and News Media

Core Capabilities: Public Information and Warning; Planning

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

Table 20 Capability Target 3.3 Emergency information and Instructions for the Public and News Media for the EOP for the State of Maryland

State of Maryland Extent of Play (EOP)
• All activities are 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. • In accordance with the MDEM FNF Consequence Management Plan, the MDEM JIC will coordinate with the Local Jurisdictions PIOs and the EOF JIC via the video conference line. The MDEM PIO will be present and ready to answer questions during the Media Brief on the EOF JIC Video conference line. • At least one media briefing will be conducted. • Special News Broadcasts will be developed at appropriate centers, but actual broadcast of these messages will not take place. • MDEM will not handle releases for risk and host school transfers, parks, and emergency worker KI ingestion. The Local Jurisdictions will send these out. Locations Evaluated: • MDEM SEOC and JIC at the MDE AAC

Table 21 Capability Target 3.3 Emergency information and Instructions for the Public and News Media for the EOP for Calvert, Dorchester, and St. Mary's Counties

Calvert, Dorchester, and St. Mary's Counties EOP
• All activities are 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. • One media briefing will be conducted in conjunction with the PIOS from the EOF JIC and the SEOC JIC. • The Local Jurisdictions will join the EOF JIC conference line with MDEM and the EOF to ensure coordinated and timely public messaging. • The Local Jurisdictions will handle all public messaging for risk and host schools, parks, and emergency worker KI ingestion. Locations Evaluated: • Calvert County EOC • Dorchester County EOC

- St. Mary's County EOC

Objective 4: Detect, Measure, Sample, Analyze, and Assess

A. Capability Target 4.1 Field Monitoring Teams Management

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

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

Table 22 Capability Target 4.1 Field Monitoring Teams Management for the EOP for the State of Maryland

State of Maryland Extent of Play (EOP)
• All activities are 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. • Only the State Accident Assessment Center (AAC) Field Monitoring Teams (FMT) will demonstrate this objective. • The FMTs will demonstrate their operational checks the day before the Full Participation Exercise on September 12, 2022. • The FMTs will receive their Emergency Worker brief and one FMT member will demonstrate the donning and doffing of their PPE. • The FMTs will pre-stage throughout the three counties. There will be two (2) teams deployed. • At least six (6) readings will be obtained by each team at one (1) or more survey point locations. • State teams will not measure plume centerline radiation levels. • Airborne radioactivity samples will be counted in the field. • Chain of custody procedures to deliver samples for additional analysis will be demonstrated and are in concert with the MDE Emergency Procedures. • Delivery of samples for additional analysis will not be demonstrated as the MDH State Lab is not participating or being evaluated in this exercise. • If applicable, by following their procedures, one (1) sample will be obtained in an area that exhibits above ambient background radiation levels (plume edge). Locations Evaluated: • MDE AAC • The MDE FMTs   ○ FMTs sampling locations staging area is the Park and Ride **Davidsonville Park and Ride (2701 Davidsonville Rd Davidsonville, MD 21035**) (Google Maps Link) just outside of Annapolis off of Route 50 to the East

Table 23 Capability Target 4.1 Field Monitoring Teams Management for the EOP for Calvert, Dorchester, and St. Mary's Counties

Calvert, Dorchester, and St. Mary's Counties EOP
Only the State Accident Assessment Center (AAC) Field Monitoring Teams (FMT) will demonstrate this objective.

B. Capability Target 4.2 Plume Phase Measurements and Sampling

Core Capabilities: Environmental Response/Health and Safety; Planning
Recommended Evaluation Frequencies: Biennially

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

Table 24 Objective 4.2 Plume Phase Measurements and Sampling for the EOP for the State of Maryland

State of Maryland Extent of Play (EOP)
• All activities are 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. • Only the State AAC FMTs will demonstrate this objective. • The FMTs will demonstrate their operational checks the day prior of the Full Participation Exercise on September 12, 2022. • The FMTs will receive their Emergency Worker brief, demonstrate the contents of their Emergency Worker kits and one FMT member will demonstrate the donning and doffing of their PPE. • Each team will demonstrate obtaining one (1) air sample out in the local jurisdictions. • FMTs will demonstrate detection of low airborne radioactive iodine concentrations. • The FMTs will demonstrate their processes for avoiding cross-contamination of samples and contamination of equipment. • FMTs will demonstrate preparation of packaging, sample identification, and chain-of-custody forms. • Survey Teams will demonstrate their communications between the AAC and FMTs. • All data will be entered into RadResponder for the AAC to analyze. • Delivery of samples for additional analysis will not be demonstrated as the MDH State Lab is not participating or being evaluated in this exercise. Locations Evaluated: • The MDE AAC FMTs • FMTs sampling locations

Table 25 Objective 4.2 Plume Phase Measurements and Sampling for the EOP for Calvert, Dorchester, and St. Mary's Counties

Calvert, Dorchester, and St. Mary's Counties EOP
Only the State AAC FMTs will demonstrate this objective.

