Waterford 3 Steam Electric Station Biennial Plume Exposure Pathway Exercise After Action Report/Improvement Plan

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Executive Summary

On June 21, 2023, the Department of Homeland Security (DHS), Federal Emergency Management Agency (FEMA), Region 6, evaluated the Plume Exposure Pathway Exercise for Waterford 3 Steam Electric Station, located near Killona, LA.

During the Plume Exposure Pathway Exercise, FEMA assessed the ability of state and local officials to implement plans and procedures to protect the public in the event of a radiological incident. This exercise is part of the FEMA Radiological Emergency Preparedness Program. This program ensures that adequate capabilities exist to prevent, protect against, mitigate the effects of, respond to, and recover from incidents involving commercial nuclear power plants. This exercise implemented the revised NUREG 0654/FEMA-REP-1, Rev. 2 document and the 2019 Radiological Emergency Preparedness Program Manual (RPM). The previous exercise was conducted on March 15, 2022.

This report contains the final written evaluation of the exercise. The state and local organizations demonstrated knowledge of their emergency response plans and procedures and adequately implemented them. There were no Level 1 or Level 2 Findings identified. There were four Plan Issues identified.

Section 1: Exercise Overview

Name	2023 Waterford 3 Steam Electric Station (W3) Biennial Plume Exposure Pathway Exercise
Dates	June 21, 2023
Purpose	The purpose of this exercise was to assess the level of preparedness of offsite response organizations to respond to a simulated radiological emergency.
Mission Area(s)	Protection Response
Core Capabilities	Operational Coordination Environmental Response/Health and Safety Situational Assessment Operational Communications Public Information and Warning Operational Communications Public Information and Warning Planning
Objectives	Emergency Operations Management Exposure Control Alert and Notification Detect, Measure, Sample, Analyze and Assess Operate
Threat or Hazard	Release of radiological materials from a commercial nuclear power plant.
Scenario	Plume Exposure Pathway Exercise
Participating Organizations	A complete list of participating agencies and organizations is attached in Appendix B.

Section 2: Analysis of Capabilities

2.1 Summary Results of Assessment

Table 1 below lists the assessment activity objectives, capability targets, selected core capabilities, and status of each capability target evaluated.

Each jurisdiction and functional entity were evaluated based on the demonstration of core capabilities and capability targets. The demonstration status of the capability targets is indicated using the following terms:

- **Met (M):** The jurisdiction or functional entity performed all activities under the objective/capability target to the level required per the work plan and/or the extent of play agreement, with no Level 1 or Level 2 Findings evaluated under that objective/capability target during the current activity and no unresolved prior Level 2 Finding(s).
- **Level 1 Finding (L1):** An observed or identified inadequacy of organizational performance during an assessment activity that could cause a determination that offsite emergency preparedness is not adequate to provide reasonable assurance that appropriate protective measures can be taken in the event of a radiological emergency to protect the health and safety of the public living in the vicinity of a Nuclear Power Plant.
- **Level 2 Finding (L2):** An observed or identified inadequacy of organizational performance during an assessment activity that is not considered, by itself, to adversely impact public health and safety.
- **Plan Issue (P):** An observed or identified inadequacy in the OROs emergency plan/implementing procedures, rather than in that of the OROs performance.
- **Not Demonstrated (N):** For a justifiable reason, the jurisdiction or functional entity did not perform assessment activities under the objective/capability target as specified in the extent of play agreement.
- **Not Applicable (N/A):** The objective/capability target does not apply to the jurisdiction.

Table 1. Summary Results of Capability Targets

Venue	Capability Target	Core Capabilities	Status
Objective 1: Emergency Operations Management			
State Emergency Operations Center (SEOC)/Governor's Office of Homeland Security & Emergency Preparedness (GOHSEP)	1.1	Operational Coordination	M
	1.2	Operational Coordination; Environmental Response/Health and Safety	M
	1.3	Operational Coordination; Situational Assessment; Environmental Response/Health and Safety	M
	1.4	Operational Coordination; Situational Assessment; Environmental Response/Health and Safety	M
	1.5	Operational Coordination; Environmental Response/Health and Safety	M
Louisiana Department of Environmental Quality (LDEQ) Headquarters	1.1	Operational Coordination	M
	1.2	Operational Coordination; Environmental Response/Health and Safety	M
Louisiana Joint Information Center (JIC)	1.1	Operational Coordination	M
Waterford 3 Emergency Operations Facility (EOF)	1.1	Operational Coordination	M
	1.2	Operational Coordination; Environmental Response/Health and Safety	M
	1.3	Operational Coordination; Situational Assessment; Environmental Response/Health and Safety	M
St. John the Baptist Parish Emergency Operations Center (EOC) and Traffic/Access Control Point (T/ACP)	1.1	Operational Coordination	M
	1.2	Operational Coordination; Environmental Response/Health and Safety	M
	1.4	Operational Coordination; Situational Assessment; Environmental Response/Health and Safety	M
	1.5	Operational Coordination; Environmental Response/Health and Safety	M

Venue	Capability Target	Core Capabilities	Status
St. Charles Parish Emergency Operations Center (EOC) and Traffic/Access Control Point (T/ACP)	1.1	Operational Coordination	M
	1.2	Operational Coordination; Environmental Response/Health and Safety	M
	1.4	Operational Coordination; Situational Assessment; Environmental Response/Health and Safety	M
	1.5	Operational Coordination; Environmental Response/Health and Safety	M
Objective 2: Exposure Control			
State Emergency Operations Center (SEOC)/ Governor's Office of Homeland Security & Emergency Preparedness (GOHSEP)	2.1	Operational Coordination; Environmental Response/Health and Safety	M
Waterford 3 Emergency Operations Facility (EOF)	2.1	Operational Coordination; Environmental Response/Health and Safety	M
	2.2	Operational Coordination; Environmental Response/Health and Safety	M
Field Monitoring Team One	2.2	Operational Coordination; Environmental Response/Health and Safety	M
Field Monitoring Team Two	2.2	Operational Coordination; Environmental Response/Health and Safety	M
St. John the Baptist Parish Emergency Operations Center (EOC) and Traffic/Access Control Point (T/ACP)	2.1	Operational Coordination; Environmental Response/Health and Safety	M
	2.2	Operational Coordination; Environmental Response/Health and Safety	P
St Charles Parish Emergency Operations Center (EOC) and Traffic/Access Control Point (T/ACP)	2.1	Operational Coordination; Environmental Response/Health and Safety	M
	2.2	Operational Coordination; Environmental Response/Health and Safety	M

