U.S. Department of Homeland Security
FEMA Region I
99 High St., 5th Floor
Boston, MA 02110-2320

FEMA

February 13, 2017

U.S. Nuclear Regulatory Commission
Document Control Desk
One White Flint North
11555 Rockville Pike,
Rockville, MD 20852

Dear Sir/Madam:

Enclosed is the final After Action Report from the November 16, 2016 Pilgrim Nuclear Power Station evaluated exercise. The Commonwealth of Massachusetts and local emergency response organizations successfully demonstrated their capabilities to implement off-site radiological emergency response plans based on a federal team's evaluation of the exercise.

There were no Level 1 or Level 2 Findings as a result of the November 16, 2016 evaluated exercise.

State and local preparedness remains adequate to protect the health and safety of the public living in the vicinity of the Pilgrim Nuclear Power Station and provides reasonable assurance that appropriate measures can be taken off-site in the event of a radiological emergency.

If you have any questions regarding this matter, please feel free to contact me at (617) 832-4731 or Taneeka Hollins of my staff, at (617) 956-7523.

Sincerely,

Steve Colman
RAC Chair, Region I

Enclosure

E-copy: NRC Region I
Doug Tift, Regional Liaison, NRC Region I

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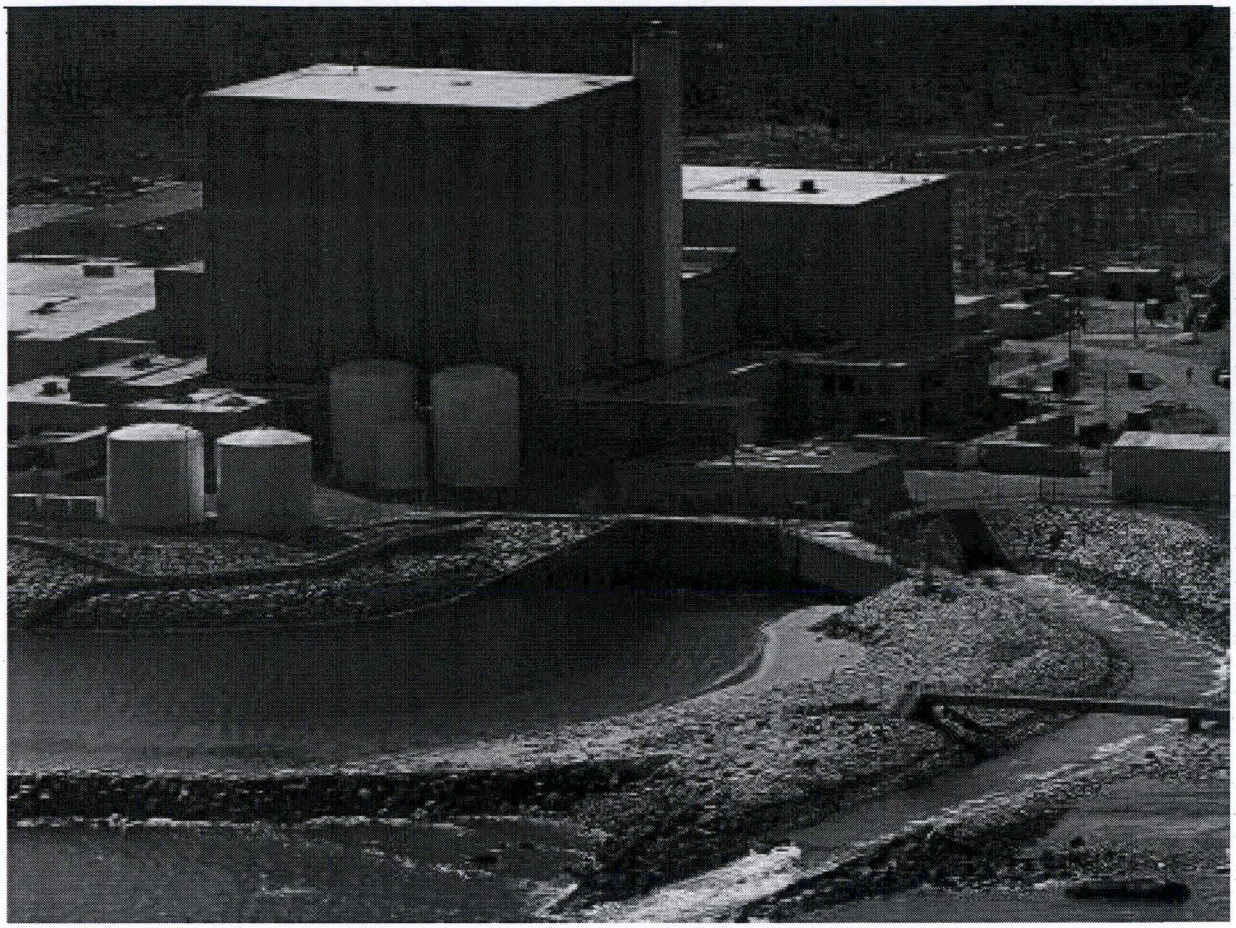

Pilgrim Nuclear Power Station

Final After Action Report

Exercise Date: November 16, 2016

Radiological Emergency Preparedness Program

FEMA

Published February 13, 2017

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Executive Summary

On November 16, 2016, a Plume Exercise was conducted in the 10-mile plume emergency planning zone (EPZ) around the Pilgrim Nuclear Power Station (PNPS) by the Federal Emergency Management Agency (FEMA), Region I personnel. Out-of-sequence demonstrations of schools and special facilities were also conducted per the new 8-year exercise cycle. The purpose of the exercise and the out-of-sequence demonstrations was to assess the level of State and local preparedness in responding to a radiological emergency. The exercise and out-of-sequence demonstrations were held in accordance with FEMA's policies and guidance concerning the exercise of State and local radiological emergency response plans (RERP) and procedures. The most recent prior full-scale exercise at this site was conducted on April 30, 2014. The qualifying emergency preparedness exercise was conducted on March 3, 1982.

FEMA wishes to acknowledge the efforts of the many individuals in the Commonwealth of Massachusetts; the Massachusetts risk jurisdictions of Carver, Duxbury, Kingston, Marshfield, and Plymouth; the host jurisdictions of Taunton, Bridgewater and Braintree. The various agencies, organizations, and units of government from these State and local jurisdictions who participated in this exercise are listed in Section III of this report.

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 this exercise.

This report contains the final evaluation of the biennial exercise and the evaluation of the following out-of-sequence activities:

Schools and Daycares

Duxbury
Duxbury High School
Duxbury Middle School
Chandler Elementary School
Alden Elementary School

Kingston
Sacred Heart Early Childhood Center
Sacred Heart Elementary School
Sacred Heart High School

Plymouth
West Elementary School
Plymouth Community Intermediate School
Plymouth South Middle School
Plymouth North High School
Plymouth South High School

Special Facilities

Duxbury
Group Facility and North Hill
Group Facility and Cordwood

Plymouth
Chilton House Rest Home

Host Schools
Braintree High School

Section 1: Exercise Overview

1.1 Exercise Details

Exercise Name
2016 Pilgrim Nuclear Power Station Radiological Emergency Preparedness (REP) Program Evaluated Exercise

Type of Exercise Plume Full-Scale Functional Exercise

Exercise Date(s)
November 16, 2016

Locations
See the Extent of Play Agreement in Appendix C for a complete listing of locations.

Sponsors

Program
Department of Homeland Security (DHS)/Federal Emergency Management Agency (FEMA) REP Program

Mission
Response

Scenario Type
Plume Phase Full Participation REP Exercise

1.2 FEMA Exercise Planning Team Leadership

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1.3 Participating Organizations

Agencies and organizations of the following jurisdictions participated in the 2016 Pilgrim Nuclear Power Station exercise.

State Jurisdictions:

Commonwealth of Massachusetts
Massachusetts Department of Mental Health
Massachusetts Air National Guard
Massachusetts Department Public Health
Massachusetts Department of Corrections
Massachusetts Department of Transportation
Massachusetts Emergency Management Agency
MEMA Region II
Massachusetts State Police
Massachusetts United Way- 211 Call Center

Risk Jurisdictions:

Town of Braintree Emergency Management Agency
Town of Braintree Office of the Mayor
Town of Braintree Police Department
Town of Braintree School Department
Town of Braintree Board of Health
Town of Bridgewater School Department
Town of Bridgewater Police Department
Town of Bridgewater Highway Department
Town of Bridgewater Fire Department
Town of Bridgewater Emergency Management Agency
Town of Bridgewater Building Department
Town of Bridgewater Board of Health
Town of Carver Transportation Coordinator
Town of Carver Special Needs Coordinator
Town of Carver Shelter Officer
Town of Carver School Liaison
Town of Carver Police Department
Town of Carver Fire Department
Town of Carver EOC Staff
Town of Carver Emergency Medical Services
Town of Carver Emergency Management Agency
Town of Carver Council on Aging
Town of Carver Board of Selectmen
Town of Duxbury Department of Public Works
Town of Duxbury Emergency Management Agency
Town of Duxbury Fire Department
Town of Duxbury Police Department
Town of Duxbury Regional Communications Center
Town of Duxbury School Department
Town of Kingston Emergency Management Agency
Town of Kingston Fire Department

Town of Kingston Police Department
Town of Kingston Streets, Trees, and Parks Department
Town of Kingston Superintendent of Schools Office
Town of Marshfield Board of Selectmen
Town of Marshfield Dept. of Public Works
Town of Marshfield Emergency Management Agency
Town of Marshfield Fire Department
Town of Marshfield Harbormaster
Town of Marshfield Police Department
Town of Marshfield School Dept.
Town of Plymouth Community Services
Town of Plymouth Council on Aging
Plymouth County Sheriff's Dept.
Town of Plymouth Department of Public Work
Town of Plymouth Emergency Medical Service
Town of Plymouth Finance
Town of Plymouth Fire Department
Town of Plymouth Human Resources
Town of Plymouth Information Technology
Town of Plymouth Inspectional Services
Town of Plymouth Marine and Environmental
Town of Plymouth OEM-CERT
Town of Plymouth Office of Emergency Management
Town of Plymouth Planning and Development
Town of Plymouth Police
Town of Plymouth Public Health
Town of Plymouth Schools
Town of Plymouth Town Management

Support Jurisdictions:

Town of Braintree Emergency Management Agency
Town of Braintree Office of the Mayor
Town of Braintree Police Department
Town of Braintree School Department
Town of Braintree Board of Health
Town of Bridgewater School Dept.
Town of Bridgewater Police Dept.
Town of Bridgewater Highway Dept.
Town of Bridgewater Fire Department
Town of Bridgewater Emergency Management Agency
Town of Bridgewater Building Department
Town of Bridgewater Board of Health
City of Taunton Community Volunteers
City of Taunton Emergency Management Agency
City of Taunton Engineer Department
City of Taunton Mayor's Office
City of Taunton Police Department
City of Taunton Public Works Department
City of Taunton School Department
City of Taunton Veterans Department
City of Taunton Water Department

Private Organizations:

Entergy Nuclear
American Red Cross

Federal Agencies:

Federal Emergency Management Agency
Nuclear Regulatory Commission
United States Coast Guard

Section 2: Exercise Design Summary

2.1 Exercise Purpose and Design

The purpose of this report is to present the results and findings on the performance of the offsite response organizations (OROs) during a simulated radiological emergency.

FEMA Region I evaluated a biennial exercise (Plume Phase) for Pilgrim Nuclear Power Station on November 16, 2016. The exercise was designed to assess the capabilities of state and local emergency preparedness organizations in implementing their Radiological Emergency Response Plans (RERPs) and procedures to protect the public health and safety during a radiological emergency involving Pilgrim Nuclear Power Station.

2.2 FEMA Exercise Objectives and Core Capabilities

The exercise objectives, capabilities, and activities are noted in the extent of play agreement, included in Appendix C, Exercise Plan.

2.3 Scenario Summary

The exercise scenario was developed to evaluate the exercise participants' response to a radiological emergency.

Section 3: Analysis of Capabilities

3.1 Exercise Evaluation and Results

This section contains the results and findings of the evaluation of all jurisdictions and functional entities that participated in the November 16, 2016 plume exercise and out-of-sequence (OOS) interviews and demonstrations during the 2016 exercise cycle.

Each jurisdiction and functional entity was evaluated based on their demonstration of Capabilities and their equivalent REP criteria as delineated in the FEMA REP Program Manual dated January 2016. Detailed information on the evaluation criteria and the extent of play agreement for this exercise are included as appendices in this report.

3.2 Summary Results of Exercise Evaluation

The matrix presented in the table on the following pages presents the status of all exercise evaluation area criteria that were scheduled for demonstration during the exercise.

Exercise criteria are listed by number, and the demonstration status of those criteria are indicated by the use of the following letters:

- M: Met (no level 1 or level 2 findings assessed and no unresolved findings from prior exercises)
- F1: Level 1 finding (formerly LEVEL 2 FINDINGS) assessed
- F2: Level 2 finding (formerly area requiring corrective action) assessed or unresolved from a prior exercise
- P: Plan issue
- N: Not demonstrated

Note: Blank fields indicate criterion was not evaluated at that location.

Table 3.2 - Summary of Exercise Evaluation

DATE: 2016-11-16 SITE: Pilgrim Nuclear Power Station, MA M: Met, 1: Level 1 Finding, 2: Level 2 Finding, P: Plan Issue N: Not Demonstrated		MA SEOC	MA 211	MA RII EOC	MA PNPS EOF	MA PNPS FMT-1	MA PNPS FMT-2	MA PNPS JIC	Carver EOC	Duxbury EOC	Kingston MA EOC	Marshfield EOC
Emergency Operations Management												
Mobilization	1a1	M		M	M	N	N	M	M	M	M	M
Facilities												
Direction and Control	1c1	M		M	M			M	M	M	M	M
Communications Equipment	1d1	M	M	M	M	N	N	M	M	M	M	M
Equipment and Supplies to Support Operations	1e1	M	M	M	M	N	N	M	M	M	M	M
Protective Action Decision Making												
Emergency Worker Exposure Control	2a1	M			M							
Dose Assessment & PARs & PADs for the Emergency Event	2b1	M			M							
Dose Assessment & PARs & PADs for the Emergency Event	2b2	M			M							
PADs for the Protection of persons with disabilities and access/functional needs	2c1	M		M	M							
Radiological Assessment and Decision-making for the Ingestion Exposure Pathway	2d1											
Radiological Assessment & Decision-making Concerning Post-Plume Phase Relocation, Reentry, and Return	2e1											
Protective Action Implementation												
Implementation of Emergency Worker Exposure Control	3a1			M	M	N	N	M	M	M	M	M
Implementation of KI Decision for Institutionalized Individuals and the Public	3b1	M		M	M			M				
Implementation of Protective Actions for persons with disabilities and access/functional needs	3c1	M		M					M	M	M	M
Implementation of Protective Actions for persons with disabilities and access/functional needs	3c2		M	M					M	M	M	M
Implementation of Traffic and Access Control	3d1	M		M					M	M	M	M
Implementation of Traffic and Access Control	3d2	M		M					M	M	M	M
Implementation of Ingestion Pathway Decisions	3e1											
Implementation of Ingestion Pathway Decisions	3e2											
Implementation of Post-Plume Phase Relocation, Reentry, and Return Decisions	3f1											
Field Measurement and Analysis												
RESERVED	4a1											
Plume Phase Field Measurement and Analyses	4a2				M							
Plume Phase Field Measurement and Analyses	4a3					N	N					
Post Plume Phase Field Measurements and Sampling	4b1											
Laboratory Operations	4c1											
Emergency Notification and Public Info												
Activation of the Prompt Alert and Notification System	5a1	M										
RESERVED	5a2											
Activation of the Prompt Alert and Notification System	5a3											
Activation of the Prompt Alert and Notification System	5a4											
Emergency Information and Instructions for the Public and the Media	5b1	M	M	M				M	M	M	M	M

Support Operations/Facilities												
Monitoring, Decontamination, and Registration of Evacuees	6a1											
Monitoring and Decontamination of Emergency Workers and their Equipment and Vehicles	6b1											

Table 3.1 - Summary of Exercise Evaluation (Continued. page 2/3)

DATE: 2016-11-16 SITE: Pilgrim Nuclear Power Station M: Met, 1: Level 1 Finding, 2: Level 2 Finding, P: Plan Issue, N: Not Demonstrated		Plymouth EOC	Braintree EOC	Bridgewater EOC	Taunton EOC	Duxbury High School	Duxbury Middle	Chandler Elementary	Alden Elementary	Sacred Heart ECC	Sacred Heart Element
Emergency Operations Management											
Mobilization	1a1	M	M	M	M	M	M	M	M	M	M
Facilities	1b1	M	M	M	M						
Direction and Control	1c1	M	M	M	M						
Communications Equipment	1d1	M	M	M	M						
Equipment and Supplies to Support Operations	1e1	M	M	M	M						
Protective Action Decision Making											
Emergency Worker Exposure Control	2a1										
Dose Assessment & PARs & PADs for the Emergency Event	2b1										
Dose Assessment & PARs & PADs for the Emergency Event	2b2										
PADs for the Protection of persons with disabilities and access/functional needs	2c1										
Radiological Assessment and Decision-making for the Ingestion Exposure Pathway	2d1										
Radiological Assessment & Decision-making Concerning Post-Plume Phase Relocation, Reentry, and Return	2e1										
Protective Action Implementation											
Implementation of Emergency Worker Exposure Control	3a1	M	M	M	M						
Implementation of KI Decision for Institutionalized Individuals and the Public	3b1					M	M	M	M	M	M
Implementation of Protective Actions for persons with disabilities and access/functional needs	3c1	M									
Implementation of Protective Actions for persons with disabilities and access/functional needs	3c2	M				M	M	M	M	M	M
Implementation of Traffic and Access Control	3d1	M	M	M	M						
Implementation of Traffic and Access Control	3d2	M	M	M	M						
Implementation of Ingestion Pathway Decisions	3e1										
Implementation of Ingestion Pathway Decisions	3e2										
Implementation of Post-Plume Phase Relocation, Reentry, and Return Decisions	3f1										
Field Measurement and Analysis											
RESERVED	4a1										
Plume Phase Field Measurement and Analyses	4a2										
Plume Phase Field Measurement and Analyses	4a3										
Post Plume Phase Field Measurements and Sampling	4b1										
Laboratory Operations	4c1										
Emergency Notification and Public Info											
Activation of the Prompt Alert and Notification System	5a1										
RESERVED	5a2										
Activation of the Prompt Alert and Notification System	5a3										
Activation of the Prompt Alert and Notification System	5a4										
Emergency Information and Instructions for the Public and the Media	5b1	M									

Table 3.1 - Summary of Exercise Evaluation (Continued. page 3/3)