C. Capability Target 4.5: Plume Phase Analysis and Dose Assessment

Core Capabilities: Environmental Response/Health and Safety; Planning

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

Table 26 Capability Target 4.5 Plume Phase Analysis and Dose Assessment for EOP for the State of Maryland

State of Maryland Extent of Play (EOP)
• All activities are 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. • MDE and MDH will look at all available field data while discussing PARs and changing them into PADs. • All data will be entered into RadResponder for the AAC to analyze. Locations Evaluated: • The MDE AAC FMTs • MDEM SEOC and JIC at the MDE AAC • MDE AAC FMTs

Table 27 Capability Target 4.5 Plume Phase Analysis and Dose Assessment for the EOP for Calvert, Dorchester, and St. Mary's Counties

Calvert, Dorchester, and St. Mary's Counties EOP
• All activities are 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. • The Local Jurisdictions Health Departments' EOC representatives will discuss dose projections with the FEMA Evaluators.

D. Capability Target 5.4 Traffic and Access Control

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

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

Table 28 Capability Target 5.4 Traffic and Access Control for the EOP for the State of Maryland

State of Maryland Extent of Play (EOP)
• All activities are 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. • Air and water controls will be coordinated (simulated) from the SEOC. • There are no railways in the 10-mile EPZ of any of the risk Counties. • MDOT and MSP will assist in evacuation efforts if requested by the Local Jurisdictions. Locations Evaluated: • MDEM SEOC and JIC at the MDE AAC • MDE AAC

Table 29 Capability Target 5.4 Traffic and Access Control for the EOP for Calvert, Dorchester, and St. Mary's Counties

Calvert, Dorchester, and St. Mary's Counties EOP
• All activities are 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. • The Local Jurisdictions are responsible for the decisions of ACP/TCP and evacuation routes for their citizens. • Transportation and Law enforcement EOC representatives in the Local Jurisdiction EOCs will discuss their ACP/TCP and evacuation routes as this will not be physically demonstrated. • Communications with the ACP/TCP (law enforcement) will occur as they would in an actual emergency. • There is one (1) road impediment inject for all three (3) jurisdictions

○ All three (3) Local Jurisdictions EOC representatives will discuss the alternate evacuation routes with a FEMA Evaluator based on the road impediment inject. • All three (3) Local Jurisdictions will demonstrate their public messaging for the change in evacuation routes. Locations Evaluated: • Calvert County EOC • Dorchester County EOC • St. Mary's County EOC

Appendix C: CALVEX 2022 Exercise Schedule with Addresses

Table 30 CALVEX 2022 Exercise Schedule for 2022

Tentative Time	Personnel	Activity	Location
June 16, 2022			
0700	St. Mary's County Emergency Medical Services (EMS), Environmental Health, Emergency Management, and Health Department and Medstar St. Mary's hospital staff	Medstar St. Mary's MS-1 Drill	St. Mary's County DES HazMat Building 23090 Leonard Hall Dr. Leonardtown, Md. 20650 MedStar St. Mary's Hospital 25500 point Lookout Road Leonardtown, MD 20650
June 22, 2022			
0800	Calvert County EMS, Emergency Management, and Health Department and Calvert Health Medical Center (CHMC) hospital staff	CHMC MS-1 Drill	Calvert Health Medical Center 100 Hospital Road Prince Frederick, MD. 20678 Huntingtown High School 4125 North Solomons Island Road Huntingtown, Maryland 20639
July 12, 2022			
0800-1300 (0800 is when the exercise starts at the CCNP)	State and Local EOC Representatives	Dress Rehearsal for the OROs	• MDE AAC for the SEOC (1800 Washington Blvd, Baltimore, MD 21230) • MDE AAC and the field for the FMTs (1800 Washington Blvd, Baltimore, MD 21230) • Calvert County EOC (175 Main St Court House Prince Frederick, MD 20678) • Dorchester County EOC (8 Washington Street, Cambridge MD 21613