Venue	Capability Target	Core Capabilities	Status
Objective 3: Alert and Notification			
State Emergency Operations Center (SEOC)/ Governor's Office of Homeland Security & Emergency Preparedness (GOHSEP)	3.1	Operational Coordination; Operational Communications	M
Louisiana Department of Environmental Quality (LDEQ) Headquarters	3.1	Operational Coordination; Operational Communications	M
Louisiana Joint Information Center (JIC)	3.1	Operational Coordination; Operational Communications	M
	3.3	Public Information and Warning	M
Waterford 3 Emergency Operations Facility (EOF)	3.1	Operational Coordination; Operational Communications	M
Field Monitoring Team One	3.1	Operational Coordination; Operational Communications	M
Field Monitoring Team Two	3.1	Operational Coordination; Operational Communications	M
St. John the Baptist Parish Emergency Operations Center (EOC)	3.1	Operational Coordination; Operational Communications	M
	3.2	Public Information and Warning	P
	3.3	Public Information and Warning	M
Emergency Alert System (EAS) Radio Station/WWL	3.2	Public Information and Warning	M
St Charles Parish Emergency Operations Center (EOC)	3.1	Operational Coordination; Operational Communications	M
	3.2	Public Information and Warning	P
	3.3	Public Information and Warning	M
Objective 4: Detect, Measure, Sample, Analyze and Assess			
Waterford 3 Emergency Operations Facility (EOF)	4.1	Environmental Response/Health and Safety	P
	4.5	Environmental Response/Health and Safety	M

Venue	Capability Target	Core Capabilities	Status
Field Monitoring Team One	4.2	Environmental Response/Health and Safety	M
Field Monitoring Team Two	4.2	Environmental Response/Health and Safety	M
Objective 5: Operate			
State Emergency Operations Center (SEOC)/ Governor's Office of Homeland Security & Emergency Preparedness (GOHSEP)	5.4	Operational Coordination; On-scene Security, Protection, and Law Enforcement	M
St. John the Baptist Parish Emergency Operations Center (EOC) and Traffic/Access Control Point (T/ACP)	5.4	Operational Coordination; On-scene Security, Protection, and Law Enforcement	M
St. Charles Parish Emergency Operations Center (EOC) and Traffic/Access Control Point (T/ACP)	5.4	Operational Coordination; On-scene Security, Protection, and Law Enforcement	M

2.2 Results of Exercise Evaluation

State Emergency Operations Center (SEOC)/Governor's Office of Homeland Security & Emergency Preparedness (GOHSEP)

Objective 1: Emergency Management Operations
Capability Target 1.1: Mobilization
Capability Target 1.2: Direction and Control
Capability Target 1.3: Protective Action Recommendations
Capability Target 1.4: Protective Action Decisions for the Plume Phase
Capability Target 1.5: Protective Action Decisions Implementation for the Plume Phase

Objective 2: Exposure Control
Capability Target 2.1: Emergency Worker Exposure Control Decision-Making Process

Objective 3: Alert and Notification
Capability Target 3.1: Communication

Objective 5: Operate
Capability Target 5.4: Traffic and Access Control

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

a. MET: 1.1, 1.2, 1.3, 1.4, 1.5, 2.1, 3.1, 5.4
b. LEVEL 1 FINDING: None
c. LEVEL 2 FINDING: None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: Yes
a. PRIOR ISSUES - UNRESOLVED: None

Louisiana Department of Environmental Quality (LDEQ) Headquarters

Objective 1: Emergency Management Operations
Capability Target 1.1: Mobilization
Capability Target 1.2: Direction and Control

Objective 3: Alert and Notification
Capability Target 3.1: Communication

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

a. MET: 1.1, 1.2, 3.1
b. LEVEL 1 FINDING: None
c. LEVEL 2 FINDING: None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
a. PRIOR ISSUES - UNRESOLVED: None

Louisiana Joint Information Center (JIC)

Objective 1: Emergency Management Operations
Capability Target 1.1: Mobilization

Objective 3: Alert and Notification
Capability Target 3.1: Communication
Capability Target 3.3: Emergency Information and Instructions for the Public and News Media

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

a. MET: 1.1, 3.1, 3.3
b. LEVEL 1 FINDING: None
c. LEVEL 2 FINDING: None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

Waterford 3 Emergency Operations Facility (EOF)

Objective 1: Emergency Management Operations
Capability Target 1.1: Mobilization
Capability Target 1.2: Direction and Control
Capability Target 1.3: Protective Action Recommendations

Objective 2: Exposure Control
Capability Target 2.1: Emergency Worker Exposure Control Decision-Making Process
Capability Target 2.2: Emergency Worker Exposure Management

Objective 3: Alert and Notification
Capability Target 3.1: Communication

Objective 4: Detect, Measure, Sample, Analyze, and Assess
Capability Target 4.1: Field Monitoring Teams Management
Capability Target 4.5: Plume Phase Analysis and Dose Assessment

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

a. MET: 1.1, 1.2, 1.3, 2.1, 2.2, 3.1, 4.5
b. LEVEL 1 FINDING: None
c. LEVEL 2 FINDING: None
d. PLAN ISSUES: 4.1

ISSUE NUMBER: 70-23-4.1-P-03

CAPABLITY TARGET: 4.1 Field Monitoring Team Management

CONDITION: The Field Team Coordinator (FTC) did not promptly relay that a radiological release had begun to the LDEQ Field Monitoring Teams. Specifically, at 1127 FMT1 had communicated to the FTC that they had arrived at the predesignated sampling location N-1.6 (approximately 1.6 miles from the plant in the downwind affected sector). Yet at 1137 the Accident Assessment Coordinator promptly informed the FTC and FTC Support staff that the licensee determined that radiological release had begun. At 1152 FMT1 communicated to the FTC that they had completed an air sample and were heading back to their staging area. However, in that 15-minute period, neither the FTC nor FTC Support staff contacted either FMT to inform them that the radiological release had started. Only at 1158, while in transit back to the staging area, did FMT1 report back to the FTC that during their sampling at location N-1.6 at about 1145 did they measure 1.23 mR/hr (closed window) on their Ludlum survey instrument. While this information FMT1 made it self-evident that the release had started, the FTC did not subsequently communicate that they had been informed that the release had started at 1137 to either LDEQ FMT.

POSSIBLE CAUSE: The FTC's procedure (OP-7, Section III.D) clearly states that they are to continually inform the FMTs of changes in release status (among other potential changing elements during a event). However, this section in the procedure is not emphasized (though emphasis (bold text) is used extensively for other sections/actions in the procedure for critical steps/actions). Additionally, this "continuous action step" is located early in the procedure and did not appear to be frequently referenced once the FTC arrived in the EOF.
Further, as observed, the FTC Support staff serves as the primary communicator of information from the FTC to the FMTs. However, the FMT Support Staff procedure (OP-20, Section IV.B.3) does not include emphasis of these key changes that should be relayed to the FMTs. While the Support staff should not pre-emptively communicate any such changes to the FMTs without direction from the FTC, knowledge that these changes are important may prompt the Support staff to engage the FTC regarding the need to communicate those key evolving events to the FMTs.

PLANNING REFERENCES: 2019 RPM reference "NUREG-0654/FEMA-REP-1, Rev. 2 (H.11, H.13, I.5, I.6, I.9, I.10, M.7, M.8, and O.1)"
DEQ Procedure OP-7 "Field Team Coordinator," Section III. "Communication with Field Monitoring Teams," states in part:
"… C. Make every effort to remain in continual contact with the FMTs.
"D. As the event unfolds, continually inform the FMTs of the following, whenever changes take place:

1. Release Status
2. Meteorological (MET) Data
3. Weather Forecasts
4. Road conditions, such as traffic and access control within EPZ
5. Protective Action Recommendations (PAR), if applicable
6. KI recommendations, if applicable
7. HAB restrictions and requirements, if applicable…"

EFFECT: While the FMTs were kept apprised of a possible plume location if a release started (based on wind direction and speed information), they were never actually told the radiological release started until evidence of the plume became self-evident when FMT1 (positioned approximately 1.6 miles from the site) identified an elevated survey reading about 8 minutes after the release started. With prompt notification from the FTC, this close-in FMT would have better informed to potentially take additional emergency worker precautions to protect themselves had the release been more significant or moving with a greater wind speed.