DATE: 2016-11-16 SITE: Pilgrim Nuclear Power Station M: Met, 1: Level 1 Finding, 2: Level 2 Finding, P: Plan Issue, N: Not Demonstrated		Sacred Heart High School	West Elementary School	Plymouth Intermediate	Plymouth South Middle	Plymouth North High	Plymouth South High	Chilton House Rest Home	North Hill	Cordwood Path	Braintree High School
Emergency Operations Management											
Mobilization	1a1	M	M	M	M	M	M	N	N	N	N
Facilities	1b1										
Direction and Control	1c1										
Communications Equipment	1d1										
Equipment and Supplies to Support Operations	1e1										
Protective Action Decision Making											
Emergency Worker Exposure Control	2a1										
Dose Assessment & PARs & PADs for the Emergency Event	2b1										
Dose Assessment & PARs & PADs for the Emergency Event	2b2										
PADs for the Protection of persons with disabilities and access/functional needs	2c1										
Radiological Assessment and Decision-making for the Ingestion Exposure Pathway	2d1										
Radiological Assessment & Decision-making Concerning Post-Plume Phase Relocation, Reentry, and Return	2e1										
Protective Action Implementation											
Implementation of Emergency Worker Exposure Control	3a1	M	M	M	M	M	M	N	N	N	N
Implementation of KI Decision for Institutionalized Individuals and the Public	3b1										
Implementation of Protective Actions for persons with disabilities and access/functional needs (other than schools)	3c1										
Implementation of Protective Actions for persons with disabilities and access/functional needs(schools)	3c2	M	M	M	M	M	M	N	N	N	N
Implementation of Traffic and Access Control	3d1										
Implementation of Traffic and Access Control	3d2										
Implementation of Ingestion Pathway Decisions	3e1										
Implementation of Ingestion Pathway Decisions	3e2										
Implementation of Post-Plume Phase Relocation, Reentry, and Return Decisions	3f1										
Field Measurement and Analysis											
RESERVED	4a1										
Plume Phase Field Measurement and Analyses	4a2										
Plume Phase Field Measurement and Analyses	4a3										
Post Plume Phase Field Measurements and Sampling	4b1										
Laboratory Operations	4c1										
Emergency Notification and Public Info											
Activation of the Prompt Alert and Notification System	5a1										
RESERVED	5a2										
Activation of the Prompt Alert and Notification System	5a3										
Activation of the Prompt Alert and Notification System	5a4										
Emergency Information and Instructions for the Public and the Media	5b1										

Support Operations/Facilities											
Monitoring, Decontamination, and Registration of Evacuees	6a1										
Monitoring and Decontamination of Emergency Workers and their Equipment and Vehicles	6b1										
Temporary Care of Evacuees	6c1										
Transportation and Treatment of Contaminated Injured Individuals	6d1										

3.3 Criteria Evaluation Summaries

3.3.1 Commonwealth of Massachusetts

3.3.1.1 MA State Emergency Operations Center

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

a. MET: 1.a.1, 1.c.1, 1.d.1, 1.e.1, 2.a.1, 2.b.1, 2.b.2, 2.c.1, 3.b.1, 3.c.1, 3.d.1, 3.d.2, 5.a.1, 5.b.1
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

3.3.1.2 MA 211 Call Center

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

a. MET: 1.d.1, 1.e.1, 5.b.1.
b. LEVEL 1 FINDINGS : None
c. LEVEL 2 FINDINGS : None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.1.3 MA Region II EOC

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

a. MET: 1.a.1, 1.b.1, 1.c.1, 1.d.1, 1.e.1, 3.a.1, 3.b.1, 3.c.1, 3.c.2., 3.d.1, 3.d.2, 5.b1
b. LEVEL 1 FINDINGS : None
c. LEVEL 2 FINDINGS : None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None

f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.1.1.4 MA (PNPS) Emergency Operations Facility

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

a. MET: 1.a.1, 1.c.1, 1.d.1, 1.e.1, 2.a.1, 2.b.1, 2.b.2, 2.c.1, 4.a.2.
b. LEVEL 1 FINDINGS : None
c. LEVEL 2 FINDINGS : None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.1.1.5 MA (PNPS) Field Monitoring Team-1

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

a. MET: 1.d.1 (All other criteria Observed only demonstrated during 2016 Seabrook Exercise)
b. LEVEL 1 FINDINGS : None
c. LEVEL 2 FINDINGS : None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: 1.d.1 (2016 Seabrook)
g. PRIOR ISSUES - UNRESOLVED: None

3.1.1.6 MA (PNPS) Field Monitoring Team-2

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

a. MET: Observed only (demonstrated during 2016 Seabrook Exercise)
b. LEVEL 1 FINDINGS : None
c. LEVEL 2 FINDINGS : None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.1.1.7 MA (PNPS) Joint Information Center

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

a. MET: 1.a.1,1.c.1, 1.d.1, 1.e.1, 3.b.1, 5.b.1.
b. LEVEL 1 FINDINGS : None
c. LEVEL 2 FINDINGS : None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.2 Risk Jurisdictions

3.3.2.1 Carver Local EOC

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

a. MET: 1.a.1, 1.c.1, 1.d.1, 1.e.1, 3.a.1, 3.b.1, 3.c.1, 3.c.2, 3.d.1, 3.d.2, 5.b.1.
b. LEVEL 1 FINDINGS : None
c. LEVEL 2 FINDINGS : None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.2.2 Duxbury Local EOC

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

a. MET: 1.a.1, 1.c.1, 1.d.1, 1.e.1, 3.a.1, 3.b.1, 3.c.1, 3.c.2, 3.d.1, 3.d.2, 5.b.1.
b. LEVEL 1 FINDINGS : None
c. LEVEL 2 FINDINGS : None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.2.3 Duxbury High School

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

a. MET: 1.a.1, 3.b.1, 3.c.2
b. LEVEL 1 FINDINGS : None
c. LEVEL 2 FINDINGS : None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.2.4 Duxbury Middle School

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

a. MET: 1.a.1, 3.b.1, 3.c.2
b. LEVEL 1 FINDINGS : None
c. LEVEL 2 FINDINGS : None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.2.5 Chandler Elementary School

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

a. MET: 1.a.1, 3.b.1, 3.c.2
b. LEVEL 1 FINDINGS : None
c. LEVEL 2 FINDINGS : None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.2.6 Alden Elementary School

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

a. MET: 1.a.1, 3.b.1, 3.c.2
b. LEVEL 1 FINDINGS : None

c. LEVEL 2 FINDINGS : None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.2.6.1 North Hill Group Facility (Duxbury)

In summary, the status of DHS/FEMA criteria for this location is as follows:
a. MET: None
b. LEVEL 1 FINDINGS: None
c. LEVEL 2 FINDINGS: None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: 1.a.1, 3.b.1, 3.c.2 (will be demonstrated in 2017)
f. PRIOR ISSUES- RESOLVED: None
g. PRIOR ISSUES- UNRESOLVED: None

3.3.2.6.2 Cordwood Group Facilities (Duxbury)

In summary, the status of DHS/FEMA criteria for this location is as follows:
a. MET: None
b. LEVEL 1 FINDINGS: None
c. LEVEL 2 FINDINGS: None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: 1.a.1, 3.b.1, 3.c.2 (will be demonstrated in 2017)
f. PRIOR ISSUES- RESOLVED: None
g. PRIOR ISSUES- UNRESOLVED: None

3.3.2.7 Kingston MA Local EOC

In summary, the status of DHS/FEMA criteria for this location is as follows:
a. MET: 1.a.1, 1.c.1, 1.d.1, 1.e.1, 3.a.1, 3.c.1, 3.c.2, 3.d.1, 3.d.2, 5.b.1.
b. LEVEL 1 FINDINGS : None
c. LEVEL 2 FINDINGS : None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.2.8 Sacred Heart Early Childhood Center

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

a. MET: 1.a.1, 3.b.1, 3.c.2
b. LEVEL 1 FINDINGS : None
c. LEVEL 2 FINDINGS : None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.2.9 Sacred Heart Elementary School

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

a. MET: 1.a.1, 3.b.1, 3.c.2
b. LEVEL 1 FINDINGS : None
c. LEVEL 2 FINDINGS : None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.2.10 Sacred Heart High School

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

a. MET: 1.a.1, 3.b.1, 3.c.2
b. LEVEL 1 FINDINGS : None
c. LEVEL 2 FINDINGS : None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.2.11 Marshfield Local EOC

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

a. MET: 1.a.1, 1.c.1, 1.d.1, 1.e.1, 3.a.1, 3.c.1, 3.c.2, 3.d.1, 3.d.2, 5.b.1.
b. LEVEL 1 FINDINGS : None
c. LEVEL 2 FINDINGS : None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.2.12 Plymouth Local EOC

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

a. MET: 1.a.1, 1.c.1, 1.d.1, 1.e.1, 3.a.1, 3.c.1, 3.c.2, 3.d.1, 3.d.2, 5.b.1.
b. LEVEL 1 FINDINGS : None
c. LEVEL 2 FINDINGS : None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.2.13 West Elementary School

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

a. MET: 1.a.1, 3.b.1, 3.c.2
h. LEVEL 1 FINDINGS : None
i. LEVEL 2 FINDINGS : None
j. PLAN ISSUES: None
k. NOT DEMONSTRATED: None
l. PRIOR ISSUES - RESOLVED: None
m. PRIOR ISSUES - UNRESOLVED: None

3.3.2.14 Plymouth Community Intermediate School

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

a. MET: 1.a.1, 3.b.1, 3.c.2.
b. LEVEL 1 FINDINGS : None
c. LEVEL 2 FINDINGS : None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.2.15 Plymouth South Middle School

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

a. MET: 1.a.1, 3.b.1, 3.c.2.
b. LEVEL 1 FINDINGS : None
c. LEVEL 2 FINDINGS : None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.2.16 Plymouth North High School

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

a. MET: 1.a.1, 3.b.1, 3.c.2.
b. LEVEL 1 FINDINGS : None
c. LEVEL 2 FINDINGS : None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.2.17 Plymouth South High School

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

a. MET: 1.a.1, 3.b.1, 3.c.2.
b. LEVEL 1 FINDINGS : None
c. LEVEL 2 FINDINGS : None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.2.18 Chilton House Rest Home

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

a. MET: None
b. LEVEL 1 FINDINGS: None
c. LEVEL 2 FINDINGS: None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: 1.a.1, 3.b.1, 3.c.2 (will demonstrated in 2017)
f. PRIOR ISSUES- RESOLVED: None
g. PRIOR ISSUES- UNRESOLVED: None

3.3.3 Support Jurisdictions

3.3.3.1 Braintree Local EOC

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

a. MET: 1.a.1, 1.c.1, 1.d.1, 1.e.1, 3.d.1, 3.d.2, 5.b.1
b. LEVEL 1 FINDINGS : None
c. LEVEL 2 FINDINGS : None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: Non

3.3.3.1.2 Braintree High School

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

a. MET: None (Not Evaluated)
b. LEVEL 1 FINDINGS : None
c. LEVEL 2 FINDINGS : None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: 1.a.1, 3.a.1, 3.c.2 (moved to next year)
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.3.2 Bridgewater Local EOC

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

a. MET: 1.a.1, 1.b.1, 1.c.1, 1.d.1, 1.e.1, 3.d.1, 3.d.2,
b. LEVEL 1 FINDINGS : None
c. LEVEL 2 FINDINGS : None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.3.3 Taunton Local EOC

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

a. MET: 1.a.1, 1.b.1, 1.c.1, 1.d.1, 1.e.1, 3.a.1, 3.c.1, 3.d.1, 3.d.2,
b. LEVEL 1 FINDINGS : None
c. LEVEL 2 FINDINGS : None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

Section 4: Conclusion

The state and local organizations, except where noted in this report, demonstrated knowledge of their emergency response plans and procedures. All activities were implemented as they would be in an actual emergency unless specified otherwise in the extent of play agreement.

There were no "Findings" identified during this exercise. One prior "Finding" from the 2016 Seabrook Station Plume Exercise was resolved.

Appendix A: Exercise Timeline

EXERCISE TIMELINE

Date and Site: *November 14 - 18, 2016; Pilgrim Nuclear Power Plant*

Emergency Classification Level or Event	Utility Declared Time	Time That Notification Was Received or Action Was Taken														
		MA SEOC	MA 211	MEMA R2	FMT #1	FMT #2	MA JIC	EOF	Carver EOC	Kingston EOC	Duxbury EOC	Marshfield EOC	Plymouth EOC	Taunton EOC	Bridgewater EOC	Braintree EOC
Unusual Event	0814	0825		0824			NA	0824	0824	0824	0824	0824	0824	0824	0824	0825
Alert	0851	0901		0905			0908	0852	0900	0904	0902	0902	0901	0901	0902	0908
Site Area Emergency	1027	1033		1035			1028	1027	1036	1037	1042	1034	1033	1046	1033	1037
General Emergency	1131	1138		1143			1133	1131	1140	1142	1138	1145	1138	1139	1139	1141
Simulated Radioactivity Release Began	1043	1046		1050			1104	1043	1055	1052	1138	1027	1055	1056	1051	1055
Simulated Radioactivity Release Terminated	1231	NA		NA			1303	1231	NA	1304	NA	NA	NA	NA	NA	NA
Facility Declared Operational		0915		0908			1003	0948	0900	0835	0912	0927	0930	0932	0900	0857
Gov Declaration of State of Emergency		1000		1008			1000	1006	1036	1012	1000	1025	1010	1000	1016	1026
Declaration of Local Emergency		NA					NA	NA	0913	1000	0945	0955	0930	1014	1120	0908
Exercise Terminated		1303		1303			1303	1308	1305	1304	1307	1305	1303	1305	1303	1303
Precautionary Actions:																
Siren Sounded Area 4 (Plymouth EOC)		NA	NA	NA			NA	NA	NA	NA	NA	NA	0944	NA	NA	NA
Close Parks		0954		0957			1058	1000	0925	1004	1026	1107	0959	1107	NA	1010
Restrict Water Traffic		0935		0944			1000	1000	0925	1004	1026	1107	0939	0948	0952	1010
Restrict Rail Traffic		1048		NA			1240	1000	0925	1004	1026	1107	0939	0948	0952	1010
Restrict Airspace		1048		NA			1240	1000	0925	1004	1026	1107	0939	0948	0952	1010
Shelter livestock, stored feed, & water		1027		1057			1058	1026	1113	1114	1026	1107	1108	1107	1111	1010
School Transfers		0944		NA			0950	NA	0955	0950	NA	NA	NA	0948	0952	0944
1st A&N Decision		1055		1057			1100	NA	1113	1028	1114	1106	1100	1105	NA	NA
1st Siren Activation		1107		1107			1107	NA	1107	1107	1107	1107	1107	1107	1106	1107
1st EAS Message		1110		1110			1110	NA	1110	1110	1110	1110	1110	1110	1110	1110
2nd A&N Decision		1153		1153			1156	NA	1205	1204	1207	1206	1156	1157	1156	NA
2nd Siren Activation		1205		1205			1205	NA	1205	1205	1205	1205	1205	1205	1205	NA
2nd EAS Message		1208		1208			1208	NA	1208	1208	1208	1208	1208	1208	1208	1238
KI Decision:																
EWs advised to take KI		1055		1057			1104	1055	1113	1120	1114	1110	1110	1107	1106	NA
General Public advised to take KI		1055		1057			1104	1055	1113	1114	1114	1110	1110	1107	1106	1113

Appendix B: Exercise Evaluators and Team Leaders

2016 Pilgrim Station Plume Evaluator Assignments

Steve Colman- RAC Chair
John Rice- Senior Site Specialist
Taneeka Hollins- Pilgrim Site Specialist

Location	Evaluator	Criteria
MA SEOC	Ingrid Pierce (TL)	1c1, 5a1
	Barbara Thomas	1a1, 1d1, 1e1, 5.b.1
	Helen LaForge	3b1, 3c1, 3d1, 3d2
	Mike Howe	2a1, 2b1, 2b2, 2c1
MA 211	Larry Broockerd	1d1, 1e1, 5b1
MEMA R2	Bill Webb (TL)	1c1
	Nick Buls	1a1, 1d1, 1e1, 5b1
	Bill McDougall	3a1, 3b1, 3c1, 3c2, 3d1, 3d2
JIC	Linda Gee (TL)	1a1, 1c1, 1d1, 1e1, 5b1
EOF	Ken Wierman (TL)	1a1, 1c1, 1d1, 1e1, 4a2
	Tim Pflieger	2a1, 2b1, 2b2, 2c1
FMT 1	Nan Calhoun	OBSERVED ONLY
FMT 2	Korky Dulgerian	OBSERVED ONLY
Carver EOC	Mike Shuler (TL)	1a1, 1c1, 1d1, 1e1, 5b1
	Patti Gardner	3a1, 3c1, 3c2, 3d1, 3d2 *(impediment inject)
Kingston EOC	Lee Torres (TL)	1a1, 1c1, 1d1, 1e1, 5b1
	Tina Lai-Thomas	3a1, 3c1, 3c2, 3d1, 3d2
Duxbury EOC	Brian Hasemann (TL)	1a1, 1c1, 1d1, 1e1, 5b1
	Miriam Weston	3a1, 3c1, 3c2, 3d1, 3d2
Marshfield EOC	Lauren DeMarco (TL)	1a1, 1c1, 1d1, 1e1, 5b1
	Pat Foster/ TJ Swenson (OJT)	3a1,3c1, 3c2, 3d1, 3d2

Plymouth EOC	Joe Suders (TL)	1a1, 1c1, 1d1, 1e1, 5b1
	Lisa Rink	3a1, 3c1, 3c2, 3d1, 3d2
Taunton EOC	Ryan Jones (TL)	1a1, 1c1, 1d1, 1e1
	Rufus Mobley	3a1, 3d1, 3d2, 5b1
Bridgewater EOC	Mark Dalton – ICF (TL)	1a1, 1c1, 1d1, 1e1
	Kent Tosch - ICF	3a1, 3d1, 3d2, 5b1
Braintree EOC	Tom Hegele - ICF (TL)	1a1, 1c1, 1d1, 1e1
	Bruce Swiren - ICF	3a1, 3d1, 3d2, 5b1

*Schools/Special Facilities- Evaluated Out of Sequence by Taneeka Hollins (Site Specialist

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Appendix C: Extent of Play Agreement

PILGRIM NUCLEAR POWER STATION EXERCISE – November 16, 2016

MASSACHUSETTS
EVALUATION AREAS AND EXTENT OF PLAY

Overview
The following organizations/locations will demonstrate in 2016:

State Emergency Operations Center
Massachusetts Emergency Management Agency
Massachusetts Department of Public Health
Massachusetts State Police
MassDOT
Massachusetts National Guard
Massachusetts Department of Mental Health
Office of the Secretary of the Commonwealth
US Coast Guard
American Red Cross
Federal Emergency Management Agency Region I
Pilgrim Nuclear Power Station Liaison
MASS 211 Call Center

Region II Emergency Operations Center
Massachusetts Emergency Management Agency – Region II
Massachusetts State Police
MassDOT
Massachusetts National Guard
Pilgrim Nuclear Power Station Liaison
American Red Cross
MBTA Representative
Department of Corrections- Bridgewater
Plymouth County Sheriff Emergency Management Agency

Emergency Operations Facility
Massachusetts Emergency Management Agency
Massachusetts Department of Public Health/Radiation Control Program
Pilgrim Nuclear Power Station

Radiological Field Monitoring and Sampling Teams
Massachusetts Department of Public Health/Radiation Control Program
Pilgrim Nuclear Power Station

Joint Information Center
Massachusetts Emergency Management Agency
Pilgrim Nuclear Power Station

EAS Radio Station
WBZ 1030 AM

Risk Jurisdictions
Carver EOC
Duxbury EOC
Kingston EOC
Marshfield EOC
Plymouth EOC

Support Jurisdictions
Braintree Command Center
Bridgewater EOC
Taunton EOC

The following demonstrations were conducted out of sequence Summer 2016
Mass State Police Dosimetry Demonstration
MS 1 Hospital – Good Samaritan Hospital September 29, 2016

Schools and Daycares:
Duxbury:
Duxbury High School
Duxbury Middle School
Chandler Elementary School
Alden Elementary School

Kingston:
Sacred Heart Early Childhood Center
Sacred Heart Elementary School
Sacred Heart High School

Plymouth:
West Elementary School
Plymouth Community Intermediate School
Plymouth South Middle School
Plymouth North High School
Plymouth South High School

Special Facilities
Duxbury:
Group Facility and North Hill
Group Facility and Cordwood

Plymouth:
Chilton House Rest Home

Host Schools:
Braintree High School

Per FEMA Region I Memorandum dated, February 27, 2012, "On the Spot" corrections as outlined in Recommendation Initiative 1.5 – Correct Issues Immediately is approved for the following criterion: 1.d.1, 1.e.1, 3.a.1, 3.b.1, 3.d.1, 3.d.2, 4.a.3, 4.b.1, 5.b.1, 6.a.1, and 6.b.1.