Tentative Time	Personnel	Activity	Location
			• St. Mary's County EOC (23090 Leonard Hall Drive Leonardtown, MD 20650
September 12, 2022			
1200	E. MDE FMT equipment	F. FMT Equipment Inspection and evaluation	• MDE AAC (1800 Washington Blvd, Baltimore, MD 21230)
September 13, 2022			
0800-1300 (0800 is when the exercise starts at the CCNP)	State and Local EOC Representatives	Full Participation Exercise EOC Operations	• MDE AAC for the SEOC (1800 Washington Blvd, Baltimore, MD 21230) • MDE AAC Control Center (1800 Washington Blvd, Baltimore, MD 21230) • Calvert County EOC (175 Main St Court House Prince Frederick, MD 20678) • Dorchester County EOC (8 Washington Street, Cambridge MD 21613 • St. Mary's County EOC (23090 Leonard Hall Drive Leonardtown, MD 20650)
0800-1300 (0800 is when the exercise starts at the CCNP)	MJOC Staff	Full Participation Exercise MJOC Operations, Notifications, and EAS Messaging	• The Maryland State Highway Administration (SHA) 7450 Traffic Drive, Building 4 Hanover, MD 21076 (All the way in the back of the complex).
0900	MDE's AAC Field Monitoring Teams (FMTs)	Full Participation Exercise; Field Monitoring Teams for Dose Assessment Dose Collection	• The FMT's will meet the FEMA Evaluator at the Park and Ride Davidsonville Park and Ride (2701 Davidsonville Rd Davidsonville, MD 21035) (Google Maps Link) just outside of Annapolis off of Route 50 to the East
Site Area Emergency (SAE)	Emergency Worker Briefing for Calvert County Emergency Workers, Environmental Health	Emergency Worker Briefing Potassium Iodide (KI) Instructions, Emergency Worker Kits	• Calvert County EOC (175 Main St Court House Prince Frederick, MD 20678)

Tentative Time	Personnel	Activity	Location
	and Health Department		
SAE	Emergency Worker Briefing for Dorchester County Emergency Workers, Environmental Health and Health Department	Emergency Worker Briefing Potassium Iodide (KI) Instructions, Emergency Worker Kits	• Dorchester County EOC (8 Washington Street, Cambridge MD 21613
SAE	Emergency Worker Briefing for St. Mary's County Emergency Workers, Environmental Health and Health Department	Emergency Worker Briefing Potassium Iodide (KI) Instructions, Emergency Worker Kits	• St. Mary's County EOC (23090 Leonard Hall Drive Leonardtown, MD 20650)
SAE	Dorchester County Siren Failure and Route Alerting Personnel	Route Alerting from Madison Volunteer Fire Company	• Starting at the Staging area of the Madison Volunteer Fire Company 1154 Taylors Island Road, Madison MD 21648
September 14, 2022			
0900	Calvert County Risk Schools: • Principal • School Nurse • Bus Driver • Facilities personnel	Risk School Drills	St. Leonard Elementary School • 5370 St. Leonard Road Saint Leonard, MD 20685 Southern Middle School • 9615 H G Trueman Road Lusby, MD 20657 Patuxent Appeal Elementary School • 11655 H G Trueman Road Lusby, MD 20657
0900	St. Mary's County Risk Schools: • Principal • School Nurse • Bus Driver • Facilities personnel	Risk School Drills	Hollywood Elementary School • 44345 Joy Chapel Road Hollywood, MD 20636 St. Johns School (pre K through 7th grade) • 43900 St. Johns Road Hollywood, MD 20636