RECOMMENDATION: Consider revising the procedure (OP-7) to emphasize the importance of the continual action steps and possibly duplicating the steps in later sections more frequently referenced when the FTC is deployed to the EOF. Further consider revising the FTC Support procedure (OP-20, Section IV.B.3) to include a "Note" that they should maintain awareness of these important parameter/condition changes to ensure the FTC considers those changes and directs communication with the FMTs accordingly.

e. NOT DEMONSTRATED: None
f. PRIOR ISSUES – RESOLVED: None
g. PRIOR ISSUES – UNRESOLVED: None

Field Monitoring Team One

Objective 2: Exposure Control
Capability Target 2.2: Emergency Worker Exposure Management

Objective 3: Alert and Notification
Capability Target 3.1: Communication

Objective 4: Detect, Measure, Sample, Analyze, and Assess
Capability Target 4.2: Plume Phase Measurements and Sampling

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

a. MET: 2.2, 3.1, 4.2
b. LEVEL 1 FINDING: None
c. LEVEL 2 FINDING: None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES – RESOLVED: None
g. PRIOR ISSUES – UNRESOLVED: None

Field Monitoring Team Two

Objective 2: Exposure Control
Capability Target 2.2: Emergency Worker Exposure Management

Objective 3: Alert and Notification
Capability Target 3.1: Communication

Objective 4: Detect, Measure, Sample, Analyze, and Assess
Capability Target 4.2: Plume Phase Measurements and Sampling

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

a. MET: 2.2, 3.1, 4.2
b. LEVEL 1 FINDING: None
c. LEVEL 2 FINDING: None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES – RESOLVED: None
g. PRIOR ISSUES – UNRESOLVED: None

St. John the Baptist Parish Emergency Operations Center (EOC)

Objective 1: Emergency Management Operations
Capability Target 1.1: Mobilization
Capability Target 1.2: Direction and Control
Capability Target 1.4: Protective Action Decisions for the Plume Phase
Capability Target 1.5: Protective Action Decision Implementation for the Plume Phase

Objective 2: Exposure Control
Capability Target 2.1: Emergency Worker Exposure Control Decision-Making Process
Capability Target 2.2: Emergency Worker Exposure Management

Objective 3: Alert and Notification
Capability Target 3.1: Communication
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 5: Operate
Capability Target 5.4: Traffic and Access Control

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

a. MET: 1.1, 1.2, 1.4, 1.5, 2.1, 3.1, 3.3, 5.4
b. LEVEL 1 FINDING: None
c. LEVEL 2 FINDING: None
d. PLAN ISSUES: 2.2, 3.2

ISSUE NUMBER: 70-23-2.2-P-01

CAPABLITY TARGET: 2.2 Emergency Worker Exposure Control Management

CONDITION: Dose reporting cards were in each dosimetry kit. The cards provide space for emergency workers to record doses and contain Instructions and Cautions as a reminder of radiological dose information. This information contains reference to an older type of dosimetry used and does not accurately reflect emergency worker dose limits utilized by the parish. Dose card information in the procedure does not reference the older style but is confusing and not reflective of dose limits.

POSSIBLE CAUSE: According to staff electronic dosimeters have been recently added as new equipment for emergency workers. Staff indicated some changes were made to procedures to reflect the change, but they had apparently missed updating the procedures in entirety and the dose cards,

PLANNING REFERENCES: Criteria K.2.b and K.3.iv regarding radiological briefing and dosimeter instructions. 2019 RPM pages 116-120.

EFFECT: If an emergency worker does not recall limits from verbal instructions, the card is misleading and would not provide needed information without contacting someone to provide proper information and could cause unnecessary dose.

RECOMMENDATION: Update procedures and dose record cards to reflect all administrative and turn back limits as described in the St. John the Baptist Parish Emergency Operations Procedure, Standard Operating Procedure, Radiological Exposure Control, Attachment 10.

ISSUE NUMBER: 70-23-3.2-P-02

CAPABLITY TARGET: 3.2 Alert and Notification of the Public

CONDITION: Parish procedures/pre-scripted EAS messages for St. John the Baptist Parish and St. Charles Parish have not been updated to reflect the current designated Reception Centers.

POSSIBLE CAUSE: Oversight

PLANNING REFERENCES: 2019 RPM; NUREG-0654/FEMA-REP-1, Rev. 2: E.2, E.4, E.5, F.3, O.1

EFFECT: Evacuees being sent to the wrong reception centers locations could cause confusion, overloading phones, and social media platforms with questions/concerns. It could also cause additional traffic flow.

RECOMMENDATION: Update pre-scripted EAS messages and any plans and procedures to reflect the current reception centers.

e. NOT DEMONSTRATED: None
f. PRIOR ISSUES – RESOLVED: None
g. PRIOR ISSUES – UNRESOLVED: None

St. Charles Parish Emergency Operations Center (EOC)

Objective 1: Emergency Management Operations
Capability Target 1.1: Mobilization
Capability Target 1.2: Direction and Control
Capability Target 1.4: Protective Action Decisions for the Plume Phase
Capability Target 1.5: Protective Action Decision Implementation for the Plume Phase

Objective 2: Exposure Control
Capability Target 2.1: Emergency Worker Exposure Control Decision-Making Process
Capability Target 2.2: Emergency Worker Exposure Management

Objective 3: Alert and Notification
Capability Target 3.1: Communication
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 5: Operate
Capability Target 5.4: Traffic and Access Control

In summary, the status of DHS/FEMA capability targets for this location are as follows:
a. MET: 1.1, 1.2, 1.4, 1.5, 2.1, 2.2, 3.1, 3.3, 5.4
b. LEVEL 1 FINDING: None
c. LEVEL 2 FINDING: None
d. PLAN ISSUES: 3.2

ISSUE NUMBER: 70-23-3.2-P-04

CAPABLITY TARGET: 3.2 Alert and Notification of the Public

CONDITION: Parish procedures/pre-scripted EAS messages for St. John the Baptist Parish and St. Charles Parish have not been updated to reflect the current designated Reception Centers.

POSSIBLE CAUSE: Oversight

PLANNING REFERENCES: 2019 RPM; NUREG-0654/FEMA-REP-1, Rev. 2: E.2, E.4, E.5, F.3, O.1

EFFECT: Evacuees being sent to the wrong location, could cause confusion,

overloading phones, and social media platforms with questions/concerns. It could also cause additional traffic flow.