EVALUATION AREA 1: Emergency Operations Management

Sub-element 1.a – Mobilization

Intent

This sub-element is derived from NUREG-0654/FEMA-REP-1, which requires that Offsite Response Organizations (ORO) have the capability to alert, notify, and mobilize emergency personnel and activate and staff emergency facilities.

> ***Criterion 1.a.1: OROs use effective procedures to alert, notify, and mobilize emergency personnel and activate facilities in a timely manner. (NUREG-0654/FEMA-REP-1, A.1.a, e; A.3, 4; C.1, 4, 6; D.4; E.1, 2; G.3.a; H.3, 4)***

Extent of Play

Responsible OROs must demonstrate the capability to receive notification of an incident from the licensee, verify the notification, and contact, alert, and mobilize key emergency personnel in a timely manner and demonstrate the ability to maintain and staff 24-hour operations. Twenty-four hour operations can be demonstrated during the exercise via rosters or shift changes or otherwise in an actual activation. Local responders must demonstrate the ability to receive and/or initiate notification to the licensees or other respective emergency management organizations of an incident in a timely manner, when they receive information from the licensee or alternate sources. Responsible OROs must demonstrate the activation of facilities for immediate use by mobilized personnel upon their arrival. Activation of facilities and staff, including those associated with the ICS, must be completed in accordance with ORO plans/procedures. The location and contact information for facilities included in the incident command must be available to all appropriate responding agencies and the NPP after these facilities have been activated.

Pre-positioning of emergency personnel is appropriate, in accordance with the Extent-of-Play Agreement, at those facilities located beyond a normal commuting distance from the individual's duty location or residence. This includes the staggered release of resources from an assembly area. Additionally, pre-positioning of staff for out-of-sequence demonstrations may be used in accordance with the Extent-of-Play Agreement.

The REP program does not evaluate Incident Command Post tactical operations (e.g., Law Enforcement hostile action suppression techniques), only coordination among the incident command, the utility, and all appropriate OROs, pursuant to plans/procedures.

Initial law enforcement, fire service, HAZMAT, and emergency medical response to the NPP site may impact the ability to staff REP functions. The ability to identify and request additional resources or identify compensatory measures must be demonstrated. Exercises must also address the role of mutual aid in the incident, as appropriate. An integral part of the response to an HAB scenario at an NPP may also be within the auspices of the Federal Government (e.g., FBI, NRC, or DHS). Protocols for requesting Federal, State, local, and Tribal law enforcement support must be demonstrated, as appropriate. Any resources must be on the ORO's mobilization list so they can be contacted during an incident, if needed.

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

Massachusetts Extent of Play

State EOC—Massachusetts Emergency Management (MEMA) SEOC emergency staff, including the Massachusetts Emergency Management Team staff (Massachusetts Department of Public Health (MDPH), Massachusetts Department of Transportation (MassDOT), Massachusetts Department of Mental Health (MDMH), Massachusetts State Police (MSP), US Coast Guard, Massachusetts Army National Guard (MANG), and American Red Cross (ARC), the State Public Information Line (Mass 211) staff, the Federal Emergency Management Agency (FEMA), and the Pilgrim Nuclear Power Station Liaison will be pre-staged at TBD in the SEOC cafeteria, and upon notification, will report to the EOC, using a ten-minute per hour travel time. The notification process will be completed, and call down rosters will be shown to the FEMA Evaluator.
The MASS 211 Call Center will be activated for an event at Pilgrim Station.

Region II EOC—MEMA Region II EOC staff and emergency volunteer staff will pre-staged at TBD outside the Region II EOC, and upon notification, will report to the Region II EOC, using a ten-minute per hour travel time (note: MEMA Region II staff who report prior to TBD will report at their normal reporting time). The notification process will be completed and call down rosters will be shown to the FEMA Evaluator.

the EOF, and upon notification, will report to the EOF using the 10 minute to hour travel time.

Joint Information Center (JIC)—MEMA personnel will be pre-staged in the area of the JIC and upon notification, will report to the JIC using the 10 minute to hour travel time

NIAT Field Monitoring Team Personnel—Field Team personnel will be pre-staged at the EOF and upon notification, will report to the EOF using the 10 minute to hour travel time.

Local EOCs—Local EOC emergency response staff will be pre-staged at TBD outside the local EOC and upon notification, will report to the EOC, using a ten-minute per hour travel time.

State Police Troop D – Will dispatch representatives to the Region II EOC, but traffic and access control personnel will not be mobilized (see Evaluation Area 3.d.).

Plymouth County Sheriff's Emergency Management Agency (PCSEMA) – Will demonstrate communications with emergency staff and obtain ETA; however, staff and vehicles will not be mobilized, except for the PCSEMA liaison who will report to the MEMA Region II EOC.
Transportation Providers – Calls will be made to all transportation providers to verify the contact information. FEMA will evaluate the contact of the transportation providers during the practice exercise. A Controller message will refer to the matrix to provide the number of vehicles and drivers available for exercise play. No vehicles or personnel will be mobilized.
Level 1 or Level 2 Findings: N/A

Commented [CK(1]:

Sub-element I.b – Facilities

Intent

This sub-element is derived from NUREG-0654/FEMA-REP-1, which requires that Offsite Response Organizations (ORO) have facilities to support the emergency response.

Criterion 1.b.1: Facilities are sufficient to support the emergency response. (NUREG0654/FEMA-REP-1, G.3.a; H.3; J.10.h; J.12; K.5.b)

Extent of Play

Responsible OROs must demonstrate, no less than once every 8 years, the availability of facilities to support accomplishment of emergency operations. This includes all alternate and backup facilities. Evaluations are typically performed for EOCs and JICs, as well as other facilities such as reception/relocation centers. Some of the areas evaluated within the facilities are adequate space, furnishings, lighting, restrooms, ventilation, access to backup power, and/or alternate facility, if required to support operations. Radio stations, laboratories, initial warning points and hospitals are not evaluated under 1.b.1.

In addition, facilities will be evaluated for this criterion during the first biennial exercise after any new or substantial changes in structure, equipment, or mission that affect key capabilities, as outlined in respective emergency plans/procedures. A substantial change is one that has a direct effect or impact on emergency response operations performed in those facilities. Examples of substantial changes include modifying the size or configuration of an emergency operations center, adding more function to a center, or changing the equipment available for use in a center.

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.

Massachusetts Extent of Play

There are no new or renovated facilities within the Pilgrim Massachusetts EPZ. The Bridgewater Reception Center facility at the Tinsley Center were evaluated in 2015.

There will not be a FEMA evaluation of alternate or backup facilities during this exercise

Level 1 or Level 2 Findings: N/A

Sub-element 1.c - Direction and Control

Intent

This sub-element is derived from NUREG-0654/FEMA-REP-1, which requires that Offsite Response Organizations (ORO) have the capability to control their overall response to an emergency.

Criterion 1.c.1: Key personnel with leadership roles for the ORO provide direction and control to that part of the overall response effort for which they are responsible. (NUREG-0654/FEMA-REP-1, A.1.d; A.2.a, b; A.3; C.4, 6)

Extent of Play

Leadership personnel must demonstrate the ability to carry out the essential management functions of the response effort (e.g., keeping staff informed through periodic briefings and/or other means, coordinating with other OROs, and ensuring completion of requirements and requests.) Leadership must demonstrate the ability to prioritize resource tasking and replace/supplement resources (e.g., through MOUs or other agreements) when faced with competing demands for finite resources. Any resources identified through LOA/MOUs must be on the ORO's mobilization list so they may be contacted during an incident, if needed.

All activities must be performed based on the ORO's plans/procedures and completed as they would be in an actual emergency, unless otherwise noted above or otherwise specified in the extent of play agreement.

Massachusetts Extent of Play

If a local EPZ community is directed to evacuate, key EOC personnel will simulate closing and relocation of the EOC through a discussion of logistics with the FEMA Evaluator. Closing of the local EOC and relocation will be simulated.

Level 1 or Level 2 Findings: N/A

Sub-element 1.d—Communications Equipment

Intent

This sub-element is derived from NUREG-0654/FEMA-REP-1, which requires that Offsite Response Organizations (ORO) establish and operate reliable primary and backup communication systems to ensure communications with key emergency personnel at locations such as contiguous governments within the emergency planning zone (EPZ), Federal emergency response organizations, the licensee and its facilities, emergency operations centers (EOC), Incident Command Posts and field monitoring teams.

Criterion 1.d.1: At least two communication systems are available, at least one operates properly, and communication links are established and maintained with appropriate locations. Communications capabilities are managed in support of emergency operations. (NUREG-0654/FEMA-REP-1, F.1, 2)

Extent of Play

OROs must demonstrate that a primary system and at least one backup system are fully functional at all times. Communications systems are maintained and tested on a recurring basis throughout the assessment period and system status is available to all operators. Periodic test results and corrective actions are maintained on a real time basis. If a communications system or systems are not functional, but exercise performance is not affected, no exercise issue will be assessed.

Communications equipment and procedures for facilities and field units are used as needed for transmission and receipt of exercise messages. All facilities, FMTs and incident command must have the capability to access at least one communication system that is independent of the commercial telephone system. Responsible OROs must demonstrate the capability to manage the communication systems and ensure that all message traffic is handled without delays that might disrupt emergency operations. OROs must ensure that a coordinated communication link for fixed and mobile medical support facilities exists. Exercise scenarios may require the failure of a communications system and use of an alternate system, as negotiated in the extent of play agreement.

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

Massachusetts Extent of Play

Contact with locations not playing will be simulated.

Level 1 or Level 2 Findings: N/A

Planning Issues:

Condition:

NIAT Field Teams during the April 5, 2016 Graded Seabrook Exercise did not demonstrate to two different communications systems.

Possible Cause:

NIAT Field Teams used cell phones and laptops with air card that relied on cell service and therefore were not considered two different forms of communications.

Effect:

All communication means are vulnerable to failure or inoperability of a single, local cellular tower network.

Recommendation:
NIAT Field Teams will be equipped with portable radios as the alternate means of communications.

FEMA will evaluate this planning issue during the practice exercise. This activity will be evaluated by FEMA at the EOF prior to the Field Teams leaving for the field.

Note: If, during the exercise, a participant demonstrates this sub-element unsatisfactorily, the FEMA Evaluator will inform the MEMA Controller. After an "on the spot" training by the local or State representative, the FEMA Evaluator will provide another opportunity to re-demonstrate the activity that day.

Sub-element 1.e – Equipment and Supplies to Support Operations

Intent

This sub-element is derived from NUREG-0654/FEMA-REP-1, which requires that Offsite Response Organizations (ORO) have emergency equipment and supplies adequate to support the emergency response.

Criterion 1.e.1: Equipment, maps, displays, monitoring instruments dosimetry, potassium iodide (KI), and other supplies are sufficient to support emergency operations. (NUREG-0654/FEMA-REP-1, H.7, 10; I.7, 8, 9; J.10.a, b, e; J.11, 12; K.3.a; K.5.b)

Extent of Play

A particular facility's equipment and supplies must be sufficient and consistent with that facility's assigned role in the ORO's emergency operations plans. Use of maps and other displays is encouraged. For non-facility-based operations, the equipment and supplies must be sufficient and consistent with the assigned operational role. At locations where traffic and access control personnel are deployed, appropriated equipment (e.g., vehicles, barriers, traffic cones and signs) must be available, or their availability described.

Specific equipment and supplies that must be demonstrated under this criterion include KI inventories, dosimetry, and monitoring equipment, as follows:

KI: *Responsible OROs must demonstrate the capability to maintain inventories of KI sufficient for use by: (1) emergency workers; (2) institutionalized individuals, as indicated in capacity lists for facilities; and (3) where stipulated by the plans/procedures, members of the general public (including transients) within the plume pathway EPZ. In addition, OROs must demonstrate provisions to make KI available to specialized response teams (e.g., civil support team, Special Weapons and Tactics Teams, urban search and rescue, bomb squads, HAZMAT, or other ancillary groups) as identified in plans/procedures. The plans/procedures must include the forms to be used for documenting emergency worker ingestion of KI, as well as a mechanism for identifying emergency workers that have declined KI in advance. Consider carefully the placement of emergency workers that have declined KI in advance.*

ORO quantities of dosimetry and KI available and storage locations(s) will be confirmed by physical inspection at the storage location(s) or through documentation of current inventory submitted during the exercise, provided in the ALC submission, and/or verified during an SAV. Available supplies of KI must be within the expiration date indicated on KI bottles or blister packs. As an alternative, the ORO may produce a letter from a certified private or State laboratory indicating that the KI supply remains potent, in accordance with U.S. Pharmacopoeia standards.[94]

Dosimetry: *Sufficient quantities of appropriate direct-reading and permanent record dosimetry and dosimeter chargers must be available for issuance to all emergency workers who will be dispatched to perform an ORO mission. In addition, OROs must demonstrate provisions to make dosimetry available to specialized response teams (e.g., civil support team, Special Weapons and Tactics Teams, urban search and rescue, bomb squads, HAZMAT, or other ancillary groups) as identified in plans/ procedures.*

Appropriate direct-reading dosimetry must allow an individual(s) to read the administrative reporting limits and maximum exposure limits contained in the ORO's plans/ procedures.

Direct-reading dosimeters must be zeroed or operationally checked prior to issuance. The dosimeters must be inspected for electrical leakage at least annually and replaced when necessary. Civil Defense Victoreen Model 138s (CD V-138s) (0-200 mR), due to their documented history of electrical leakage problems, must be inspected for electrical leakage at least quarterly and replaced when necessary. This leakage testing will be verified during the exercise, through documentation submitted in the ALC and/or through an SAV.

Operational checks and testing of electronic dosimeters must be in accordance with the manufacturer's instructions and be verified during the exercise, through documentation submitted in the ALC and/or through an SAV.

Monitoring Instruments: *All instruments must be inspected, inventoried, and operationally checked before each use. Instruments must be calibrated in accordance with the manufacturer's recommendations. Unmodified CDV-700 series instruments and other instruments without a manufacturer's recommendation must be calibrated annually. Modified CDV-700 instruments must be calibrated in accordance with the recommendation of the modification manufacturer. A label indicating such calibration must be on each instrument or calibrated frequency can be verified by other means. In addition, instruments being used to measure activity must have a sticker-affixed to their sides indicating the effective range of the readings. The range of readings documentation specifies the acceptable range of readings that the meter should indicate when it is response-checked using a standard test source.*

For FMTs, the instruments must be capable of measuring gamma exposure rates and detecting beta radiation. These instruments must be capable of measuring a range of activity and exposure, including radiological protection/ exposure control of team members and detection of activity on air sample collection media, consistent with the intended use of the instrument and the ORO's plans/ procedures. An appropriate radioactive check source must be used to verify proper operational response for each low-range radiation measurement instrument (less than 1R/hr.) and for high-range instruments when available. If a source is not available for a high-range instrument, a procedure must exist to operationally test the instrument before entering an area where only a high-range instrument can make useful readings.

In areas where portal monitors are used, the OROs must set up and operationally check the monitor(s). The monitor(s) must conform to the standards set forth in the Contamination Monitoring Standard for a Portal Monitor Used for Emergency Response, FEMA-REP-21 (March 1995) or in accordance with the manufacturer'srecommendations.

Mutual Aid Resources: *If the incoming resources arrive with their own equipment (i.e., monitors and/ or dosimetry), they will be evaluated by REP Program standards. FEMA will not inventory equipment that is not part of the REP Program. If an agency has a defined role in the REP Plan, they are subject to the planning process and standards, as well as the guidance of this Manual.*

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.

Massachusetts Extent of Play

Participating facilities will demonstrate that equipment, maps, displays, monitoring instruments, dosimetry, KI and other supplies are adequate and sufficient to support the emergency response. FEMA will provide copies of the Annual Letter of Certification to evaluators as documentation of quarterly inventory and operational checks.

Two MA NIAT Field Teams will be dispatched from the Pilgrim EOF in accordance with Section D.4 of the NIAT Handbook. Controller messages will provide simulated monitoring data provided from the plant. Evaluation of NIAT Field Teams were evaluated by FEMA during Seabrook Graded Exercise on April 5, 2016. NIAT Field Teams will use Pilgrim exercises for practice.

Note: If, during the exercise, a participant demonstrates this sub-element unsatisfactorily, the FEMA Evaluator will inform the MEMA Controller. After an "on the spot" training by the local or State representative, the FEMA Evaluator will provide another opportunity to re-demonstrate the activity that day.