Appendix D Participating Agencies

Table 31Particpating Agencies

Participating Organizations	
G.	**State**
H.	Maryland Department of Emergency Management (MDEM)
I.	Maryland Department of Agriculture (MDA)
J.	Maryland Department of Environment (MDE)
K.	Maryland Department of Health (MDH)
L.	Maryland Department of Human Services (DHS)
M.	Maryland Department of Disabilities (MDOD)
N.	Maryland State Department of Education (MSDE)
O.	Maryland Department of General Services (DGS)
P.	Maryland Department of Information and Technology (DoIT)
Q.	Maryland Department of Natural Resources (DNR)
R.	Maryland Department of Planning (MDP)
S.	Maryland Department of Transportation (MDOT)
T.	Maryland Energy Administration (MEA)
U.	Maryland Institute for Emergency Medical Services Systems (MIEMSS)
V.	Maryland Military Department (MMD)/ Maryland National Guard (MDNG)
W.	Maryland Public Service Commission (PSC)
X.	Maryland Coordination and Analysis Center (MCAC)
Y.	Maryland State Police (MDSP)
Z.	**Local**
Calvert County Division of Emergency Management	
Calvert County Agencies/Departments	
Dorchester County Department of Emergency Services	
Dorchester County Agencies/Departments	
St. Mary's County Department of Emergency Services	

St. Mary's County Agencies/Departments
Federal
United States Coast Guard- Baltimore NCR
Federal Emergency Management Agency (FEMA)
The Department of Homeland Security- Cybersecurity and Infrastructure Security Agency (DHS-CISA)
Nuclear Regulatory Commission (NRC)
Private
Calvert Cliffs Nuclear Power Plant (CCNPP)
Constellation Nuclear Corporation

Appendix E Acronyms

Table 32 Acronyms

Acronym	Definition
AAC	Accident Assessment Center
AAR	After-Action Report
ACP	Access Control Points
ALC	Annual Letter of Certification
ARC	The American Red Cross
CALVEX	Calvert Cliffs Nuclear Power Plant Exercise
CCNPP	Calvert Cliffs Nuclear Power Plant
CFR	Code of Federal Regulations
CHMH	Calvert Health Medical Center
COOP	Continuity of Operations Plan
CTL	Capabilities Target List
DHS	Department of Homeland Security
DHS CISA	The Department of Homeland Security Cybersecurity & Infrastructure Security Agency
DNR	Maryland Department of Natural Resources
EAL	Emergency Action Level
ECL	Emergency Classification Level
EMnet	Emergency Network
EMS	Emergency Medical Services
EOC	Emergency Operations Center
EOF	Emergency Operations Facility
EONS	Electronic Offsite Notification System
EOP	Extent of Play
EPA	Environmental Protection Agency
EPT	Exercise Planning Team
EPZ	Emergnecy Planning Zone
ExPlan	Exercise Plan
FEMA	Federal Emergency Management Agency
FMT	Field Monitoring Teams
FNF	Fixed Nuclear Facility
GE	General Emergency
HAB	Hostile Action Based
HSEEP	Homeland Security and Exercise and Evaluation Program
IPAWS	Integrated Public Alert & Warning System
IPW	Integrated Preparedness Workshop
JIC	The Joint Information Center
KI	Potassium Iodide

Acronym	Definition
MCAC	Maryland Coordination and Analysis Center
MDA	Maryland Department of Agriculture
MDE	Maryland Department of the Environment
MDEM	Maryland Department of Emergency Management
MDGS	Maryland Department of General Services
MDHS	The Maryland Department of Human Services
MDNG	Maryland National Guard
MDOD	Maryland Department of Disability
MDOIT	Maryland Department of Information Technology
MDOT	Maryland Department of Transportation
MDP	The Maryland Department of Planning
MDSP	Maryland State Police
MEA	Maryland Energy Administration
MJOC	Maryland Joint Operations Center (MJOC) for a radiological incident
MMD	Maryland Military Department
MS-1	Medical Services
MSDE	Maryland State Department of Education
MSEL	Master Scenario Events List
NAWAS	National Warning System
NCR	National Capital Region
NPP	Nuclear Power Plant
OOS	Out of Sequence
ORO	Offsite Response Organization
PA	Public Announcement
PAD	Protective Action Decision
PAG	Protective Action Guidelines
PAR	Protective Action Recommendations
PSC	Maryland Public Service Commission
PIO	The Public Information Officer
RAC	Regional Assistance Committee
RACES	Radio Amateur Civil Emergency Service
REP	Radiological Emergency Plan
REPP	Radiological Emergency Preparedness Program
RPM	Radiological Emergency Preparedness Program Manual
SAE	Site Area Emergency
SCF	State Coordinating Function
SEOC	State Emergency Operations Center
SHA	State Highway Administration
SimCell	Simulation Cell
SOC	State Operations Center

Acronym	Definition
TCP	Traffic Control Points
USCG	U.S. Coast Guard
UTL	Universal Task List

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