RECOMMENDATION: Update pre-scripted EAS messages and any plans and procedures to reflect the current reception centers.

e. NOT DEMONSTRATED: None
f. PRIOR ISSUES – RESOLVED: Yes
g. PRIOR ISSUES – UNRESOLVED: None

Emergency Alert System (EAS) Radio Station/WWL

Objective 3: Alert and Notification
Capability Target 3.2: Alert and Notification of the Public

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

a. MET: 3.2
b. LEVEL 1 FINDING: None
c. LEVEL 2 FINDING: None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES – RESOLVED: None
g. PRIOR ISSUES – UNRESOLVED: None

Appendix A: Timeline

Emergency Classification Level Event or Action	Time Utility Declared	Time that Notification Was Received or Action Was Taken All times are Central Standard Time (CST)						
		W3 EOF	GOHSEP /SEOC	LDEQ HQ	JIC	SCP EOC	SJP EOC	EAS Station /WWL
Unusual Event								
Alert	0814	0829	0824	0824	N/A	0823	0825	
Site Area Emergency	0956	0957	1003		1003	1003	1006	
General Emergency	1053	1056	1102		1102	1102	1104	
Rad. Release Started	1134	1136	1200		1200	1134	1202	
Rad. Release Terminated								
Facility Declared Operational		0952	Facility activated for real incident		0931	0847	0856	
Declaration of State/Local Emergency			1058		1058	1119	1145	
Exercise Terminated		1248	1248		1256	1248	1252	1255
Early Precautionary Action Recommendations:								
1. Relocate School Children							1115	
2. Restrict Boating Traffic			1019		1020		1006	
3. Restrict Air and Rail Traffic			1019		1020			
4. Close Parks					1020		1158	
5. Livestock Advisory								
General Information Message Only:								
1st Siren Activation:			1150		1150	1150	1150	1150
1st EAS Message:			1155		1155	1155	1155	1155
1st Protective Action Recommendation (PAR):		1104	1102			1102	1102	
1st Protective Action Decision (PAD):			1134		1145	1121	1145	
2nd Siren Activation:								
2nd EAS Message:								
2nd PAR:								
2nd PAD:								
KI Administration Decision:		1227	1219		1219		1238	

Appendix B: Participating Organizations

Participating Organizations

Federal Organizations
FEMA Region 6
U.S. Nuclear Regulatory Commission
State Organizations
Louisiana Governor's Office of Homeland Security and Emergency Preparedness
Louisiana Department of Environmental Quality
Louisiana Department of Health
Risk Jurisdictions
St. John the Baptist Parish
St. John the Baptist Parish Office Homeland Security and Emergency Preparedness
St. John the Baptist Parish Public Works
St. John the Baptist Parish Purchasing
St. John the Baptist Parish Sheriff's Office
St. John the Baptist Parish Human Resources
St. John the Baptist Parish Animal Shelter
St. John the Baptist Parish Recreation
St. John the Baptist Parish Schools Service and Transportation
St. John the Baptist Parish Fire Service
St. Charles Parish
St. Charles Parish Government
St. Charles Hospital District
St. Charles Parish Sheriff Office
St. Charles Parish Fire Association

Private Organizations
Waterford 3 Steam Electric Station
Entergy Operations, Inc.
EAS/WWL Radio Station

Appendix C: Planning and Evaluation Team

Planning Team

Planners		
Title/Position	Name	Agency
Regional Assistance Committee Chair	Oscar Martinez	FEMA Region 6
Federal Planning Team Lead Site Specialist	Melisa Ogrodnik	FEMA Region 6
State Planning Team Lead Environmental Scientist 3	Adrienne Landry	LDEQ
Licensee Planning Team Lead/ Emergency Preparedness	John Lewis	W3 Steam Electric Station

Evaluation Team

Team Leaders and Evaluators		
Venue/Location	Evaluation Team/Team Lead	Agency
State Emergency Operations Center (SEOC)/Governor's Office of Homeland Security & Emergency Preparedness (GOHSEP)	Edith Williams* Andrew Chancellor	FEMA HQ FEMA Region 7
Louisiana Department of Environmental Quality (LDEQ)	Andrew Chancellor	FEMA Region 7
Waterford 3 Emergency Operations Facility (EOF)	Timothy Pflieger* Ryan Alexander Danielle Williams	FEMA Region 6 NRC Region 4 NRC HQ
LDEQ Field Monitoring Team One	Gregory Voss	FEMA Region 7
LDEQ Field Monitoring Team Two	George Brozowski	EPA

Joint Information Center (JIC) SEOC, GOHSEP	Linda Gee* Synthia Buice	FEMA Region 6 FEMA Region 6
St. John the Baptist Parish Emergency Operations Center and Traffic/Access Control Point	Alberto Sifuentes* Bart Ray Matthew Welshans	FEMA Region 9 ICF FEMA HQ
St. Charles Parish Emergency Operations Center and Traffic/Access Control Point	Matthew Celia* LaShawn Halsey James Fumbanks	FEMA HQ FEMA HQ FEMA HQ
EAS Radio Station/WWL	Taneeka Hollins*	FEMA HQ
* Team Leader		

Appendix C: Acronyms and Abbreviations

Acronym	Description
AAC	Accident Assessment Coordinator
CDE	Committed Dose Equivalent
CPM	Counts Per Minute
CT	Capability Target
DEQ	Department of Environmental Quality
DHS	U.S. Department of Homeland Security
DRD	Direct Reading Dosimeter
EAS	Emergency Alert System
EAL	Emergency Action Level
ECL	Emergency Classification Level
EMD	Emergency Management Director
EMS	Emergency Medical Services
EOC	Emergency Operations Center
EOF	Emergency Operations Facility
EP	Emergency Preparedness
EPA	Environmental Protection Agency
EPD	Electronic Personal Dosimeter
EPZ	Emergency Planning Zone
ESF	Emergency Support Functions
EW	Emergency Worker
FEMA	Federal Emergency Management Agency
FMT	Field Monitoring Team
FTC	Field Team Coordinator
GE	General Emergency
GIS	Geographic Information System
GOHSEP	Louisiana Governor's Office of Homeland Security and Emergency
GPS	Global Positioning System
HOO	HQ Operations Officer
HPT	Health Physics Technicians
IC	Incident Commander
ICP	Incident Command Post
JIC	Joint Information Center
KI	Potassium Iodide

Acronym	Description
L1	Level 1 Finding
L2	Level 2 Finding
LDEQ	Louisiana Department of Environmental Quality
LDH	Louisiana Department of Health
LSP	Louisiana State Police
LWIN	Louisiana Wireless Information Network
mg	milligrams
MHz	Megahertz
mR	milliroentgen/millirem
mRem	millirem
milliroentgen/milli	milliroentgen/millirem
NPP	Nuclear Power Plant
NRC	US Nuclear Regulatory Commission
ORO	Off-site Response Organizations
OSL	Optically Stimulated Luminescent
PAD	Protective Action Decision
PAG	Protective Action Guide
PAR	Protective Action Recommendation
PAS	Protective Action Section
PIO	Public Information Officer
PDAFN	Persons with Disabilities & Access/Functional Needs Individuals
PP	Parish President
PPE	Personal Protective Equipment
PRD	Permanent Reading Dosimeter
R	Roentgen
RACES	Radio Amateur Civil Emergency Services
RASCAL	Radiological Assessment System for Consequence Analysis
REP	Radiological Emergency Preparedness
RO	Radiological Officer
RPM	Radiological Emergency Preparedness Program Manual
RSO	Radiation Safety Officer
SAE	Site Area Emergency
SCP	Saint (St.) Charles Parish
SEC	LDEQ Secretary Designee
SEL	Senior EOF Liaison