EVALUATION AREA 2: Precautionary and/or Protective Action Decision-Making

Sub-element 2.a - Emergency Worker Exposure Control

Intent

This sub-element is derived from NUREG-0654/FEMA-REP-1, which requires that Offsite Response Organizations (OROs) have the capability to assess and control the radiation exposure received by emergency workers and have a decision chain in place, as specified in the ORO's plans/procedures, to authorize emergency worker exposure limits to be exceeded for specific missions.

Radiation exposure limits for emergency workers are the recommended accumulated dose limits or exposure rates that emergency workers may be permitted to incur during an emergency. These limits include any pre-established administrative reporting limits (that take into consideration Total Effective Dose Equivalent or organ-specific limits) identified in the ORO's plans/procedures.

> ***Criterion 2.a.1: OROs use a decision-making process, considering relevant factors and appropriate coordination, to ensure that an exposure control system, including the use of KI, is in place for emergency workers, including provisions to authorize radiation exposure in excess of administrative limits or protective action guides. (NUREG-0654/FEMA-REP-1, C.6.f; K.3.a; K.4)***

Extent of Play

OROs authorized to send emergency workers into the plume exposure pathway EPZ must demonstrate a capability to comply with emergency worker exposure limits based on their emergency plans/procedures.

Participating OROs must demonstrate the capability to make decisions concerning the authorization of exposure levels in excess of pre-authorized levels and to the number of emergency workers receiving radiation dose above pre-authorized levels. This would include providing KI and dosimetry in a timely manner to emergency workers dispatched onsite to support plant incident assessment and mitigating actions, in accordance with respective plans/procedures.

As appropriate, OROs must demonstrate the capability to make decisions on the distribution and administration of KI as a protective measure for emergency workers, based on their's plan/procedures or projected thyroid dose compared with the established Protective Action Guides (PAGs) for KI administration.

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

Massachusetts Extent of Play

Protective action decisions are demonstrated at the Massachusetts State EOC based upon information provided from the EOF.

MDPH Radiation Control Program EOF staff will analyze utility, field team and meteorological date provided at the EOF to make a recommendation to the State EOC for their consideration in making protective action decisions.

Level 1 or Level 2 Findings: N/A

Sub-element 2.b. - Radiological Assessment, Protective Action Recommendations and Precautionary and/or Protective Action Decisions for the Plume Phase of the Emergency

Intent

This sub-element is derived from NUREG-0654/FEMA-REP-1, which requires that Offsite Response Organizations (ORO) have the capability to independently project integrated dose from projected or actual dose rates and compare these estimates to the PAGs.

OROs must have the capability to choose, among a range of protective actions, those most appropriate in a given emergency. OROs base these choices on PAGs from their plans/procedures or EPA's Manual of Protective Action Guides and Protective Actions for Nuclear Incidents and other criteria, such as plant conditions, licensee PARs, coordination of precautionary and/or protective action decisions with other political jurisdictions (e.g., other affected OROs and incident command), availability of in-place shelter, weather conditions, and situations, to include HAB incidents, the threat posed by the specific hostile action, the affiliated response and the effect of an evacuation on the threat response effort, that create higher than normal risk from general population evacuation.

Criterion 2.b.1: Appropriate protective action recommendations (PARs) are based on available information on plant conditions, field monitoring data, and licensee and ORO dose projections, as well as knowledge of onsite and offsite environmental conditions. (NUREG-0654/FEMA-REP-1, I.10 and Supplement 3)

Extent of Play

During the initial stage of the emergency response, following notification of plant conditions that may warrant offsite protective actions, the ORO must demonstrate the capability to use appropriate means, described in the plan/procedures to develop protective action recommendations (PAR) for decision-makers based on available information and recommendations provided from the licensee, as well as field monitoring data if available. The ORO must also consider any release and meteorological data provided by the licensee.

The ORO must demonstrate a reliable capability to independently validate dose projections. The types of calculations to be demonstrated depend on the data available and the need for assessments to support the PARs must be appropriate to the scenario. In all cases, calculation of projected dose must be demonstrated. Projected doses must be related to quantities and units of the PAG to which they will be compared. PARs must be promptly transmitted to decision-makers in a prearranged format.

When the licensee and ORO projected doses differ by more than a factor of 10, the ORO and licensee must determine the source of the difference by discussing input data and assumptions, using different models, or exploring possible reasons. Resolution of these differences must be incorporated into the PAR if timely and appropriate. The ORO must demonstrate the capability to use any additional data to refine projected doses and exposure rates and revise the associated PARs.

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

Massachusetts Extent of Play

Demonstration will be in accordance with the NIAT Handbook. The MDPH Dose Assessment Coordinator at the EOF will independently verify dose projections performed by the Utility.

The State EOC decision-making team will evaluate the protective action recommendations of the NIAT Accident Assessment Team and develop appropriate protective action decisions.

Protective action recommendations will be made in accordance with the MARERP and NIAT Handbook.

Level 1 and Level 2 Findings: N/A

Criterion 2.b.2: A decision-making process involving consideration of appropriate factors and necessary coordination is used to make precautionary and/or protective action decisions (PAD) for the general public (including the recommendation for the use of KI, if ORO policy). (NUREG-0654/FEMA-REP-1, A-3; C-4, 6; D-4; J.9, 10.e, f, m)

Extent of Play

Offsite Response Organizations (ORO) must have the capability to make both initial and subsequent precautionary and/or protective action decisions. OROs must demonstrate the capability to make initial precautionary and/or protective action decisions in a timely manner appropriate to the incident, based on information from the licensee, assessment of plant status and potential or actual releases, other available information related to the incident, input from appropriate ORO authorities (e.g. Incident Command), and PARs from the utility and ORO staff. In addition, a subsequent or alternate precautionary and/or protective action decision may be appropriate if various conditions (e.g. an HAB incident, weather, release timing and magnitude) pose undue risk to an evacuation, or if evacuation may disrupt the efforts to respond to a hostile action.

OROs must demonstrate the ability to obtain supplemental resources (e.g. mutual aid) necessary to implement a precautionary and/or protective action decision if local law enforcement, fire service, HAZMAT, and emergency medical resources are used to augment response to the NPP site or other key infrastructure.

Dose assessment personnel may provide additional PARs based on the subsequent dose projections, field monitoring data, or information on plant conditions. In addition, incident command must provide input regarding considerations for subsequent PARs based on the magnitude of the ongoing threat, the response, and/or site conditions. The decision-makers must demonstrate the capability to change protective actions based on the combination of all these factors.

If the ORO has determined that KI will be used as a protective measure for the general public under offsite plans/procedures, then it must demonstrate the capability to make decisions on the distribution and administration of KI to supplement sheltering and evacuation. This decision must be based on the ORO's plans/procedures or projected thyroid dose compared with the established PAG for KI administration. The KI decision-making process must involve close coordination with appropriate assessment and decision-making staff.

If more than one ORO is involved in decision-making, all appropriate OROs must communicate and coordinate precautionary and/or protective action decisions with each other. In addition, decisions must be coordinated/ communicated with incident command. OROs must demonstrate the capability to communicate the results of decisions to all the affected locations.

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

Massachusetts Extent of Play

Protective action decisions are demonstrated at the Massachusetts State EOC based upon information provided by the EOF. MEMA and MDPH Radiation Control Program staff will analyze the Utility, field monitoring and meteorological data provided at the EOF to make a recommendation to the State EOC for their consideration in making protective action decisions.

Level 1 or Level 2 Findings: N/A

Sub-element 2.c – Precautionary and/or Protective Action Decision Consideration for the Protection of Persons with Disabilities and Access/Functional Needs

Intent

This sub-element is derived from NUREG-0654/FEMA-REP-1, which requires that Offsite Response Organizations (ORO) have the capability to determine precautionary and/or protective action decisions, including evacuation, sheltering and use of potassium iodide (KI), if applicable, for groups of persons with disabilities and access/functional needs (e.g., hospitals, nursing homes, correctional facilities, schools, licensed day care, mobility impaired individuals, and transportation-dependent individuals). The focus is on those groups of persons with disabilities and access/functional needs that are or potentially will be affected by a radiological release from a nuclear power plant.

Criterion 2.c.1: Precautionary and/or Protective action decisions are made, as appropriate, for groups of persons with disabilities and access/functional needs. (NUREG-0654/FEMA-REP-1, D.4; J.9; J.10.d, e)

Extent of Play

Usually it is appropriate to implement evacuation in areas where doses are projected to exceed the lower end of the range of PAGs, except for incidents where there is a high-risk environmental condition or where high-risk groups (e.g., the immobile or infirm) are involved. In these cases, factors must be considered include weather conditions, shelter availability, availability of transportation assets, risk of evacuation vs. risk from the avoided dose, and precautionary school evacuations. In addition, decisions must be coordinated/ communicated with the incident command. In situations where an institutionalized population cannot be evacuated, the ORO must consider use of KI.

Applicable OROs must demonstrate the capability to alert and notify all public school systems/districts of emergency conditions that are expected to or may necessitate protective actions for students. Demonstration requires that the OROs actually contact public school systems/districts during the exercise.

The OROs must demonstrate how the decision-making process takes those with disabilities and access/functional needs (e.g., nursing homes, correctional facilities, licensed day cares, mobility-impaired individuals, and transportation-dependent individuals) into account.

In accordance with plans/procedures, OROs and/or officials of public school systems/districts must demonstrate the capability to make prompt decisions on protective actions for students. The decision-making process, including any preplanned strategies for protective actions for that ECL, must consider the location of students at the time (e.g., whether the students are still at home, enroute to school, or at school).

Since other agencies place requirements on hospitals to prepare for contaminated patients, the REP Program has no need to evaluate hospitals in the EPZ that need to evacuate, or the facilities that are receiving these evacuees, nor does the ORO have the responsibility to provide training or dosimetry to these hospitals/facilities. Additionally, hospital evacuation plans do not need to be reviewed or tested by the REP program.

All activities associated 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.

Massachusetts Extent of Play

Protective action decisions, including those for groups of persons with disabilities and access/functional needs, are demonstrated at the Massachusetts State EOC based upon information provided by MEMA and MDPH Radiation Control Program staff at the EOF. MEMA and MDPH Radiation Control Program staff will analyze Utility, field team and meteorological data provided at the EOF to make a recommendation to the State EOC for their consideration in making protection action decisions.

Level 1 or Level 2 Findings: N/A

Sub-element 2.d. –Radiological Assessment and Decision-Making for the Ingestion Exposure Pathway

Intent

This sub-element is derived from NUREG-0654/FEMA-REP-1, which requires that Offsite Response Organizations (ORO) have the means to assess the radiological consequences for the ingestion exposure pathway, relate them to the appropriate PAGs, and make timely, appropriate protective action decisions to mitigate exposure from the pathway. During an accident at a nuclear power plant, a release of radioactive material may contaminate water supplies and agricultural products in the surrounding areas. Any such contamination would likely occur during the plume phase of the accident and, depending on the nature of the release, could impact the ingestion pathway for weeks or years.

Criterion 2.d.1: Radiological consequences for the ingestion pathway are assessed and appropriate protective action decisions are made based on the ORO's planning criteria. (NUREG-0654/FEMA-REP-1, A.3; C.1, 4; D.4; J.9, 11)

Extent of Play

Offsite Response Organizations (ORO) are expected to take precautionary actions to protect food and water supplies, or to minimize exposure to potentially contaminated water and food, in accordance with their respective plans/procedures. Often OROs initiate such actions based on criteria related to the facility's Emergency Classification Levels (ECL). Such actions may include recommendations to place milk animals on stored feed and to use protected water supplies.

The ORO must use its procedures to assess the radiological consequences of a release on the food and water supplies, such as the development of a sampling plan. The ORO's assessment must include the evaluation of the radiological analyses of representative samples of water, food, and other ingestible substances of local interest from potentially impacted areas; characterization of the releases from the facility; and the extent of areas potentially impacted by the release. During this assessment, OROs must consider the use of agricultural and watershed data within the 50-mile EPZ. The radiological impacts on the food and water must then be compared to the appropriate ingestion PAGs contained in the ORO's plan/procedures. The plans/procedures contain PAGs based on specific dose commitment criteria or on criteria as recommended by current Food and Drug Administration guidance. Timely and appropriate recommendations must be provided to the ORO decision-makers group for implementation decisions. OROs may also include a comparison of taking or not taking a given action on the resultant ingestion pathway dose commitments.

The ORO must demonstrate timely decisions to minimize radiological impacts from the ingestion pathway, based on the given assessments and other information. Any such decisions must be communicated and, to the extent practical, coordinated with neighboring and local OROs. These decisions include tracking agricultural products entering and leaving the EPZ. Demonstration of plans and procedures which use traffic access control points to track agricultural products entering and leaving the EPZ may be conducted through interview. OROs will use Federal resources, as identified in the Nuclear/Radiological Incident Annex of the NRF and other resources (e.g., compacts, nuclear insurers), as necessary. Evaluation of this criterion will take into consideration the level of Federal and other resources participating.

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.

Massachusetts Extent of Play

This sub-element will not be demonstrated during this exercise.

Level 1 or Level 2 Findings: N/A

Sub-element 2.e. – Radiological Assessment and Decision Making Concerning Post-Plume Phase Relocation, Re-entry, and Return

Intent

This sub-element is derived from NUREG-0654/FEMA-REP-1, which requires that Offsite Response Organizations (ORO) have the capability to make decisions on post-plume relocation, re-entry, and return of the general public. These decisions are essential for the protection of the public from the direct long-term exposure to deposited radioactive materials from a severe accident at a nuclear power plant.

> ***Criterion 2.e.1: Timely post-plume phase relocation, re-entry, and return decisions are made and coordinated as appropriate, based on assessments of the radiological conditions and criteria in the ORO's plan and/or procedures. (NUREG-0654/FEMA-REP-1, I.10; J.9; K.3.a; M.1)***

Extent of Play

Relocation: *OROs must demonstrate the capability to estimate integrated dose in contaminated areas and compare these estimates with PAGs; apply decision criteria for relocation of those individuals in the general public who have not been evacuated, but where actual or projected doses are in excess of relocation PAGs; and control access to evacuated and restricted areas. OROs will make decisions for relocating members of the evacuated public who lived in areas that now have residual radiation levels in excess of the PAGs. Determination of areas to be restricted must be based on factors such as the mix of radionuclides in deposited materials, calculated exposure rates vs. the PAGs, and analyses of vegetation and soil field samples.*

Re-entry: *Decisions must be made on the location of control points and policies regarding access and exposure control for emergency workers and members of the general public who need to temporarily enter the evacuated area to perform specific tasks or missions.*

Examples of control procedures are the assignment of, or checking for, direct-reading and permanent record dosimetry for emergency workers; questions regarding an individual's objectives, locations expected to be visited and associated time frames; availability of maps and plots of radiation exposure rates; and advice on areas to avoid. Control procedures also include monitoring of individuals, vehicles, and equipment; the implementation of decision criteria regarding decontamination; and proper disposition of emergency worker dosimetry and maintenance of emergency worker radiation exposure records.

Responsible OROs must demonstrate the capability to develop a strategy for authorized re-entry of individuals into the restricted zone(s), based on established decision criteria. OROs must demonstrate the capability to modify those policies for security purposes (e.g., police patrols), maintenance of essential services (e.g., fire protection and utilities), and other critical functions. They must demonstrate the capability to use decision-making criteria in allowing access to the restricted zone by the public for various reasons, such as to maintain property (e.g., to care for farm animals or secure machinery for storage), or retrieve important possessions. Coordinated policies for access and exposure control must be developed among all agencies with roles to perform in the restricted zone(s). OROs must demonstrate the capability to establish policies for provision of dosimetry to all individuals allowed to re-enter the restricted zone(s). The extent that OROs need to develop policies on re-entry will be determined by scenario events.

Return: *OROs must demonstrate the capability to implement policies concerning return of members of the public to areas that were evacuated during the plume phase (i.e., permitting populations that were previously evacuated to reoccupy their homes and businesses on an unrestricted basis). OROs must base their decisions on environmental data and political boundaries or physical/geological features, which allow identification of the boundaries of areas to which members of the general public may return. Return is permitted to the boundary of the restricted area(s) that is based on the relocation PAG.*

Other factors that the ORO must consider in decision-making include conditions that permit the cancellation of the Emergency Classification Level and the relaxation of associated restrictive measures. OROs must base return recommendations on measurements of radiation from ground deposition. OROs must have the capability to identify services and facilities that require restoration within a few days and to identify the procedures and resources for their restoration. Examples of these services and facilities are medical and social services, utilities, roads, schools, and intermediate-term housing for relocated persons.

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.

Massachusetts Extent of Play

This sub-element will not be demonstrated during this exercise.

Level 1 or Level 2 Findings: N/A

EVALUATION AREA 3: Protective Action Implementation

Sub-element 3.a – Implementation of Emergency Worker Exposure Control

Intent

This sub-element is derived from NUREG-0654/FEMA-REP-1, which requires that OROs have the capability to provide for the following: distribution, use, collection, and processing of direct-reading dosimetry and permanent record dosimetry; reading of direct-reading dosimetry by emergency workers at appropriate frequencies; maintaining a radiation dose record for each emergency worker; establishing a decision chain or authorization procedure for emergency workers to incur radiation exposures in excess of protective action guides, and the capability to provide KI for emergency workers, always applying the ALARA (As Low As is Reasonably Achievable) principle as appropriate.

Criterion 3.a.1: The OROs issue appropriate dosimetry, KI, and procedures, and manage radiological exposure to emergency workers in accordance with the plans/procedures. Emergency workers periodically and at the end of each mission read their dosimeters and record the readings on the appropriate exposure record or chart. OROs maintain appropriate recordkeeping of the administration of KI to emergency workers. (NUREG-0654/FEMA-REP-1, K.3.a, b; K.4)

Extent of Play

OROs must demonstrate the capability to provide emergency workers (including supplemental resources) with the appropriate direct-reading and permanent record dosimetry, dosimeter chargers, KI, and instructions on the use of these items. For evaluation purposes, appropriate direct-reading dosimetry is defined as dosimetry that allows individual(s) to read the administrative reporting limits that are pre-established at a level low enough to consider subsequent calculation of Total Effective Dose Equivalent and maximum exposure limits, for those emergency workers involved in life saving activities contained in the ORO's plans/procedures.

Each emergency worker must have the basic knowledge of radiation exposure limits as specified in the ORO's plans/procedures. If supplemental resources are used, they must be provided with just-in-time training to ensure basic knowledge of radiation exposure control. Emergency workers must demonstrate procedures to monitor and record dosimeter readings and manage radiological exposure control.

During a plume phase exercise, emergency workers must demonstrate the procedures to be followed when administrative exposure limits and turn-back values are reached. The emergency worker must report accumulated exposures during the exercise as indicated in the plans/procedures. OROs must demonstrate the actions described in the plans/procedures by determining whether to replace the worker, authorize the worker to incur additional exposures, or to take other actions. If exercise play does not require emergency workers to seek authorizations for additional exposure, evaluators must interview at least two emergency workers to determine their knowledge of whom to contact in case authorization is needed, and at what exposure levels. Workers may use any available resources (e.g., written procedures and/or co-workers) in providing responses.