Acronym	Description
SEOC	State Emergency Operations Center
SEOFL	LDEQ Senior Operations Facility Liaison
SHO	Louisiana State Health Official
SJP	Saint (St.) John the Baptist Parish
SMRAP	Southern Mutual Radiation Assistance Plan
SOP	Standard Operating Procedure
SRD	Self-Reading Dosimeter
T/ACP	Traffic/Access Control Points
TEDE	Total Effective Dose Equivalent
TLD	Thermoluminescent Dosimeter
URI	Unified RASCAL Interface
UHF	Ultra High Frequency
VHF	Very High Frequency
W3	Waterford 3 Steam Electric Station

Appendix D: Extent of Play Agreement and Scenario

OBJECTIVES AND CAPABILITY TARGETS

1: EMERGENCY OPERATIONS MANAGEMENT

1.1. Mobilization

- Capability Targets: Individuals with roles in support of emergency operations are identified, alerted, and mobilized in a timely manner. (NUREG-0654/FEMA-REP-1, Rev. 2: A.1, A.1.a, A.1.b, A.3, A.4, A.5, C.1, C.2, C.2.a, C.2.b, C.3, E.1, E.1.a, E.3, F.1.c, H.6, O.1)
- Locations: Louisiana State Emergency Operations Center (SEOC)/Governor's Office of Homeland Security & Emergency Preparedness (GOHSEP) , Louisiana Department of Environmental Quality (LDEQ) Headquarters (LDEQ HQ), Waterford 3 Emergency Operations Facility (EOF), Joint Information Center (JIC), St. Charles Parish EOC, St John the Baptist Parish EOC
- Extent of Play
  - LDEQ players will be pre-staged on the 10th floor, Room 1051, at LDEQ Headquarters at 6:50 am and will begin the aspects of mobilization with a contingency cue card starting at an ALERT.
- Level 2 Findings – None
- Core Capabilities: Operational Coordination; Planning

1.2. Direction and Control

- Capability Targets: Individuals in leadership roles provide direction and control to the portion of the overall response effort for which they are responsible. (NUREG-0654/FEMA-REP-1, Rev. 2: A.1, A.1.a, A.1.b, A.1.c, A.2, A.3, A.5, C.2, C.2.a, C.2.b, C.3, D.4, E.1, H.6, O.1)
- Locations: LDEQ HQ, Louisiana State EOC/GOHSEP, Waterford 3 EOF, St. Charles Parish EOC, St. John the Baptist Parish EOC
- Extent of Play:
- Level 2 Findings: – None
- Core Capabilities: Critical Transportation; Environmental Response/Health and Safety; Mass Care Services; Operational Coordination; Planning; Public Health, Healthcare, and Emergency Medical Services; Public Information and Warning; Situational Assessment

1.3. Protective Action Recommendations

- Capability Targets: Appropriate PARs are selected based on available information and other factors. (NUREG-0654/FEMA-REP-1, Rev. 2: D.4, J.7, J.8, J.8.b, J.9, O.1)
- Location: Louisiana State EOC/GOHSEP, Waterford 3 EOF
- Extent of Play:
  - The LDEQ EOF controller may inject simulated field monitoring data to the Dose Assessment Coordinator for the purpose of dose projection validation and verification through back calculations.
  - If the scenario does not warrant a discussion on protective actions for the protection of persons with disabilities and access/functional needs, then the criteria shall be accomplished through an interview with the evaluator.
    - In accordance with the State of Louisiana's policy, KI is not considered for the general public.
- Level 2 Findings: – None
- Core Capabilities: Environmental Response/Health and Safety; Operational Coordination; Planning; Situational Assessment

1.4. Protective Action Decisions for the Plume Phase

- Capability Targets: Appropriate PADs are based on available information for the plume phase. (NUREG-0654/FEMA-REP-1, Rev. 2: D.1.b, D.4, J.6, J.7, J.8, J.8.b, J.10, J.10.a, J.10.b, J.11.c-g, O.1)
- Locations: Louisiana SEOC/GOHSEP, St. Charles Parish EOC, St. John the Baptist Parish EOC
- Extent of Play:
  - According to the State of Louisiana's policy, KI is not considered for the general public
- Level 2 Findings: – None
- Core Capabilities: Critical Transportation; Environmental Response/Health and Safety; Operational Coordination; Planning; Situational Assessment

1.5. Protective Action Decision Implementation for the Plume Phase

- Capability Targets: Implement decisions for those populations and areas subject to plume phase protective actions. (NUREG-0654/FEMA-REP-1, Rev. 2: A.4, C.2.a, G.1, J.11, J.11.a, J.11.b, J.11.c, J.11.e, J.11.g, O.1)
- Locations: St. Charles Parish EOC, St. John the Baptist Parish EOC, Louisiana SEOC/GOHSEP
- Extent of Play:
  - If the scenario does not warrant a discussion on protective action decisions for the protection of persons with disabilities and access/functional needs, then the criteria shall be accomplished through an interview with the evaluator.

- If the scenario does not warrant a discussion on KI decisions, then the criteria will be accomplished through an interview with the evaluator.
  - In accordance with the State of Louisiana's policy, KI is not considered for the general public.
  - Louisiana SEOC will determine initial KI recommendations and dissemination.
- ***Correction-on-the-spot*** will be considered at these locations at the discretion of and concurrence between the evaluator and the controller. Caution should be exercised to ensure that exercise play is not interrupted. Correction-on-the-spot at the Parish EOCs is limited to areas outside the operations area (emergency worker briefings and issue and use of dosimetry in other rooms).

❖ Level 2 Findings: – None

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

2. EXPOSURE CONTROL

2.1. Emergency Worker Exposure Control Decision-Making Process

❖ Capability Targets: A decision-making process involving consideration of appropriate factors and necessary coordination is used to ensure that an exposure control system is in place for emergency workers, and includes the use of radioprotective drugs and procedures to authorize emergency exposures in excess of the PAGs. (NUREG-0654/FEMA-REP-1, Rev. 2: C.2.c, H.11, K.2, K.2.b, K.3, K.3.a, M.1.b, M.8, O.1)

❖ Locations: Louisiana SEOC/GOHSEP, Waterford 3 EOF, St. Charles Parish EOC, St. John the Baptist Parish EOC

❖ Extent of Play:

- If the scenario does not warrant a discussion on the authorization to administer KI, then the criteria shall be accomplished through an interview with the evaluator.
- If the scenario does not warrant a discussion on emergency worker (EW) exposure exceeding administrative limits, then the criteria shall be accomplished through an interview with the evaluator.

  Note: Parish decision-makers receive recommendations for KI and EW exposure from the Louisiana SEOC.