Although it is desirable for all emergency workers to each have a direct-reading dosimeter, there may be situations where team members will be in close proximity to each other during the entire mission. In such cases, adequate control of exposure can be affected achieved for all team members using one dosimeter worn by the team leader. Emergency workers who are assigned to low exposure rate fixed facilities, (e.g., EOCs and communications center within the EPZ, reception centers, and counting laboratories)

may have individual direct-reading dosimeters or they may be monitored using group dosimetry (i.e., direct-reading dosimeters strategically placed in the work area). Each team member must still have his or her own permanent record dosimetry. Individuals authorized by the ORO to reenter an evacuated area during the plume (emergency) phase, must be limited to the lowest radiological exposure commensurate with completing their missions.

OROs may have administrative limits lower than EPA-400-R-92-001 dose limits for emergency workers performing various services (e.g., lifesaving, protection of valuable property, all activities). ORO must ensure that the process used to seek authorizations for exceeding dose limits does not negatively impact the capability to respond to an incident where lifesaving and/or protection of valuable property may require an urgent response.

OROs must demonstrate the capability to accomplish distribution of KI to emergency workers consistent with decisions made. OROs must have the capability to develop and maintain lists of emergency workers who have ingested KI, including documentation of the date(s) and time(s) they did so. Ingestion of KI recommended by the designated ORO health official is voluntary. For evaluation purposes, the actual ingestion of KI shall not be performed. OROs must demonstrate the capability to formulate and disseminate instructions on using KI for those advised to take it. Emergency workers must demonstrate basic knowledge of procedures for using KI whether or not the scenario drives the implementation of KI use. This can be accomplished by an interview with an evaluator.

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

Massachusetts Extent of Play

EPZ EOCs: Dosimetry packets will be issued to two emergency workers in each EPZ EOC. Actual distribution and ingestion of KI will not occur. Empty KI tablet containers (small zip-lock bags) will be included in the dosimetry packets for emergency workers. Knowledge of the use of dosimetry and KI will be demonstrated through an interview of these two individuals by the FEMA Evaluator.
Region II EOC: Extra Dosimetry packets and KI are stored at this facility. No staff from this facility responds to the EPZ. Massachusetts State Police are used for compensatory response not Region II personnel. There will not be a dosimetry briefing at this location.

Level 1 or Level 2 Findings: N/A

Note: If, during the exercise, a participant demonstrates this sub-element unsatisfactorily, the FEMA Evaluator will inform the MEMA Controller. After an "on the spot" training by the local or State representative, the FEMA Evaluator will provide another opportunity to re-demonstrate the activity that day.

Sub-element 3.b – Implementation of KI Decision for Institutionalized Individuals and the General Public

Intent

This sub-element is derived from NUREG-0654/FEMA-REP-1, which requires that Offsite Response Organizations (ORO) have the capability to provide KI institutionalized individuals, and, if in the plans/procedures, to the general public for whom immediate evacuation may not be feasible, very difficult, or significantly delayed. While it is necessary for OROs to have the capability to provide KI to institutionalized individuals, providing KI to the general public is an ORO option and must be reflected in ORO's plans/procedures. Provisions should include the availability of adequate quantities, storage, and means of the distribution of KI.

Criterion 3.b.1: KI and appropriate instructions are available if a decision to recommend use of KI is made. Appropriate record keeping of the administration of KI for institutionalized individuals is maintained. (NUREG-0654/FEMA-REP-1, J. 10.e, f)

Extent of Play

Offsite Response Organizations (ORO) must demonstrate the capability to make KI available to institutionalized individuals, and, where provided for in the ORO plans/procedures, to members of the general public. OROs must demonstrate the capability to accomplish distribution of KI consistent with decisions made. OROs must have the capability to develop and maintain lists of institutionalized individuals who have ingested KI, including documentation of the date(s) and time(s) they were instructed to ingest KI. Ingestion of KI recommended by the designated ORO health official is voluntary. For evaluation purposes, the actual ingestion of KI shall not be performed. OROs must demonstrate the capability to formulate and disseminate instructions on using KI for those advised to take it.

If a recommendation is made for the general public to take KI, appropriate information must be provided to the public by the means of notification specified in the ORO's plans/procedures.

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

Massachusetts Extent of Play

Schools, day cares, and special facility staff who administer KI will be interviewed out-of-sequence by the FEMA Evaluator (see page 2 of EOP). The FEMA Evaluator will check the availability of adequate quantities, storage, and means of KI distribution.

Region II EOC: Extra Dosimetry packets and KI are stored at this facility. No staff from this facility responds to the EPZ. Massachusetts State Police are used for compensatory response not Region II personnel. There will not be a KI briefing at this location.

Level 1 or Level 2 Findings: N/A

Note: If, during the exercise, a participant demonstrates this sub-element unsatisfactorily, the FEMA Evaluator will inform the MEMA Controller. After an "on the spot" training by the local or State representative, the FEMA Evaluator will provide another opportunity to re-demonstrate the activity that day.

Sub-element 3.c—Implementation of Precautionary and/or Protective Actions for Persons with Disabilities and Access/Functional Needs

Intent

This sub-element is derived from NUREG-0654/FEMA-REP-1, which requires that Offsite Response Organizations (ORO) have the capability to implement precautionary and/or protective action decisions, including evacuation and/or sheltering, for all persons with disabilities and access/functional needs. The focus is on those persons with disabilities and access/functional needs that are (or potentially will be) affected by a radiological release from a nuclear power plant.

Criterion 3.c.1: Precautionary and/or protective action decisions are implemented for persons with disabilities and access/functional needs other than schools within areas subject to protective actions. (NUREG-0654/FEMA-REP-1, J.10.c, d, e, g)

Extent of Play

Applicable OROs must demonstrate the capability to alert and notify (i.e., provide protective action recommendations and emergency information and instructions to) persons with disabilities and access/functional needs, including hospitals/medical facilities, licensed day cares, nursing homes, correctional facilities, mobility impaired and transportation dependent individuals. OROs must demonstrate the capability to provide for persons with disabilities and access/functional needs in accordance with plans/procedures.

Contact with persons with disabilities and access/functional needs and reception facilities may be actual or simulated, as agreed to in the Extent of Play. Some contacts with transportation providers must be actually contacted, as negotiated in the extent of play. All actual and simulated contacts should be logged.

Since other agencies place requirements on hospitals to prepare for contaminated patients, the REP Program has no need to evaluate hospitals in the EPZ that need to evacuate, or the facilities that are receiving these evacuees, nor does the ORO have the responsibility to provide training or dosimetry to these hospitals/facilities. Additionally, hospital evacuation plans do not need to be reviewed or tested by the REP program.

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.

Massachusetts Extent of Play

SEOC: The U.S. Coast Guard representative will establish contact with the District Command Center and communicate with them throughout the exercise. No Broadcasting over the Urgent Marine Information Broadcast will occur only simulation. Only initial communication with the Captain of the Port will be established thereafter contact will be simulated.

Region II: Initial calls to all Transportation Providers will be made to verify telephone number and contact person. A Controller message will refer to matrix to provide the number of vehicles and drivers available for exercise play. No vehicles or personnel will be mobilized. A list of the Transportation Providers will be provided to the FEMA Evaluator.

Region II Special Needs Coordinator and staff (CMED) will demonstrate all appropriate communications with EPZ community EOC staff and simulate coordination of bed space assignment for evacuating

nursing home patients and hospital patients, although actual evacuation of special facilities will not occur. A Controller message will provide the default number of estimated bed spaces in host hospitals. All contact with hospitals will be simulated.
EPZ EOCs: All special facilities will receive initial contact. Follow-up calls will be **simulated** and logged. Participating special facilities will be interviewed **out of sequence** by a FEMA Evaluator (see page 2 of the EOP).
EPZ EOCs: The list of persons with disabilities and access/functional needs will be shown to the FEMA evaluator; however, the information is confidential and copies will not be provided to the evaluator. Staff will **simulate** and log calls to the individuals on the list that have identified themselves as needing assistance during an emergency.
Level 1 or Level 2 Findings: N/A

Criterion 3.c.2: OROs/School officials implement precautionary/protective actions for schools. (NUREG-0654/FEMA-REP-1, J.10.c, d, e, g)

Extent of Play

School systems/districts (these include public and private schools, kindergartens, and preschools) must demonstrate the ability to implement precautionary and/or protective action decisions for students. The demonstration must be made as follows: Each school system/district within the 10 mile EPZ must demonstrate implementation of protective actions. At least one school per affected system/district must participate in the demonstration. Canceling the school day, dismissing early, or sheltering in place must be simulated by describing to evaluators the procedures that would be followed. If evacuation is the implemented protective action, all activities to coordinate and complete the evacuation of students to reception centers, congregate care centers, or host schools may actually be demonstrated or accomplished through an interview process.

If accomplished through an interview, appropriate school personnel including decision-making officials (e.g., schools' superintendent/principals and transportation director/bus dispatchers), and at least one bus driver (and the bus driver's escort, if applicable) must be available to demonstrate knowledge of their role(s) in the evacuation of school children. Communications capabilities between school officials and the buses, if required by the plans/procedures, must be verified.

Officials of the school system(s) must demonstrate the capability to develop and provide timely information to OROs for use in messages to parents, the general public, and the media on the status of protective actions for schools.

If a school facility has emergency plans as a condition of licensing, those plans may be submitted to FEMA review in place of demonstration or interview pursuant to the ORO's plans/procedures as negotiated in the Extent of Play Agreement.

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

Massachusetts Extent of Play

Region II EOC: The MEMA Region II Special Needs Coordinator, in an interview with the FEMA Evaluator, will provide a list of schools located outside the EPZ with students who reside within the EPZ. Calls to schools outside the EPZ will be **simulated** and logged.
EPZ EOCs: Initial notification will be made to all schools and day care centers.

EPZ Schools: Participating facilities were visited **out of sequence** by a FEMA Evaluator in 2016, who interviewed key players (and if the site's plan calls for KI, responsible staff). See page 2 of Extent of Play for list
Day Care Centers: Participating facilities were visited **out of sequence** by a FEMA Evaluator, who interviewed key players (and if the site's plan calls for KI, responsible staff). See page 2 of Extent of Play for list.
Level 1 or Level 2 Findings: N/A

Sub-element 3.d. – Implementation of Traffic and Access Control

Intent

This sub-element is derived from NUREG-0654/FEMA-REP-1, which requires that Offsite Response Organizations (ORO) have the capability to implement protective action plans/procedures, including relocation and restriction of access to evacuated/sheltered areas. This sub-element focuses on selecting, establishing, and staffing of traffic and access control points and removal of impediments to the flow of evacuation traffic.

Criterion 3.d.1: Appropriate traffic and access control is established. Accurate instructions are provided to traffic and access control personnel. (NUREG-0654/FEMA-REP-1, A.3; C.1, 4; J.10.g, j)

Extent of Play

OROs must demonstrate the capability to select, establish, and staff appropriate traffic and access control points consistent with current conditions and protective action decisions (e.g., evacuating, sheltering, and relocation), in a timely manner. OROs must demonstrate the capability to provide instructions to traffic and access control staff on actions to take when modifications in protective action strategies necessitate changes in evacuation patterns or in the area(s) where access is controlled.

Traffic and access control staff must demonstrate accurate knowledge of their roles and responsibilities, including verifying emergency worker identification and access authorization to the affected areas, as per the extent of play agreement. These capabilities may be demonstrated by actual deployment or by interview, in accordance with the extent of play agreement.

In instances where OROs lack authority necessary to control access by certain types of traffic (e.g., rail, water, and air traffic), they must demonstrate the capability to contact the State or Federal agencies that have the needed authority, as agreed upon by the extent of play agreement.

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

Massachusetts Extent of Play

State EOCs: Contact with water, rail and air authorities are demonstrated at the State EOC.

EPZ EOCs: EOCs will demonstrate the ability to direct and monitor traffic control operations within their jurisdictions through discussions with the evaluator. The local EOC highway and/or Law Enforcement representative will participate in a discussion of procedures and resources available for traffic control. No personnel or equipment will be deployed to field locations.

Level 1 or Level 2 Findings: N/A

Note: If, during the exercise, a participant demonstrates this sub-element unsatisfactorily, the FEMA Evaluator will inform the MEMA Controller. After an "on the spot" training by the local or State representative, the FEMA Evaluator will provide another opportunity to re-demonstrate the activity that day.

Criterion 3.d.2: Impediments to evacuation are identified and resolved. (NUREG-0654/FEMA-REP-1, J.10.k)

Extent of Play

OROs must demonstrate the capability to identify and take appropriate actions concerning impediments to evacuations. In demonstrating this capability, the impediment must remain in place during the evacuation long enough that re-routing of traffic is required and must also result in demonstration of decision-making and coordination with the JIC to communicate the alternate route to evacuees. When, due to specifics of the scenario or jurisdiction, the impediment cannot be located on an evacuation route, it must be located so as to impact the evacuation. When not possible, actual dispatch of resources need not be physically demonstrated; however, all contacts, actual or simulated, should be logged.

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

Massachusetts Extent of Play

Each EPZ Local EOC will demonstrate rerouting of traffic following a traffic impediment through an interview with the FEMA Evaluator. No personnel or equipment will be dispatched to the simulated accident scene. One EPZ community will be have an impediment that is likely to cause lengthy rerouting of traffic along the evacuation route, this Local EOC will communicate this information to MEMA Region II in order for this information to be passed to the State EOC and the JIC. MA will demonstrate only one Local EOC will demonstrate the coordination with the JIC to communicate the alternate route to evacuees.

Note: If, during the exercise, a participant demonstrates this sub-element unsatisfactorily, the FEMA Evaluator will inform the MEMA Controller. After an "on the spot" training by the local or State representative, the FEMA Evaluator will provide another opportunity to re-demonstrate the activity that day.

Sub-element 3.e – Implementation of Ingestion Exposure Pathway Decisions

Intent

This sub-element is derived from NUREG-0654/FEMA-REP-1, which requires that OROs have the capability to implement protective actions, based on criteria recommended by current Food and Drug Administration guidance, for the ingestion exposure pathway EPZ (i.e., the area within an approximate 50-mile radius of the nuclear power plant). This sub-element focuses on those actions required for implementation of protective actions.

Criterion 3.e.1: The ORO demonstrates the availability and appropriate use of adequate information regarding water, food supplies, milk, and agricultural production within the ingestion exposure pathway emergency planning zone for implementation of protective actions. (NUREG-0654/FEMA-REP-1, A.3; C.1, 4; J.11)

Extent of Play

Applicable OROs must demonstrate the capability to secure and use current information on the locations of dairy farms, meat and poultry producers, fisheries, fruit growers, vegetable growers, grain producers, food processing plants, and water supply intake points to implement protective actions within the EPZ. OROs use Federal resources as identified in the NRF Nuclear/Radiological Incident Annex, and other resources (e.g., compacts, nuclear insurers) if available. Evaluation of this criterion will take into consideration the level of Federal and other resources participating in the exercise.

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

Massachusetts Extent of Play

This criterion will not be demonstrated during this exercise.

Level 1 or Level 2 Findings: N/A

Criterion 3.e.2: Appropriate measures, strategies, and pre-printed instructional material are developed for implementing protective action decisions for contaminated water, food products, milk, and agricultural production. (NUREG-0654/FEMA-REP-1, G.1; J.9, 11)

Extent of Play

OROs must demonstrate the development of measures and strategies for implementation of ingestion exposure pathway EPZ protective actions by formulating protective action information for the general public and food producers and processors. Demonstration of this criterion includes either pre-distributed public information material in the ingestion exposure pathway EPZ or the capability for the rapid reproduction and distribution of appropriate reproduction-ready information and instructions to pre-determined individuals and businesses.

OROs must also demonstrate the capability to control, restrict or prevent distribution of contaminated food by commercial sectors. Exercise play must include demonstration of communications and coordination among organizations to implement protective actions. Field play of implementation activities may be simulated. For example, communications and coordination with agencies responsible for enforcing food controls within the ingestion exposure pathway EPZ must be demonstrated, but actual communications with food producers and processors may be simulated.

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.

Massachusetts Extent of Play
This criterion will not be demonstrated during this exercise.

Level 1 or Level 2 Findings: N/A

Sub-element 3.f – Implementation of Post-Plume Phase Relocation, Re-entry, and Return Decisions

Intent

This sub-element is derived from NUREG-0654/FEMA-REP-1, which requires that Offsite Response Organizations (ORO) have the capability to implement plans, procedures, and decisions for post-plume phase relocation, re-entry, and return. Implementation of these decisions is essential for protecting the public from the direct long-term exposure to deposited radioactive materials from a severe accident at a commercial nuclear power plant.

Criterion 3.f.1: Decisions regarding controlled re-entry, relocation, and return of individuals during the post-plume phase are coordinated with appropriate organizations and implemented. (NUREG-0654/FEMA-REP-1, E.7; J.10.j; J.12; K.5.b; M.1, 3)

Extent of Play

Relocation: *OROs must demonstrate the capability to coordinate and implement decisions concerning relocation of individuals located in radiologically contaminated areas who were not previously evacuated. Such individuals must be relocated to an area(s) where radiological contamination will not expose the general public to doses that exceed the relocation PAGs. OROs must also demonstrate the capability to provide for short- or long-term relocation of evacuees who lived in area(s) that have residual radiation levels above the (first-, second-, and 50-year) PAGs.*

Areas of consideration must include the capability of OROs to communicate with other OROs regarding timing of actions, notification of the population of procedures for relocation, and the notification of, and advice for, evacuated individuals who will be converted to relocation status in situations where they will not be able to return to their homes due to high levels of contamination. OROs must also demonstrate the capability to communicate instructions to the public regarding relocation decisions and intermediate-term housing for relocated persons.

Re-entry: *OROs must demonstrate the capability to control re-entry and exit of individuals who are authorized by the ORO to temporarily re-enter the restricted area during the post-plume (i.e., intermediate or late) phase to protect them from unnecessary radiation exposure. OROs must also demonstrate the capability to control exit of vehicles and equipment to control the spread of contamination outside the restricted area(s). Individuals without specific radiological response missions, such as farmers for animal care, essential utility service personnel, or other members of the public who must reenter an evacuated area during the post-emergency phase must be limited to the lowest radiological exposure commensurate with completing their missions. Monitoring and decontamination facilities will be established as appropriate.*

Examples of control procedure subjects are: (1) the assignment of, or checking for, direct-reading and permanent record dosimetry for emergency workers; (2) questions regarding the individuals' objective(s), location(s) expected to be visited, and associated timeframes; (3) maps and plots of radiation exposure rates; (4) advice on areas to avoid; (5) procedures for exit, including monitoring of individuals, vehicles, and equipment; (6) decision criteria regarding contamination; (7) proper disposition of emergency worker dosimetry; and (8) maintenance of emergency worker radiation exposure records.

Return: *OROs must demonstrate the capability to implement policies concerning return of members of the public to areas that were evacuated during the plume phase. OROs must demonstrate the capability to identify and prioritize services and facilities that require restoration within a few days, and to identify the procedures and resources for their restoration. Examples of these services and facilities are medical and social services, utilities, roads, and schools.*

Communications among OROs for relocation, re-entry, and return may be simulated. All simulated or actual contacts must be documented. These discussions may be accomplished in a group setting.

OROs should use Federal resources as identified in the NRF Nuclear/Radiological Incident Annex, and other resources (e.g., compacts, nuclear insurers), as necessary, if available. Evaluation of this criterion will take into consideration the level of Federal and other resources participating in the exercise.

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

Massachusetts Extent of Play

This sub-element will not be demonstrated during this exercise.

Level 1 or Level 2 Findings: N/A

EVALUATION AREA 4: Field Measurement And Analysis

Sub-element 4.a – Plume Phase Field Measurements and Analyses

Intent

This sub-element is derived from NUREG-0654/FEMA-REP-1, which requires that Offsite Response Organizations (ORO) have the capability to deploy field teams with the equipment, methods, and expertise necessary to determine the location of airborne radiation and particulate deposition on the ground from an airborne plume. In addition, NUREG-0654/FEMA-REP-1 indicates that OROs must have the capability to use field monitoring teams within the plume exposure pathway EPZ to detect airborne radioiodine in the presence of noble gases and radioactive particulate material in the airborne plume. In an incident at a nuclear power plant, the possible release of radioactive material may pose a risk to the nearby population and environment. Although incident assessment methods are available to project the extent and magnitude of a release, these methods are subject to large uncertainties. During an incident, it is important to collect field radiological data to help characterize any radiological release. Adequate equipment and procedures are essential to such field measurement efforts.

Criterion 4.a.1: Reserved

Criterion 4.a.2: Field teams (2 or more) are managed to obtain sufficient information to help characterize the release and to control radiation exposure. (NUREG-0654/FEMA-REP-1, C.1; H.12; I.7, 8, 11; J.10.a)

Extent of Play

Responsible Offsite Response Organizations (ORO) must demonstrate the capability to brief field monitoring teams on predicted plume location and direction, plume travel speed, and exposure control procedures before deployment. During an HAB incident, the field team management must keep the incident command informed of field monitoring teams' activities and location. Coordination with field monitoring teams and field monitoring may be demonstrated as out-of-sequence demonstrations, as negotiated in the extent of play agreement.

Field measurements are needed to help characterize the release and support the adequacy of implemented protective actions, or to be a factor in modifying protective actions. Teams must be directed to take measurements at such locations and times as necessary to provide sufficient information to characterize the plume and its impacts.

If the responsibility for obtaining peak measurements in the plume has been accepted by licensee field monitoring teams, with concurrence from OROs, there is no requirement for these measurements to be repeated by OROs monitoring teams. If the licensee field monitoring teams do not obtain peak measurements in the plume, it is the ORO's decision as to whether peak measurements are necessary to sufficiently characterize the plume. The sharing and coordination of plume measurement information among all field monitoring teams (licensee, Federal, and ORO) is essential.

OROs will use Federal resources as identified in the NRF Nuclear/Radiological Incident Annex and other resources (e.g., compacts or the licensee) as necessary. Evaluation of this criterion will take into consideration the level of Federal and other resources participating in the exercise.

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

Massachusetts Extent of Play

NIAT Field Teams are managed by the Field Team Coordinator who are located at the utility EOF. He/she will brief and in conjunction with the utility and other state agencies, dispatch two teams to sampling locations in accordance with the NIAT Handbook, Section D.4, as dictated by scenario play. The NIAT Field Teams have been evaluated by FEMA during the Seabrook Exercise April 5, 2016. Both NIAT Field Teams will practice preparing one sample media and the report survey results on the appropriate survey forms to the Field Team Coordinator.

Criterion 4.a.3: Ambient radiation measurements are made and recorded at appropriate locations, and radioiodine and particulate samples are collected. Teams will move to an appropriate low background location to determine whether any significant (as specified in the plan and/or procedures) amount of radioactivity has been collected on the sampling media. (NUREG-0654/FEMA-REP-1, C.1; H.12; I. 8, 9; J.10.a)

Extent of Play

Two or more field monitoring teams must demonstrate the capability to make and report measurements ambient radiation to the field team coordinator, dose assessment team, or other appropriate authority. Field monitoring teams must also demonstrate the capability to obtain an air sample for measurement of airborne radioiodine and particulates, and to provide the appropriate authority with field data pertaining to measurement. If samples have radioactivity significantly above background, the authority must consider the need for expedited laboratory analyses of these samples. Coordination concerning transfer of samples, including a chain-of-custody form(s), to a radiological laboratory(ies) must be demonstrated.

OROs must share data in a timely manner with all other appropriate OROs. All methodology, including contamination control, instrumentation, preparation of samples, and a chain-of-custody form(s) for transfer to a laboratory(ies), will be in accordance with the ORO's plans/procedures.

OROs will use Federal resources as identified in the NRF Nuclear/Radiological Incident Annex and other resources (e.g., compacts or the licensee), as needed. Evaluation of this criterion will take into consideration the level of Federal and other resources participating in the exercise.

All activities must be 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.

Massachusetts Extent of Play

Two MA NIAT Field Teams will be dispatched from the EOF in accordance with the NIAT Handbook. The NIAT Field Teams have been evaluated by FEMA during the Seabrook Exercise April 5, 2016. The NIAT Field Teams will be practicing during the Pilgrim Exercise. Once, dispatched, only disposable gloves will be used for actual exercise play. Charcoal cartridges will be used instead of silver zeolite.

Both NIAT Field Teams will practice collecting one complete sample (monitoring and air sample) as specified by the procedures in Section D.4 of the NIAT Handbook.

Note: If, during the exercise, a participant demonstrates this sub-element unsatisfactorily, the FEMA Evaluator will inform the MEMA Controller. After an "on the spot" training by the local or State representative, the FEMA Evaluator will provide another opportunity to re-demonstrate the activity that day.

Sub-element 4.b – Post Plume Phase Field Measurements and Sampling

Intent

This sub-element is derived from NUREG-0654/FEMA-REP-1, which requires that OROs should have the capability to assess the actual or potential magnitude and locations of radiological hazards in the ingestion exposure pathway EPZ and to support relocation, re-entry and return decisions. This sub-element focuses on the collecting environmental samples for laboratory analyses that are essential for decisions on protection of the public from contaminated food and water and direct radiation from deposited materials.

Criterion 4.b.1: The field teams (2 or more) demonstrate the capability to make appropriate measurements and to collect appropriate samples (e.g., food crops, milk, water, vegetation, and soil) to support adequate assessments and protective action decision-making. (NUREG-0654/FEMA-REP-1 C.1; I.8; J.11)

Extent of Play

The ORO's field monitoring teams must demonstrate the capability to take measurements and samples, at such times and locations as directed to enable an adequate assessment of the ingestion exposure pathway and to support re-entry, relocation, and return decisions. When resources are available, use of aerial surveys and in-situ gamma measurement is appropriate. All methodology, including contamination control, instrumentation, preparation of samples, and chain-of-custody form(s) for transfer to a laboratory(ies), will be in accordance with the ORO's plans/procedures.

The field monitoring teams and/or other sampling personnel must secure ingestion exposure pathway samples from agricultural products and water. Samples in support of relocation and return must be secured from soil, vegetation, and other surfaces in areas that received radioactive ground deposition.

OROs will use Federal resources as identified in the NRF Nuclear/Radiological Incident Annex and other resources (e.g., compacts, the licensee, or nuclear insurers) as needed. Evaluation of this criterion will take into consideration the level of Federal and other resources participating in the exercise.

All activities must be 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.

Massachusetts Extent of Play

This sub-element will not be demonstrated during this exercise.

Level 1 or Level 2 Findings: N/A

Note: If, during the exercise, a participant demonstrates this sub-element unsatisfactorily, the FEMA Evaluator will inform the MEMA Controller. After an "on the spot" training by the local or State representative, the FEMA Evaluator will provide another opportunity to re-demonstrate the activity that day.

Sub-element 4.c - Laboratory Operations

Intent

This sub-element is derived from NUREG-0654/FEMA-REP-1, which requires that Offsite Response Organizations (ORO) have the capability to perform laboratory analyses of radioactivity in air, liquid, and environmental samples to support protective action decision-making.

Criterion 4.c.1: The laboratory is capable of performing required radiological analyses to support protective action decisions. (NUREG-0654/FEMA-REP-1, C.1, 3; J.11)

Extent of Play

The laboratory staff must demonstrate the capability to follow appropriate procedures for receiving samples, including logging of information, preventing contamination of the laboratory(ies), preventing buildup of background radiation due to stored samples, preventing cross contamination of samples, preserving samples that may spoil (e.g., milk), and keeping track of sample identity. In addition, the laboratory staff must demonstrate the capability to prepare samples for conducting measurements.

The laboratory(ies) must be appropriately equipped to provide, upon request, timely analyses of media of sufficient quality and sensitivity to support assessments and decisions as anticipated by the ORO's plans/procedures. The laboratory instrument calibrations must be traceable to standards provided by the National Institute of Standards and Technology. Laboratory methods used to analyze typical radionuclides released in a reactor incident should be as described in the plans/procedures. New or revised methods may be used to analyze atypical radionuclide releases (e.g., transuranics or as a result of a terrorist event) or if warranted by incident circumstances. Analysis may require resources beyond those of the ORO.

The laboratory staff must be qualified in radioanalytical techniques and contamination control procedures.

OROs will use Federal resources as identified in the NRF Nuclear/Radiological Incident Annex and other resources (e.g., compacts, the licensee, nuclear insurers) as needed. Evaluation of this criterion will take into consideration the level of Federal and other resources participating in the exercise.

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

Massachusetts Extent of Play

This sub-element will not demonstrated during this exercise

Level 1 or Level 2 Findings: N/A

EVALUATION AREA 5: Emergency Notification and Public Information

Sub-element 5.a – Activation of the Prompt Alert and Notification System

Intent

This sub-element is derived from NUREG-0654/FEMA-REP-1, which requires that OROs have the capability to provide prompt instructions to the public within the plume pathway EPZ. Specific provisions addressed in this sub-element are further discussed in Section V, Part A of the REP manual, Alert and Notification Systems.

Exhibit III-4: Evaluation Standards for Alert and Notification Systems

Demonstration Criteria:	***In a Timely Manner***	***Within 45 Minutes***	***Within a Reasonable Time***
Primary Alert and Notification			
5.a.1: ... covering essentially 100% of the 10-mile EPZ	*x*		
5.a.4: ... for FEMA-approved exception areas		*x*	
Backup Alert and Notification for All Incidents			
5.a.3: ... covering the 10-mile EPZ			*x*

Criterion 5.a.1: Activities associated with primary alerting and notification of the public are completed in a timely manner following the initial decision by authorized offsite emergency officials to notify the public of an emergency situation. The initial instructional message to the public must include as a minimum the elements required by current REP guidance. (NUREG-0654/FEMA-REP-1, E.5, 6, 7)

Extent of Play

Responsible Offsite Response Organizations (ORO) must demonstrate the capability to sequentially provide an alert signal followed by an initial instructional message to populated areas (permanent resident and transient) throughout the 10-mile plume pathway EPZ. Following the decision to activate the alert and notification system, OROs must complete system activation for primary alert/notification and disseminate the information/instructions in a timely manner. For exercise purposes, timely is defined as "with a sense of urgency and without undue delay." If message dissemination is identified as not having been accomplished in a timely manner, the evaluator(s) will document a specific delay or cause as to why a message was not considered timely.

Procedures to broadcast the message must be fully demonstrated as they would in an actual emergency up to the point of transmission. Broadcast of the message(s) or test messages is not required. The procedures must be demonstrated up to the point of actual activation. The alert signal activation should be simulated, not performed. Evaluations of EAS broadcast stations may also be accomplished through SAVs.

The capability of the primary notification system to broadcast an instructional message on a 24-hour basis must be verified during an interview with appropriate personnel from the primary notification system, including verification of provisions for backup power or an alternate station.

The initial message must include at a minimum the following elements:

- *Identification of the ORO responsible and the official with authority for providing the alert signal and instructional message;*
- *Identification of the commercial Nuclear Power Plant and a statement that an emergency exists there;*
- *Reference to REP-specific emergency information (e.g., brochures, calendars, and/or information in telephone books) for use by the general public during an emergency; and*
- *A closing statement asking that the affected and potentially affected populations stay tuned for additional information, or that the population tune to another station for additional information.*

If route alerting is demonstrated as a primary method of alert and notification, it must be done in accordance with the OROs plans/procedures and the extent of play agreement. OROs must demonstrate the capability to accomplish the primary route alerting in a timely manner (not subject to specific time requirements). At least one route needs to be demonstrated and evaluated. The selected route(s) must vary from exercise to exercise. However, the most difficult route(s) must be demonstrated no less than once every 8 years. All alert and notification activities along the route(s) must be simulated (i.e., the message that would actually be used is read for the evaluator, but not actually broadcast) as negotiated in the extent of play. Actual testing of the mobile public address system will be conducted at an agreed-upon location.

OROs must demonstrate any means of primary alert and notification included in their plans/procedures as negotiated in the extent of play agreement.

All activities must be based on the ORO's plans/procedures and completed as they would be in an actual emergency, except as noted above or otherwise specified in the extent of play agreement.

Massachusetts Extent of Play

The sounding of the sirens and broadcast of EAS/News Releases will be **simulated**. EAS/News Releases will be formulated and distributed by the Massachusetts State EOC. Actions to demonstrate performance of initial notification of the public will be performed up to the point of actual transmission of the Emergency Alert System (EAS) message. The EAS message will be prepared/ encoded by MEMA. EAS radio station WBZ (1030 AM) will be initially contacted and faxed a copy of a standard test message. **Siren activation and broadcast of EAS messages/News Releases will be simulated.**

Level 1 or Level 2 Findings: N/A

Criterion 5.a.2: [RESERVED]

Criterion 5.a.3: Backup alert and notification of the public is completed within a reasonable time following the detection by the ORO of a failure of the primary alert and notification system. (NUREG0654/FEMA-REP-1, E.6; Appendix 3.B.2.c)

Extent of Play

If the exercise scenario calls for failure of any portion of the primary system(s) or if any portion of the primary system(s) actually fails to function during the exercise, OROs must demonstrate backup means of alert and notification. Backup means of alert and notification will differ from facility to facility.

Backup alert and notification procedures that would be implemented in multiple stages must be structured such that the population closest to the plant (e.g., within 2 miles) is alerted and notified first. The populations farther away and downwind of any potential radiological release would be covered sequentially (e.g., 2 to 5 miles, followed by downwind 5 to 10 miles, and finally the remaining population as directed by authorities). Topography, population density, existing ORO resources, and timing will be considered in judging the acceptability of backup means of alert and notification.

Although circumstances may not allow this for all situations, FEMA and the NRC recommend that OROs and operators attempt to establish backup means that will reach those in the plume exposure EPZ within a reasonable time of failure of the primary alert and notification system, with a recommended goal of 45 minutes. The backup alert message must, at a minimum, include: (1) a statement that an emergency exists at the plant; and (2) instructions regarding where to obtain additional information.

When backup route alerting is demonstrated, ***only one route needs to be selected and demonstrated****. All alert and notification activities along the route(s) must be simulated (i.e., the message that would actually be used is read for the evaluator, but not actually broadcast), as negotiated in the extent of play. Actual testing of the mobile public address system will be conducted at an agreed-upon location.*

OROs may demonstrate any means of backup alert and notification included in their plans/procedures as negotiated in the Extent-of-Play Agreement.

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

Massachusetts Extent of Play

This sub-element will not be demonstrated this iteration.

Level 1 or Level 2 Findings: N/A

Criterion 5.a.4: Activities associated with FEMA-approved exception areas (where applicable) are completed within 45 minutes following the initial decision by authorized offsite emergency officials to notify the public of an emergency situation. (NUREG-0654/FEMA-REP-1, E. 6; Appendix 3.B.2.c)

Extent of Play

Offsite Response Organizations (ORO) with FEMA-approved exception areas (identified in the approved Alert and Notification System Design Report), 5 to 10 miles from the nuclear power plant, must demonstrate the capability to accomplish primary alerting and notification of the exception area(s). FEMA and the NRC recommend that OROs and operators establish means that will reach those in approved exception areas within 45 minutes once the initial decision is made by authorized offsite emergency officials to notify the public of an incident. The exception area alert message must, at a minimum, include (1) a statement that an emergency exists at the plant and (2) instructions regarding where to obtain additional information.

For exception area alerting, at least one route needs to be demonstrated and evaluated. The selected route(s) should vary from exercise to exercise. However, the most difficult route(s) must be demonstrated no less than once every 8 years. All alert and notification activities along the route(s) must be simulated (i.e., the message that would actually be used is read for the evaluator, but not actually broadcasted) as negotiated in the extent of play. Actual testing of the mobile public address system will be conducted at

an agreed-upon location. For exception areas alerted by air/water craft, actual routes will be negotiated in the extent of play, but must be demonstrated no less than once every 8 years.

All activities must be based on the ORO's plans/procedures and completed as they would be in an actual emergency, except as noted above or otherwise specified in the extent of play agreement.

Massachusetts Extent of Play

This criterion is not required by the Massachusetts Radiological Emergency Response Plan.

Level 1 or Level 2 Findings: N/A

Sub-element 5.b – Subsequent Emergency Information and Instructions for the Public and the Media

Intent

This sub-element is derived from NUREG-0654/FEMA-REP-1, which requires that Offsite Response Organizations (ORO) have the capability to disseminate appropriate emergency information and instructions, including any recommended protective actions, to the public. In addition, NUREG-0654/FEMA-REP-1 requires OROs to ensure that the capability exists for providing information to the media. This includes the availability of a physical location for use by the media during an emergency. NUREG-0654/FEMA-REP-1 also provides that a system should be available for dealing with rumors. This system will hereafter be known as the "public inquiry hotline."

Criterion 5.b.1: OROs provide accurate subsequent emergency information and instructions to the public and the news media in a timely manner. (NUREG-0654/FEMA-REP-1, E. 5, 7; G.3.a, G.4.a, c)

Extent of Play

The responsible ORO personnel/representatives must demonstrate actions to provide emergency information and instructions to the public and media in a timely manner following the initial alert and notification (not subject to specific time requirements). For exercise purposes, timely is defined as "with a sense of urgency and without undue delay." If message dissemination is identified as not having been accomplished in a timely manner, the evaluator(s) will document a specific delay or cause as to why a message was not considered timely.