❖ Level 2 Findings: – None

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

2.2. Emergency Worker Exposure Control Management

- Capability Targets: Emergency workers manage radiological exposure and dose in accordance with the plans/procedures. (NUREG-0654/FEMA-REP-1, Rev. 2: C.2.c, H.11, H.11.b, K.2.b, K.3, K.3.a, M.1.b, O.1)
- Locations:

  Waterford 3 EOF, LDEQ FMT 1, LDEQ FMT 2, St. Charles Parish EOC, St. John the Baptist Parish EOC, MYU Heliport in Luling, La.

- Extent of Play:
  - Area dosimetry will be used in both Parish EOCs.
  - TLD/OSLs will be available for all emergency workers. Simulated TLDs will be used in place of spare OSL or TLD badges when applicable.
  - St. John the Baptist Parish and St. Charles Parish Traffic and Access Control Points personnel will be located at the parish EOCs, where they will demonstrate the criteria via interview. No travel to Traffic and Access Control Points will be performed.
  - If the scenario does not warrant a discussion on either the authorization to administer KI or emergency worker (EW) exposure exceeding administrative limits, then the criteria shall be accomplished through an interview with the evaluator.
  - Dosimetry will be issued to participating helicopter pilot and crew by St. Charles Radiological Officer.
  - ***Correction-on-the-spot*** will be considered at these locations at the discretion of and concurrence between the evaluator and the controller. Caution should be exercised to ensure that exercise play is not interrupted. Correction-on-the-spot at the Parish EOCs is limited to areas outside the operations area (emergency worker briefings and issue and use of dosimetry in other rooms).
- Level 2 Findings: – None
- Core Capabilities: Environmental Response/Health and Safety; Operational Coordination; Planning

3. ALERT AND NOTIFICATION

3.1. Communications

- Capability Targets: Communication processes, systems, and equipment are sufficient to support emergency operations. (NUREG-0654/FEMA-REP-1, Rev. 2: E.1.a, E.3, F.1, F.1.a, F.1.b, F.1.c, F.3, O.1)

- Locations:
  Louisiana SEOC/GOHSEP, LDEQ HQ, Waterford 3 EOF, LDEQ Field Monitoring Team (FMT) 1, LDEQ FMT 2, Joint Information Center (JIC), St. Charles Parish EOC, St. John the Baptist Parish EOC
- ex:
  - The LDEQ Contract Radiation Laboratory will not be evaluated in this exercise, and any communication with it will be simulated.
  - Communications to the Southern Mutual Radiation Assistance Plan (SMRAP) states will be simulated.
- Level 2 Findings: – None
- Core Capabilities: Operational Communications; Operational Coordination; Planning; Situational Assessment

3.2. Alert and Notification of the Public

- Capability Targets: Alert and notification of the public is completed in a timely manner. (NUREG-0654/FEMA-REP-1, Rev. 2: E.2, E.4, E.5, F.3, O.1)
  - Locations: St. Charles Parish EOC, St. John the Baptist Parish EOC, MYU Heliport in Luling, LA, EAS/WWL Radio, 400 Poydras Street, Suite 800, New Orleans, LA 70130
- Extent of Play:
  - Following the decision to activate the alert and notification system, the activation procedures will be demonstrated up to the point of activation. The Siren activation will be simulated.
  - Simulation of the siren activation will be in real time sequence with the transmission of the Emergency Alert Systems EAS message.
  - Upon receipt of the messages, the WWL radio station official will demonstrate the procedure to broadcast the message. The message will be read to the evaluator but will not be broadcasted.
  - St. Charles Parish exception area {Quadrant D} will be demonstrated out-of-sequence on June 22, 2023. The alerting along this route will be simulated. Announcement will be a testing phrase and not an actual alert message. The flight pattern will be demonstrated.
  - St. Charles Parish and St. John the Baptist Parish will demonstrate back up alert routing out-of-sequence on June 21, 2023, after the termination of the Exercise. Each parish will select one route to be demonstrated. The alert and notification will be read but not broadcasted.
- Level 2 Findings: – None
- Core Capabilities: Planning; Public Information and Warning

3.3 Emergency Information and Instructions for the Public and News Media

- Capability Targets: Accurate emergency information and instructions are provided to the public and the news media in a timely manner. (NUREG-0654/FEMA-REP-1, Rev. 2: E.2, E.4, E.5, G.1, G.2, G.3, G.3.a, G.4, G.5, O.1)
- Locations: JIC, St. Charles Parish EOC, St. John the Baptist Parish EOC
- Extent of Play:
  - Utility, State, and Parish representatives will demonstrate the ability to provide emergency information and instructions to the public consistent with the scenario.
  - News media will not be present. Selected personnel will simulate the role of reporters asking questions during briefings.
  - Controllers will inject public phone team messages, media phone team messages and news briefing messages.
  - Rumor control will be demonstrated at the JIC.
  - The Louisiana State EOC does not disseminate subsequent messages to the public. All messages should come through the JIC.
- Level 2 Findings: – None
- Core Capabilities: Planning; Public Information and Warning

4. DETECT, MEASURE, SAMPLE, ANALYZE, AND ASSESS

4.1. Field Monitoring Teams Management

- Capability Targets: FMTs are managed to obtain information to help characterize the release, locate and track the airborne radiological plume, and control contamination. (NUREG-0654/FEMA-REP-1, Rev. 2: H.11, H.13, I.5, I.6, I.9, I.10, M.7, M.8, O.1)

Locations: Waterford 3 EOF

- Extent of Play:
  - LDEQ FMT Coordinator, Dose Assessors, and other LDEQ EOF personnel may be presented with controller injects as needed for them to characterize the release.

If data is not provided by a LDEQ Field Team member, the LDEQ EOF controller will inject simulated field monitoring data to the Dose Assessment Coordinator for the

  - purpose of dose projection validation and verification through back calculations before the termination of the Exercise.

- ***Correction-on-the-spot*** will be considered at these locations at the discretion of and concurrence between the evaluator and the controller. Caution should be exercised to ensure that exercise play is not interrupted.

- Level 2 Findings: – None
- Core Capabilities: Environmental Response/Health and Safety; Operational Coordination; Planning

4.2. Plume Phase Measurements and Sampling

- Capability Targets: FMTs make, record, and report measurements of ambient radiation to appropriate authorities; radioiodine and particulate samples are collected. (NUREG-0654/FEMA-REP-1, Rev. 2: H.9, H.11, H.11.a, H.11.b, H.12, H.13, I.2, I.5, I.6, I.7, I.8, I.9, I.10, O.1)
- Locations: LDEQ FMT 1, LDEQ FMT 2
- Extent of Play:
  - LDEQ FMTs will not don anti-contamination suits during the exercise. Anti-contamination suits are available in field team kits. Proper donning and doffing techniques will be demonstrated by one member, either prior to deployment or following termination of the exercise. FMTs will don gloves and booties during the exercise. Charcoal cartridges instead of silver zeolite will be used for air sampling. Silver Zeolite are included in FMT kits and will be available for inspection by evaluators.
  - ***Correction-on-the-spot*** will be considered at these locations at the discretion of and concurrence between the evaluator and the controller. Caution should be exercised to ensure that exercise play is not interrupted.
- Level 2 Findings: – None
- Core Capabilities: Environmental Response/Health and Safety; Planning

4.5. Plume Phase Analysis and Dose Assessment

- Capability Targets: Dose assessment considers all available information including plant conditions, environmental conditions, field monitoring data, sample analysis results, and dose projection calculations. (NUREG-0654/FEMA-REP-1, Rev. 2: A.3, H.13, I.6, I.8, I.10, K.3, O.1)
- Locations: LDEQ Emergency Operations Facility (EOF)
- Extent of Play:
  - The LDEQ EOF controller will inject simulated field monitoring data to the Dose Assessment Coordinator, as required for the purpose of dose projection

validation and verification through back calculations before the termination of the Exercise.