Message elements: *The ORO must ensure that emergency information and instructions are consistent with protective action decisions made by appropriate officials. The emergency information must contain all necessary and applicable instructions (e.g., evacuation instructions, evacuation routes, reception center locations, what to take when evacuating, shelter-in-place instructions, information concerning protective actions for schools and persons with disabilities and access/functional needs, and public inquiry hotline telephone number) to assist the public in carrying out protective action decisions provided. The ORO must also be prepared to disclose and explain the Emergency Classification Level (ECL) of the incident. At a minimum, this information must be included in media briefings and/or media releases. OROs must demonstrate the capability to use language that is clear and understandable to the public within both the plume and ingestion exposure pathway EPZs. This includes demonstration of the capability to use familiar landmarks and boundaries to describe protective action areas.*

The emergency information must be all-inclusive by including the four items specified under exercise Demonstration Criterion 5.a.1 and previously identified protective action areas that are still valid, as well as new areas. Information about any rerouting of evacuation routes due to impediments should also be included. The OROs must demonstrate the capability to ensure that emergency information that is no longer valid is rescinded and not repeated by broadcast media. In addition, the OROs must demonstrate the capability to ensure that current emergency information is repeated at pre-established intervals in accordance with the plans/procedures.
OROs must demonstrate the capability to develop emergency information in a non-English language when required by the plans/procedures.

If ingestion pathway measures are exercised, OROs must demonstrate that a system exists for rapid dissemination of ingestion exposure pathway information to pre-determined individuals and businesses in accordance with the ORO's plans/procedures.

Media information: *OROs must demonstrate the capability to provide timely, accurate, concise, and coordinated information to the news media for subsequent dissemination to the public. This would include demonstration of the capability to conduct timely and pertinent media briefings and distribute media releases as the incident warrants. The OROs must demonstrate the capability to respond appropriately to inquiries from the news media. All information presented in media briefings and releases must be consistent with protective action decisions and other emergency information provided to the public. Copies of pertinent emergency information (e.g., EAS messages and media releases) and media information kits must be available for dissemination to the media.*

Public inquiry: *OROs must demonstrate that an effective system is in place for dealing with calls received via the public inquiry hotline. Hotline staff must demonstrate the capability to provide or obtain accurate information for callers or refer them to an appropriate information source. Information from the hotline staff, including information that corrects false or inaccurate information when trends are noted, must be included, as appropriate, in emergency information provided to the public, media briefings, and/or media releases.*

HAB considerations: *The dissemination of information dealing with specific aspects of NPP security capabilities, actual or perceived adversarial (terrorist) force or threat, and tactical law enforcement response must be coordinated/ communicated with appropriate security authorities, e.g., law enforcement and NPP security agencies, in accordance with ORO plans/procedures.*

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

Massachusetts Extent of Play

Joint Information Center: Information generated as a result of incoming calls to the SEOC Public Information Line/MASS 211 Call Center will be included in news briefings. At least two rumor trends will be handled.
State EOC: Control cell personnel will make calls simulating members of the public. The MASS 211 Call Center will demonstrate the ability to handle public inquiry calls. Handling at least two rumor trends (three or more calls of the same nature) will be demonstrated. Two MASS 211 public information line operators each will respond to calls once the Public Alert and Notification System has been activated at Site Area Emergency or General Emergency at the State EOC.

Each local EOC will demonstrate the community's emergency response and refer all other questions to MASS 211 Call Center.

Level 1 or Level 2 Findings: N/A

Note: If, during the exercise, a participant demonstrates this sub-element unsatisfactorily, the FEMA Evaluator will inform the MEMA Controller. After an "on the spot" training by the local or State representative, the FEMA Evaluator will provide another opportunity to re-demonstrate the activity that day.

EVALUATION AREA 6: Support Operation/Facilities

Sub-element 6.a – Monitoring, Decontamination and Registration of Evacuees

Intent

This sub-element is derived from NUREG-0654/FEMA-REP-1, which requires that Offsite Response Organizations (ORO) have the capability to implement radiological monitoring and decontamination of evacuees, while minimizing contamination of the facility. OROs must also have the capability to identify and register evacuees at reception centers.

Criterion 6.a.1: The reception center facility has appropriate space, adequate resources, and trained personnel to provide monitoring, decontamination, and registration of evacuees. (NUREG-0654/FEMA-REP-1, A.3; C.4; J.10.h; J.12)

Extent of Play

Radiological monitoring, decontamination, and registration facilities for evacuees must be set up and demonstrated as they would be in an actual emergency or as indicated in the extent of play agreement. OROs conducting this demonstration must have 1/3 of the resources (e.g., monitoring teams/instrumentation/portal monitors) available at the facility(ies) as necessary to monitor 20% of the population within a 12-hour period. This would include adequate space for evacuees' vehicles. Availability of resources can be demonstrated with valid documentation (e.g., MOU/LOA, etc.) reflecting how necessary equipment would be procured for the location. Plans/procedures must indicate provisions for service animals.

Before using monitoring instrument(s), the monitor(s) must demonstrate the process of checking the instrument(s) for proper operation. Staff responsible for the radiological monitoring of evacuees must demonstrate the capability to attain and sustain, within about 12 hours, a monitoring productivity rate per hour needed to monitor the 20% emergency planning zone (EPZ) population planning base. The monitoring productivity rate per hour is the number of evacuees that can be monitored, per hour, by the total complement of monitors using an appropriate procedure. For demonstration of monitoring, decontamination, and registration capabilities, a minimum of six individuals per monitoring station must be monitored per station using equipment and procedures specified in the plans/procedures. The monitoring sequences for the first six simulated evacuees per monitoring team will be timed by the evaluators in order to determine whether the twelve-hour requirement can be met.

OROs must demonstration the capability to register evacuees upon completion of the monitoring and decontamination activities. The activities for recording radiological monitoring and, if necessary, decontamination must include establishing a registration record consisting of the evacuee's name, address, results of monitoring, and time of decontamination (if any), or as otherwise designated in the plan and/or procedures. Audio recorders, camcorders or written records are all acceptable means for registration.

Monitoring activities shall not be simulated. Monitoring personnel must explain use of trigger/action levels for determining the need for decontamination. They must also explain the procedures for referring any evacuees who cannot be adequately decontaminated for assessment and follow-up in accordance with the ORO's plans/procedures. All activities must be based on the ORO's plans/procedures and completed as they would be in an actual emergency, unless noted above or otherwise specified in the extent of play agreement.

Decontamination of evacuees may be simulated and conducted by interview. Provisions for separate showering and same-sex decontamination must be demonstrated or explained. The staff must demonstrate provisions for limiting the spread of contamination. Provisions could include floor coverings, signs, and appropriate means (e.g., partitions, roped-off areas) to separate uncontaminated from potentially contaminated areas. Provisions must also exist to separate contaminated and uncontaminated evacuees, provide changes of clothing for those with contaminated clothing; and store contaminated clothing and personal belongings to prevent further contamination of evacuees or facilities. In addition, for any evacuee found to be contaminated, procedures must be discussed concerning the handling of potential contamination of vehicles and personal belongings. Waste water from decontamination operations does not need to be collected.

Individuals who have completed monitoring and decontamination, if needed must have means (e.g., hand stamp, sticker, bracelet, form, etc.) indicating that they, and their service animals and vehicles, where applicable, have been monitored, cleared, and found to have no contamination or contamination below the trigger/action level or have been placed in a secure area until they can be monitored and decontaminated, if necessary.

In accordance with plans/procedures, individuals found to be clean after monitoring do not need to have their vehicle monitored. These individuals do not require confirmation that their vehicle is free from contamination prior to entering the congregate care areas.

However, those individuals who are found to be contaminated and are then decontaminated will have their vehicles held in a secure area or monitored and decontaminated (if applicable) and do require confirmation that their vehicle is being held in a secure area or free from contamination prior to entering the congregate care areas.

Massachusetts Extent of Play

This sub-element will not be demonstrated during this exercise.

Level 1 or Level 2 Findings: N/A

Note: If, during the exercise, a participant demonstrates this sub-element unsatisfactorily, the FEMA Evaluator will inform the MEMA Controller. After an "on the spot" training by the local or State representative, the FEMA Evaluator will provide another opportunity to re-demonstrate the activity that day.

Sub-element 6.b – Monitoring and Decontamination of Emergency Workers and their Equipment and Vehicles

Intent

This sub-element is derived from NUREG-0654/FEMA-REP-1, which requires that Offsite Response Organizations (ORO) have the capability to implement radiological monitoring and decontamination of emergency workers and their equipment, inclusive of vehicles.

Criterion 6.b.1: The facility/ORO has adequate procedures and resources to accomplish monitoring and decontamination of emergency workers and their equipment and vehicles. (NUREG-0654/FEMA-REP-1, K.5.a, b)

Extent of Play

The monitoring staff must demonstrate the capability to monitor emergency worker personnel and their equipment and vehicles for contamination in accordance with the Offsite Response Organizations (ORO) plans/procedures.

Specific attention must be given to equipment, including any vehicles that were in contact with contamination. The monitoring staff must demonstrate the capability to make decisions on the need for decontamination of personnel, equipment, and vehicles based on trigger/action levels and procedures stated in the OROs plans/procedures. Monitoring of emergency workers does not have to meet the 12-hour requirement. However, appropriate monitoring procedures must be demonstrated for a minimum of 2 emergency workers and their equipment and vehicles. Before using monitoring instrument(s), the monitor(s) must demonstrate the process of checking the instrument(s) for proper operation.

The area to be used for monitoring and decontamination must be set up as it would be in an actual emergency, with all route markings, instrumentation, record keeping and contamination control measures in place. Monitoring procedures must be demonstrated for a minimum of one vehicle. It is generally not necessary to monitor the entire surface of vehicles. However, the capability to monitor areas such as radiator grills, bumpers, wheel wells, tires, and door handles must be demonstrated. Interior surfaces of vehicles that were in contact with contaminated individuals must also be checked.

Decontamination of emergency workers may be simulated and conducted via interview. Provisions for separate showering and same-sex decontamination must be demonstrated or explained. The staff must demonstrate provisions for limiting the spread of contamination. Provisions could include floor coverings, signs and appropriate means (e.g., partitions, roped–off areas) to separate uncontaminated from potentially contaminated areas. Provisions must also exist to separate contaminated and uncontaminated individuals where applicable, provide changes of clothing for those with contaminated clothing and store contaminated clothing and personal belongings to prevent further contamination of emergency workers or facilities.

OROs must demonstrate the capability to register emergency workers upon completion of the monitoring and decontamination activities. The activities for recording radiological monitoring and if necessary, decontamination must include establishing a registration record consisting of the emergency worker's name, address, results of monitoring, and time of decontamination (if any), or as otherwise designated in the plans/ procedures. Audio recorders, camcorders, or written records are all acceptable means for registration.

Monitoring activities shall not be simulated. Monitoring personnel must explain use of trigger/action levels for determining the need for decontamination. They must also explain the procedures for referring any

emergency workers who cannot be adequately decontaminated for assessment and follow-up in accordance with the ORO's plans/procedures.

Decontamination capabilities and provisions for vehicles and equipment that cannot be successfully decontaminated may be simulated and conducted by interview. Waste water from decontamination operations does not need to be collected.

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

Massachusetts Extent of Play

This sub-element will not be demonstrated during this exercise.

Level 1 or Level 2 Findings: N/A

Note: If, during the exercise, a participant demonstrates this sub-element unsatisfactorily, the FEMA Evaluator will inform the MEMA Controller. After an "on the spot" training by the local or State representative, the FEMA Evaluator will provide another opportunity to re-demonstrate the activity that day.

Sub-element 6.c - Temporary Care of Evacuees

Intent

This sub-element is derived from NUREG-0654/FEMA-REP-1, which requires that Offsite Response Organizations (ORO) to have the capability to establish relocation centers in host/support jurisdictions. The American Red Cross normally provides congregate care in support of OROs under existing letters of agreement.

> ***Criterion 6.c.1: Managers of congregate care facilities demonstrate that the centers have resources to provide services and accommodations consistent with American Red Cross planning guidelines. Managers demonstrate the procedures to assure that evacuees have been monitored for contamination and have been decontaminated as appropriate prior to entering congregate care facilities. (NUREG-0654/FEMA-REP-1, J.10.h, J.12)***

Extent of Play

The evaluator must conduct a walk-through of the center to determine, through observation and inquiries, that the services and accommodations are consistent with applicable guidance.

For planning purposes, OROs must plan for a sufficient number of congregate care centers in host/support jurisdictions based on their all-hazard sheltering experience and what is historically relevant for that particular area. In this simulation, it is not necessary to set up operations as they would be in an actual emergency. Alternatively, capabilities may be demonstrated by setting up stations for various services and providing those services to simulated evacuees. Given the substantial differences between demonstration and simulation of this criterion, exercise demonstration expectations must be clearly specified in extent-of-play agreements.

Congregate care staff must also demonstrate the capability to ensure that evacuees, service animals, and vehicles have been monitored for contamination, decontaminated as appropriate, and registered before entering the facility.

Individuals arriving at congregate care facilities must have means (e.g., hand stamp, sticker, bracelet, form, etc.) indicating that they, and their service animal and vehicles, where applicable, have been placed in a secured area or monitored, cleared, and found to have no contamination or contamination below the trigger/action level.

In accordance with plans/procedures, individuals found to be clean after monitoring do not need to have their vehicle monitored. These individuals do not need confirmation that their vehicle is free from contamination prior to entering the congregate care areas.

However, those individuals who are found to be contaminated and are then decontaminated will have their vehicles held in a secure area until they can be monitored or decontaminated (if applicable) and do need confirmation that their vehicle is being held in a secure area or free from contamination prior to entering the congregate care areas. This capability may be determined through an interview process.

If operations at the center are demonstrated, material that would be difficult or expensive to transport (e.g., cots, blankets, sundries, and large-scale food supplies) need not be physically available at the facility(ies). However, availability of such items must be verified by providing the evaluator a list of sources with locations and estimates of quantities.

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

Massachusetts Extent of Play

This sub-element will not be demonstrated during this exercise.

Level 1 or Level 2 Findings: N/A

Sub-element 6.d - Transportation and Treatment of Contaminated Injured Individuals

Intent

This sub-element is derived from NUREG-0654/FEMA-REP-1, which requires that Offsite Response Organizations (ORO) have the capability to transport contaminated injured individuals to medical facilities with the capability to provide medical services.

Criterion 6.d.1: The facility/ORO has the appropriate space, adequate resources, and trained personnel to provide transport, monitoring, decontamination, and medical services to contaminated injured individuals. (NUREG-0654/FEMA-REP-1, F.2; H.10; K.5.a, b; L.1, 4)

Extent of Play

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

Offsite Response Organizations (ORO) must demonstrate the capability to monitor/decontaminate and transport contaminated, injured individuals to medical facilities.

An ambulance must be used for the response to the victim. However, to avoid taking an ambulance out of service for an extended time, OROs may use any vehicle (e.g., car, truck, or van) to transport the victim to the medical facility. It is allowable for an ambulance to demonstrate up to the point of departure for the medical facility and then have a non-specialized vehicle transport the "victim(s)" to the medical facility. This option is used in areas where removing an ambulance from service to drive a great distance (over an hour) for a drill would not be in the best interests of the community.

Normal communications between the ambulance/dispatcher and the receiving medical facility must be demonstrated. If a substitute vehicle is used for transport to the medical facility, this communication must occur before releasing the ambulance from the drill. This communication would include reporting radiation monitoring results, if available. In addition, the ambulance crew must demonstrate, by interview, knowledge of where the ambulance and crew would be monitored and decontaminated, if required, or whom to contact for such information.

Monitoring of the victim may be performed before transport or enroute, or may be deferred to the medical facility. Contaminated injured individuals transported to medical facilities are monitored as soon as possible to assure that everyone (ambulance and medical facility) is aware of the medical and radiological status of the individual(s). However, if an ambulance defers monitoring to the medical facility, then the ambulance crew presumes that the patient(s) is contaminated and demonstrate appropriate contamination controls until the patient(s) is monitored. Before using monitoring instruments, the monitor(s) must demonstrate the process of checking the instrument(s) for proper operation. All monitoring activities must be completed as they would be in an actual emergency. Appropriate contamination control measures must be demonstrated before and during transport and at the receiving medical facility.

The medical facility must demonstrate the capability to activate and set up a radiological emergency area for treatment. Medical facilities are expected to have at least one trained physician and one trained nurse to perform and supervise treatment of contaminated injured individuals. Equipment and supplies must be available for the treatment of contaminated injured individuals.

The medical facility must demonstrate the capability to make decisions on the need for decontamination of the individual, follow appropriate decontamination procedures, and maintain records of all survey measurements and samples taken. All procedures for the collection and analysis of samples and decontamination of the individual must be demonstrated or described to the evaluator. Waste water from decontamination operations must be handled according to facility plans/procedures.