- ***Correction-on-the-spot*** will be considered at these locations at the discretion of and concurrence between the evaluator and the controller. Caution should be exercised to ensure that exercise play is not interrupted.

- Level 2 Findings: – None
- Core Capabilities: Environmental Response/Health and Safety; Planning

5. OPERATE

5.4 Traffic and Access Control

- Capability Targets: Appropriate traffic and access control is established. Accurate instructions are provided to traffic and access control personnel. (NUREG-0654/FEMA-REP-1, Rev. 2: H.12, J.8, J.8.b, J.10, J.10.a, J.11.c, J.11.e, J.11.f, J.14.d, J.14.e, M.1.b, O.1)
- Locations: St. Charles Parish EOC, St. John the Baptist Parish EOC, Louisiana SEOC, JIC
- Extent of Play:
  - This may be demonstrated out-of-sequence. Traffic and access control staff will demonstrate knowledge of their roles and responsibility by discussion with the evaluator. The discussion will be at the EOC. Travel to the traffic and access control point will not be demonstrated.
  - If the scenario does not warrant this discussion at a location, the controller will inject data to initiate a discussion.
  - ***Correction-on-the-spot*** will be considered at these locations at the discretion of and concurrence between the evaluator and the controller. Caution should be exercised to ensure that exercise play is not interrupted. Correction-on-the-spot at the Parish EOCs is limited to areas outside the operations area (emergency worker briefings and issue and use of dosimetry in other rooms).
- Level 2 Findings: – None
- Core Capabilities: Operational Coordination; On-Scene Security, Protection, and Law Enforcement

GENERAL EXTENT-OF-PLAY (EOP):

A. With regard to last minute additions or changes to any previously approved Extent-of-Play, all suggested changes must be forwarded to the RAC Chair for approval.

B. The goal of all offsite response organizations (ORO) is to protect the health and safety of the public. This goal is achieved through the execution of appropriate plans and procedures. It is recognized that situations may arise that could limit the organizations in the exact execution of these plans and procedures.

C. In the event of an unanticipated situation, OROs are permitted to exercise flexibility in the implementation of their plans and procedures in order to successfully achieve the objective of protection of public health and safety and protection of the environment.

D. As a statement of fact, no ORO will deliberately deviate from its plans and procedures with the intent of avoiding responsibility.

REFERENCES:

Radiological Emergency Preparedness Program Manual - FEMA P-1028 / December 2019

SCENARIO NARRATIVE

Initial Conditions

The scenario begins with 100% Reactor Power at the beginning of core life. Plant Safety Index is 10.0 Green. The sky is sunny with 10% chance of rain.

Protected Train is A. The AB bus is aligned to the A side.

Containment Spray (CS) Pump B is out of service for preventative maintenance (oil change). The pump was tagged out at 0400 on June 21, 2023. The oil has been drained from the pump and the motor. The coupling has been disassembled, the grease has been removed and the coupling has been cleaned. Mechanical Maintenance personnel are expected to complete the PM by approximately 1700, June 21, 2023.

Summary of Events

At 0805, RCP1A lower seal failure occurs. The control room receives computer point alarms A13101, RCP 1A middle SL Wtr press, Hi-Hi alarm on the PMC alarm screen.

*At 0806, a large break Loss of Coolant Accident (LOCA) of 400 gpm is initiated releasing radioactive primary coolant into Containment. The Containment High Range monitors start to ramp. The Control Room staff trips the Reactor and manually initiates SIAS and CIAS. The threshold for Alert, EAL RCB1 (An automatic or manual ECCS (SIAS) actuation required by unisolable RCS leakage) is reached. The ED declares an Alert based on Emergency Plan Implementing Procedure EP-001-001, Recognition and Classification of Emergency Conditions, Initiating Condition FA1.1, “Loss or Potential Loss of Fuel Clad or RCS barrier," EAL RCB1. There are no Protective Action

Recommendations (PARs) required at this time. There is no offsite radiological release at this time.

At 0806, HPSI Pump B does not start on SIAS caused by the LOCA. The control room verifies HPSI Pump A is operating properly and dispatches an NAO to investigate HPSI Pump B locally and HPSI Pump B breaker. The NAO discovers the breaker in the open position with normal indications. Electrical repair team should be requested to inspect the breaker (failed aux switch terminal connection broken).

At 0806, the Containment High Range ARM-IRE-5400A and 5400B radiation monitors will start a ramp to read >1000 R/hr over a two-hour ramp.

At 0901, Component Cooling Water Pump B trips. CCW Pump AB should be aligned to replace CCW Pump B. The control room dispatches an operator to investigate CCW Pump B breaker and locally investigate the pump. The operator finds the breaker tripped on overcurrent and the pump bearing casing is hot to the touch and heavily discolored. This malfunction will not be returned to service prior to the end of the exercise.

At 0922, EDG B trips due to overspeed linkage breaking. The control room dispatches an operator to investigate locally. The operator will find the lever attached to linkage indicating the butterfly OSBV has closed. Linkage holding valve open found detached from its mounting bracket due to a sheared bolt. Both bolt and nut are visible after investigation.

At 0934, Control Room normal AHU B (AH-12B) trips. The control room receives annunciator, Control Room AH-12B Power Lost. AH-12 B control switch indication is lost. The control room dispatches an operator to investigate CR normal AHU B (AH-12B) locally. The operator finds the breaker tripped for Control Room normal AHU B and requests PME to investigate. PME finds the control power transformer faulty. The AHU B will not be returned to service prior to the end of the exercise.

*At 0954, the threshold for Site Area Emergency, EAL FCB5 (>900 R/hr) and RCB1 (unisolable RCS leakage requiring ECCS actuation) will be reached (RCB5 (>60 R/hr is also applicable). The Containment High Range Monitors will continue to gradually increase for the duration of the drill but will not exceed 2000 R/hr.

The (SM)/ (ED) declares a Site Area Emergency based on Emergency Plan Implementing Procedure EP-001-001, Recognition and Classification of Emergency Conditions, Initiating Condition FS1.1, “Loss or Potential Loss of ANY two Barriers," EALs FCB5 and RCB1/RCB5. There are no Protective Action Recommendations (PARs) required at this time. There is no offsite radiological release at this time.

The Emergency Director selects an offsite assembly area and announces a site evacuation. Based on the wind direction, the ED should select Monsanto Park for the assembly area. The Assembly Area Supervisor is dispatched and Security performs accountability in accordance with EP-002-190, Personnel Accountability. For the purposes of this drill a small number of pre-designated personnel will evacuate to the

selected offsite assembly area. The evacuation of the Protected Area will be simulated.

At 1022, the control room receives annunciator, HPSI Pump A BRNG Water Flow LO panel M (C-3) alarm. The control room dispatches an operator to investigate locally and the operator observes the CCW flow to HPSI Pump A fluctuating from 8 to 11 gpm. CCW Outlet and Inlet Isolation (CC-934A, CC-942A) valves are verified open. An OSC repair team is requested to investigate the problem with the bearing water flow. An Engineering evaluation may be performed to verify that the pump can be run under current conditions.

*At 1050, Containment Spray Pump A fails as Containment Spray flow deteriorates to 1200 gpm. The control room receives annunciator, Cntmt Spray HDR A Flow Lo alarm on panel M (F-4). The crew recognizes the reduced flow rate and reports the Containment Temperature and Pressure Control Safety Function is no longer met. The control room dispatches an operator to investigate locally. The operator finds the pump making a loud banging noise and vibrating wildly. The operator recommends the control room secure CS Pump A. CSP A will not be returned to service prior to the end of the drill.

The SM/ED recognizes the conditions for a General Emergency declaration exists based on Emergency Plan Implementing Procedure EP-001-001, Recognition and Classification of Emergency Conditions, Initiating Condition FG1.1, "Loss of any two barriers and loss or potential loss of the third barrier" EAL FCB5, RCB1 and CNB8.

Initial Protective Action Recommendations (PARs) of evacuation of Protective Response Areas will be PAR Scenario 5 which includes A1, B1, C1, D1 (2-mile radius), C2 (5 miles downwind) and Monitor and Prepare for the remainder of the Protective Response Areas in the 10-mile EPZ are made. There is no offsite radiological release at this time above federal limits.

At 1133, a failure of Penetration into the annulus will start the radiological release. The release will be recognizable via the Plant Stack WRGM and will gradually increase over a 23 minute period and will stabilize for the duration of the drill. The radiological release will not change the current PARs declared. The drill will be terminated with a release in progress.

~At 1230 (END DRILL), in the opinion of the Lead Controller, the drill objectives have been sufficiently demonstrated and continuing the drill will provide no additional benefit, the drill will be terminated. This decision will be coordinated with LDEQ. When the drill is terminated, area critiques will be conducted.

TIMELINE

#	Time	Actual Time	Event Description	Expected Actions/Objectives	Msg #	Comments
1	0700		Drill Controllers brief the Operations shift personnel in the Simulator. Drill guidelines and initial conditions are discussed with the participants.		1.1	
2	0755		The Control Room participants are instructed to start the Drill.		2.1	
3	0800		Drill continuation announcement.		3.1	
4	0805		RCP1A lower seal failure occurs	The crew should enter off-normal procedure OP-901-130, Reactor Coolant Pump Malfunction. The procedure would direct the crew to monitor for additional failed seals and lower Component Cooling Water temperature if RCP Controlled Bleedoff temperature is rising.	4.1	
5	0806		**Emergency Classification: Alert**	The Control Room staff enters OP-902-000, Standard Post Trip Actions	5.1 5.2	

			Loss of Coolant Accident (LOCA) occurs	Procedure and subsequently enters EOP OP-902-002, Loss of Coolant Accident Recovery Procedure.	5.3 5.4	
6	0806		Rise in Containment High Range Radiation Monitor			
7	0806		HPSI Pump B does not start on SIAS.	Dispatch NAO to investigate HPSI Pump B breaker and locally investigate the HPSI Pump B.	7.1	
8	0901		Component Cooling Water (CCW) Pump B trips	Send NAO to Component Cooling pump room B to perform visual inspection of pump. CCW Pump AB should be aligned to replace CCW Pump B.	8.1 8.2	
9	0910		Upon facility habitability survey.		9.1	
10	0922		Emergency Diesel Generator (EDG) B trips	Control Room should dispatch a NAO to investigate EDG B.	10.1	
11	0934		Control Room Air Handling Unit trips, AH – 12 B	The Shift Manager may request a repair team to investigate.	11.1	
12	0954		**Emergency Classification: Site Area Emergency** *Site Area Emergency condition met		12.1 12.2 12.3 12.4 12.5	
13	1022		HPSI Pump A BRNG Water Flow low	Dispatches an NAO to investigate the problem with HPSI Pump "A".	13.1	
14	1050		**Emergency Classification: General Emergency** CS Pump A fails *General Emergency conditions met	Send NAO to Containment Spray Pump A to perform visual inspection of pump.	14.1 14.2 14.3 14.4	
15	1133		Penetration failure – start of radiological release		15.1	
16	1230		Termination of drill		16.1 16.2	

Appendix E: Improvement Plan

This Improvement Plan has been developed as a result of the Waterford 3 Steam Electric Station Plume Exposure Pathway Exercise conducted on June 21, 2023.

Capability Target	Core Capabilities	Issue Number/Summary	Corrective Action	Primary Responsible Organization	Organization POC	Start Date	Completion Date
2.2	Operational Coordination; Environmental Response/Health and Safety	70-23-2.2-P-01 The dose reporting cards in each dosimetry kit, contained reference to an older type of dosimetry used and does not accurately reflect how to read the dosimeter. Dose card information in the procedure does not, reflect the dose reporting cards in the dosimetry kits	Update dose record cards to reflect dosimetry currently used, as described in the St. John the Baptist Parish Emergency Operations Procedure.	St. John the Baptist	LDEQ	07/21/2023	08/24/2023 FEMA received updated dose cards and plans from LDEQ on 07/13/2023; Approved on 08/24/2023 by RAC Chair
3.2	Public Information and Warning	70-23-3.2-P-02 Procedures/Pre-scripted EAS messages for St. John the Baptist Parish and St. Charles Parish have not been updated to reflect the current designated Reception Centers.	Update pre-scripted EAS messages and any plan procedures to reflect the current reception centers.	St. John the Baptist Parish	LDEQ	7/21/2023	08/24/2023 FEMA received final updated EAS message from LDEQ on 8/2/2023; Approved by RAC Chair on 8/24/2023

Capability Target	Core Capabilities	Issue Number/Summary	Corrective Action	Primary Responsible Organization	Organization POC	Start Date	Completion Date
4.1	Environmental Response/Health and Safety; Operational Coordination; Planning	70-23-4.1-P-03 The Field Team Coordinator (FTC) did not promptly relay that a radiological release had begun to the LDEQ Field Monitoring Teams.	Consider revising the procedure (OP-7) to emphasize the importance of the continual action steps and possibly duplicating the steps in later sections more frequently referenced when the FTC is deployed to the EOF.	Waterford 3 EOF	LDEQ	7/21/2023	08/24/2023 FEMA received updated plans from LDEQ on 07/13/2023; Approved on 08/24/2023 by RAC Chair
3.2	Public Information and Warning	70-23-3.2-P-04 Procedures/Pre-scripted EAS messages for St. John the Baptist Parish and St. Charles Parish have not been updated to reflect the current designated Reception Centers.	Update pre-scripted EAS messages and any plan procedures to reflect the current reception centers.	St. Charles Parish	LDEQ	7/21/2023	08/24/2023 FEMA received final updated EAS message from LDEQ on 8/2/2023; Approved by RAC Chair on 8/24/2023

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