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

Massachusetts Extent of Play

Good Samaritan Hospital will be demonstrated out of sequence September 2016

Level 1 or Level 2 Findings: N/A

Appendix D: Pilgrim Exercise Scenario Summary

Pilgrim Nuclear Power Station
November 16, 2016 16-04 NRC/FEMA Evaluated Exercise

SCHEDULE OF EVENTS

SCHEDULE OF ACTIVITIES

Pre-Exercise

Event:	**TSC/OSC Player Briefing***
Date:	Monday, November 7 2016
Time:	1000-1130
Location:	TSC/OSC
Attendees:	TSC/OSC Players

Event:	**EOF Player Briefing***
Date:	Monday, November 7, 2016
Time:	1400-1530
Location:	EOF
Attendees:	EOF Players

Event:	**JIC Player Briefing***
Date:	Tuesday, November 8, 2016
Time:	0730-0900
Location:	Industrial Park – Classroom 4
Attendees:	JIC Players

Event:	**Controller Briefing**
Date:	Wednesday, November 9, 2016
Time:	1300 - 1500
Location:	ESB Conference Room 2A/B
Attendees:	All Controllers

Event:	**NRC Entrance**
Date:	Monday November 14, 2016
Time:	1300
Location:	TBD
Attendees:	Lead Facility Controllers, Leadership Team

Event:	**FEMA Evaluator Briefing**
Date:	Tuesday, November 15, 2016
Time:	1000
Location:	Hampton Inn, Plymouth
Attendees:	selected individuals for scenario review

Exercise

Event:	**NRC/FEMA Evaluated Exercise**
Date:	Wednesday, November 16, 2016
Time:	0800 to Drill Termination
Location:	Simulator, TSC, OSC, EOF, JIC
Attendees:	All Players and All Controllers

Post-Exercise

Event:	**Lead Controller Debrief**
Date:	Wednesday, November 16, 2016
Time:	1600 - 1800
Location:	CR 2A/B
Attendees:	Drill Coordinator, Lead Facility Controllers and Players and EP

Event:	**Exercise Results – Persentation to Management Team/NRC***
Date:	Thursday, November 17, 2016
Time:	1600 - 1700 (tentative)
Location:	CR 3A
Attendees:	Senior Team, Lead Facility Controllers and Lead Drill Players, EP

Event:	**NRC Exit ***
Date:	Friday, November 18, 2016
Time:	0830 (tentative)
Location:	CR 3A
Attendees:	Senior Team, Lead Facility Controllers and Lead Drill Players, EP

Event:	**FEMA Public meeting***
Date:	Friday, November 18, 2016
Time:	1100
Location:	Hampton Inn, Plymouth
Attendees:	EP, RAPID,members of Senior Team,

- *Presentation to Management and NRC Exit are dependent on drill and inspection results

Pilgrim Nuclear Power Station
November 16, 2016 16-04 NRC/FEMA Evaluated Exercise

Participating Agencies:

Commonwealth of Massachusetts

Massachusetts Emergency Management Agency (MEMA)
Massachusetts Department of Public Health (MDPH)

EPZ Communities

Town of Plymouth
Town of Carver
Town of Kingston
Town of Duxbury
Town of Marshfield

Reception Communities

Taunton
Bridgewater
Braintree

Pilgrim Nuclear Power Station
November 16, 2016 16-04 NRC/FEMA Evaluated Exercise

Plant and Player Safety Considerations:

- **Do NOT** operate any plant equipment
- Personnel are required to maintain safe operation (i.e., on-shift operators) of the plant will be exempt from drill activities. Do not interact with the on-shift operating crew
- Never violate Industrial Safety, Radiation Protections, Operations or Security procedures/regulations
- Drill communications over radios and telephones are to be prefaced and followed by "**THIS IS A DRILL.**" Face-to-face communications do not require this statement
- Use 3 part communication especially with numbers, units of measure, etc.
- If a plant issue/actual emergency arises you will be informed by the facility controllers to suspend the drill.
- Participants must respond to simulated events as if they are real. This includes but is not limited to the following: [As amended by extent of play or controllers]
    - (a) Wearing of dosimetry and protective clothing.
    - (b) Observing good radiation protection practices
    - (c) Minimizing exposures
    - (d) Responding to failed instruments in the field
    - (e) Reporting hazards to the correct personnel
    - (f) Proper contamination control
- All normal site procedures and rules are to be followed when entering the protected area and actual radiological controlled or radiation areas. NO ONE, including controllers, and observers, are exempt from normal station radiological or safety practices
- Read/review your procedures/position books. A drill is an infrequently performed task.

EXERCISE OBJECTIVES

Pilgrim Nuclear Power Station
November 16, 2016 16-04 NRC/FEMA Evaluated Exercise

EXERCISE OBJECTIVES

A.1 Command and Control
Demonstrate the ability of the Emergency Director or Facility Lead/Manager to provide overall direction (command and control) by initiating, coordinating and implementing timely and effective actions during the event.
Demonstrate the ability of the Emergency Director to provide overall direction (command and control) by initiating, coordinating and implementing timely and effective actions during the event.

A.2 Operational Agreements
Demonstrate the coordination of the implementation of emergency measures and the exchange of information between the utility and Federal, State and local agencies and other support organizations having an emergency response role within the EPZ.

A.3 Continuous Operations
Demonstrate the capability to establish and maintain continuous (24 hour) operations for a protracted period.

B.1 Shift Staff Response
Demonstrate the ability of the normal staff complement to perform the functions of the on-shift ERO.

B.2 On-shift Emergency Direction
Demonstrate the Shift Manager's ability to immediately and unilaterally initiate any emergency response action, including providing protective action recommendations to authorities responsible for implementing offsite emergency measures.

B.3 Line of Succession
Demonstrate the ability to transfer overall command and control of the emergency response.

B.4 Non-Delegable Responsibilities
Demonstrate the performance of authority of the non-delegable responsibilities.

B.5 Minimum ERO Staffing
Demonstrate the ability to augment the on-shift response capabilities within a short period of time.

B.6 Full ERO Staffing Augmentation
Demonstrate the ability of management, administrative and technical support personnel to augment the plant staff in the areas of logistics support, technical support, government interface, and public information.

B.7 ERO Support Organizations
Demonstrate the ability of specified contractor and private support organizations to provide technical assistance to or augment the ERO.

B.10 24 Hour per day Emergency Response Capabilities
Demonstrate planning for 24-hour per day emergency response capabilities.

C.2 Community Representative
Demonstrate the ability to provide a liaison at each participating offsite governmental Emergency Operations Center (EOC).

D.1 Classification
Demonstrate the ability to recognize the initiating conditions for EALs and to properly classify emergencies.

E.1 Off-site Notification
Demonstrate the ability to notify the offsite Emergency Response Organizations (ORO) consistent with the classification scheme including the verification of messages in a timely manner.

EXERCISE OBJECTIVES (cont)

E.2 ERO Notification
Demonstrate the ability to alert, notify and mobilize ERO personnel.

E.3 Initial Notification Message Content
Demonstrate the ability to provide the required content for the initial notification messages accurately within the required time limit.

E.4 Follow-up Message Content
Demonstrate the ability to provide the required content for the follow-up notification messages timely and accurately.

F.1 State/Local Communications System
Demonstrate the ability to operate the communications systems used by the ERO to provide information to the State and local agencies.

F.2 Federal Communications System
Demonstrate the ability to operate the communications systems used by the ERO to provide information to federal agency(s).

F.3 Emergency Response Data System (ERDS)
Demonstrate the ability to activate ERDS as soon as possible but no later than one hour after declaration of an emergency of an Alert or higher emergency classification.

F.4 Utility Communications System
Demonstrate the ability to operate the communications systems used by the ERO to exchange information with other emergency response facilities.

G.1 JIC Support of Emergency
Demonstrate the adequacy of the JIC to support emergency response activities.

G.2 Media Briefings
Demonstrate the ability of the Spokesperson to brief the media in a clear, accurate and timely manner.

G.3 Exchange of Public Information
Demonstrate the timely exchange of public information among designated agency spokespersons.

G.4 Public Inquiry (Rumor Control)
Demonstrate the ability to establish and operate an effective system for dealing with calls to the public inquiry hotline.

G.5 Release of Information
Demonstrate the ability to develop and release information to the media/public for a declared emergency.

H.1 TSC Support of Emergency Operations
Demonstrate the adequacy of the TSC to support emergency response activities.

H.2 EOF Support of Emergency Operations
Demonstrate the adequacy of the EOF to support emergency response activities.

H.3 OSC Support of Emergency Operations
Demonstrate the adequacy of the OSC to support emergency response activities.

H.4 Timely Facility Activation
Demonstrate the ability to activate the emergency response facilities in a timely manner.

H.10 Control Room Direction and Control
Demonstrate effective direction and control for onsite resources to support assessment and mitigation of the event.

EXERCISE OBJECTIVES (cont)

H.11 TSC Direction and Control
Demonstrate effective direction and control for facility resources to support assessment and mitigation of the event.

H.12EOF Direction and Control
Demonstrate effective direction and control for facility resources to support facility priorities.

H.14 EOF Display Capabilities
Demonstrate the capability for obtaining and displaying plant data and radiological information for each reactor at the station and each station supported by the facility.

H.15 EOF Technical Capabilities
Demonstrate the capability to analyze plant technical information and provide technical briefings on event prognosis to station and off-site response organizations for each reactor at the station and each station supported by the facility.

H.17 Meterological Data
Demonstrate the ability to obtain current and forecasted meteorological information from primary as well as backup and alternate sources.

I.1 Accident Recognition and Assessment
Demonstrate the ability to provide initial values and continuing assessment throughout the course of an accident as well as the parameter values that correspond to the initiating conditions for EALs and PARs.

I.2 Core Damage Assessment
Demonstrate the ability to determine the extent of core failure based on station-specific assessment strategies and sampling.

I.3 Release and Dose Assessment
Demonstrate the ability to determine the magnitude of radioactive releases or perform dose assessments based on plant parameters, effluent monitors, field data and meteorological conditions.

I.5 Health Physics – In Plant Monitoring
Demonstrate response and analysis of simulated elevated airborne and liquid samples and direct radiation measurements in the environment..

I.6 Health Physics – Environmental Release Monitoring
Demonstrate response and analysis of simulated elevated airborne and liquid samples and direct radiation measurements in the environment.

I.7 OMT Support of Emergency Operations
Demonstrate the adequacy of the OMTs to support emergency response activities.

I.8 Plume Phase Monitoring
Demonstrate the ability to monitor radiological releases to the environment in the field.

J.1 Warning On-Site Personnel
Demonstrate the means to alert individuals at the site and persons who may be in the public access areas within the owner controlled area.

J.4 Assembly and Accountability
Demonstrate the ability to perform accountability for all individuals in the Protected Area within 30 minutes of declaration.

EXERCISE OBJECTIVES (cont)

J.5 Personnel Protection Equipment
Demonstrate the availability and use of respiratory protections and protective clothing for onsite emergency response personnel.

J.6 Potassium Iodide (K1)
Demonstrate the availability and use of potassium iodide (KI) for utility emergency response personnel.

J.7 Protective Action Recommendations (PAR)
Demonstrate the ability to recommend protective actions to appropriate offsite authorities.

K.2 Exposure Monitoring
Demonstrate the ability to control and track emergency worker radiation exposure.

K.3 Personnel Decontamination Controls
Demonstrate the use of action levels for determining the need for decontamination, perform decontamination and provide for waste disposal.

K.4 Area Contamination Controls
Demonstrate contamination control practices.

K.5 Habitability Controls
Demonstrate the capability to minimize ERO internal contamination through ERF habitability controls and controlling the intake of drinking water and food supplies.

N.1 Exercise and Drills
Demonstrate the ability to conduct drills and exercises which evaluate key skills, overall emergency response capabilities and formal critiques identifying weaknesses or deficiencies requiring action.

N.2 Plans, Procedures, Facilities and Equipment
Personnel, plans, procedures, facilities and equipment are tested and maintained ready to respond to emergencies, from minor events to severe accidents.

Scenario Timeline and Messages

Updated 9/13/16 08:00 hrs

1 Narrative

Initial Conditions

It is November 16th, 2016. At the start of the exercise, the plant is at 100% power and has been on line for 63 days.

A nor'easter impacted the site yesterday. Local communities have experienced some beach erosion however all major roads are passible and impact from the storm has been minimal.

The site is continuing to experience astronomically high tides from the storm and the full moon. High tide is expected around 1000 hrs. The wind is from the North East at 8-10 mph at 45°. Travelling screens are running fast and being monitored locally. It is a cloudy day with temperatures in the 50's F. The weather forecast predicts the winds to remain relatively constant from the North East at 8-10 mph. Skies are expected to remain cloudy throughout the day.

Sequence of Events

(0805) The Exercise is initiated when Control Rod 26-27 drifts out. The operators are expected to respond to the rod drift per ARP-C905L & PNPS 2.4.11 and return 26-27 to its required position. However the rod will continue to drift out, forcing the operators to insert the rod to 00 and disable it. This rod drift will be the start of some minor (<3%) fuel clad failure (not visible to crew at this time). PNPS procedure 2.4.40, "Rapid Increase in Main Steam Line or Offgas Activity" requires a reactor coolant sample be analyzed for evidence of fuel failure.

(0820) Crew recognizes increased sea water level. Crew recognizes sea water bay level has exceeded 13' 6". Shift Manager will declare an **UNUSUAL EVENT** based on EAL HU1.5:

- Sea water bay water level > +13' 6" MSL (LI-3831A/B)
  OR
  Sea water bay water level < -13' 9" MSL (LI-3831A/B)

Operations reports that sea water bay level is upscale high and requests field operator to report local sea water level readings. An operator is dispatched per 5.3.8, Att 2 or 3.

Main Steam and Off-gas radiation levels are trending upward due to minor fuel cladding failure resulting from the rod drift. Emergency Plant Information Computer (EPIC) alarms are received.

(0850) Field operator reports that sea water intake levels are +16'4" and continuing to rise slowly. Crew recognizes rising sea level and Shift Manager declares an **ALERT** based on EAL HA1.6

- Sea water bay water level > +16' 0" MSL
  OR
  Sea water bay water level < -16' 0" MSL

When the Alert is declared, the emergency response organization (ERO) is notified by activation of the Emergency Response Organization Notification system. When sufficient numbers of the ERO arrive at the Technical Support Center (TSC), the Operations Support Center (OSC), the Emergency Operations Facility (EOF), and the Joint Information Center (JIC), each facility will become operational.

Shortly following the Alert, EDG "A" trouble alarm comes in due to low start air pressure. NLO will be sent to investigate cause. A review of the Annunciator Response Procedure (ARP) indicates the air pressure is below the set point for the valve. The valve is lifting and is not reseating.

After the ALERT and when all facilities are declared operational, the Main Steam Line (MSL) B Flow Indicator, FI-640-23B, fails downscale resulting in a small transient observed by the Control Room Operators which results in slightly lower reactor vessel level. Feedwater level control is affected and crew may take manual control of feed regulating valves. Operations should ask for a team to troubleshoot and repair the indicator.

Approximately one hour and fifteen minutes after the ALERT has been declared, a leak develops on the Reactor Water Clean Up (RWCU) at E-208C head, discharging primary coolant into the Reactor Building (~20 gpm) which will not isolate (Supply valves MO-1201-02 and MO-1201-05 will not close). Secondary Containment temperature and radiation levels increase to Max Normal values. Operators enter EOP-04 based on the rising Secondary Containment temperatures. The reactor is scrammed per EOP-04 when max normal values are reached with primary system discharging into secondary containment. Operators should determine that a leak has occurred in the RWCU HX Room and RWCU failed to isolate. Attempts to isolate MO-1201-02 and MO-1201-05 from the simulator control room are unsuccessful. Conditions are met for a SAE based on EAL FS1.1 "Loss of any two barriers" Criteria C.9 or C.14 and C.18. The Emergency Director in the EOF should make the determination that an unisolable primary system is discharging outside primary containment. This requires an upgrade to **SITE AREA EMERGENCY** based on EAL FS1.1 "Loss or Potential Loss of two Fission Product Barriers".

- The two fission product barriers are Loss of RCS (criterion 9) or Potential Loss of RCS (criteria 14) and Loss of Primary Containment Barrier (criterion 18).

The transient from the reactor scram causes additional fuel to fail. Fission products have entered into the Reactor Coolant system and also into the Reactor Building via the RWCU system leak from which they are collected by the Standby Gas Treatment System and flow through the Main Stack for monitoring and discharge.

Main Steam and Off-gas radiation levels are trending upward due to fuel failure from the rod drift and the scram transient. PNPS procedure 2.4.40, "Rapid Increase in Main Steam Line or Offgas Activity" directs Main Steam Isolation Valve (MSIV) closure upon reaching Main Steam Line Radiation High-High set point. Crew may isolate MSIVs before reaching set point. The MSIV closure will force more fission products to escape via the RWCU leak. Chemistry personnel should be directed to obtain a reactor coolant sample. Operations would be expected to aggressively pursue cool down and

reducing reactor vessel pressure per EOP-04 in order to minimize or stop the leak. The opening of the SRVs to maintain reactor pressure will also raise the activity in containment.

About one hour after Site Area Emergency, a Torus High Range Monitor exceeds 50R/hr. Staff should recognize this as an indication of failed fuel clad barrier and combined with the SAE conditions, this meets GE criteria. The Emergency Director in the EOF is expected to upgrade the event to a **GENERAL EMERGENCY** (GE) based on EAL FG1.1: Loss of two barriers and loss or potential loss of third barrier".

- The three fission product barriers are Loss of Fuel Clad (criteria 2), Loss of RCS (criterion 9) or Potential Loss of RCS (criteria 14) and Loss of Primary Containment Barrier (criterion 18).

At the time of declaring the General Emergency, the ERO will formulate and issue Protective Action Recommendations (PAR) with the initial General Emergency declaration. The PAR should include evacuating the 2 mile ring surrounding the plant and 5 miles downwind of the affected sub-areas in the Emergency Planning Zone (EPZ); and sheltering all remaining sub-areas in the EPZ. This should include evacuating sub-areas 1,2,3,12 and sheltering sub areas 4,5,6,7,8,9 and 10. This PAR is based on postulated wind direction from the North East (45 degrees) at 8-10 mph.

If chemistry sample was requested following the reactor scram, the reported sample results are 350 uCi/gm I-131 dose equivalents. (This value meets fission product barrier Loss of Fuel Clad (criteria 3)).

After an additional hour (1215 – 1230) and repairs have been made, RWCU valve MO-1201-02 may be closed to stop the release.

Termination

The exercise will be terminated when sufficient time has elapsed to allow appropriate objectives to be demonstrated or evaluated and concurrence from the Commonwealth.

2 Time Line

Initial Conditions:

- 100% Power
- EOOS Risk XXXX Integrated Risk XXXX

Events:

Event #	Elapsed Time* Hr:min	Est Time*	Actual Time*	Event	Details/Expected Actions	Expected Procedures
1.	-00:30	0730		All Controllers in position at their Emergency Response Facility (ERF)		
2.	-00:30	0730		Initial conditions Established. **{Message All-001}**	Simulator operating crew is briefed on the initial conditions. Controllers to provide this information to the lead facility players when they arrive.	
3.	-00:15	0745		Lead Controller Conference line check Phone: **508-830-7701** **pass code 999999**	Conference line check with lead controllers.	
4.	-00:05	0755		Control Room Exercise Announcement **{Message CR-002}**	Control Room (CR) announcer makes announcement over the plant Public Address (PA) system.	
5.	-00:05	0755		ESB Exercise Announcement **{Message SEC-003}**	Security Personnel or designated controller makes announcement over the Engineering Support Building Public Address (PA) system.	
6.	00:00	0800		Drill/Exercise Commences	Controllers and Simulator operating crew players are in position. Scenario begins.	
7.	00:02	0802		"A" Travelling Screen Hi D/P intermittent Alarms **{Task- 001 Operator}**	Operations is monitoring travelling screens at start of exercise.	

****All times are approximate****

Event #	Elapsed Time* Hr:min	Est Time*	Actual Time*	Event	Details/Expected Actions	Expected Procedures
8.	00:05	0805		Control Rod 26-27 drifts out. (This event provides justification for initial indications of fuel damage.) **{Task- 002 Operator}** **{Message-004 – WWM}** **{Message – 005 – Rx Engineering}**	Crew will enter ARP-C905LA3 & 2.4.11 & reduce power to ~75% (43Mlbs/hr) Crew calls Rx Engineer to control room. SM may contact WWM to investigate 26-27 drifting.	ARP-C905L, 2.4.11, 2.2.87.2
9.	00:20	0820 **DEP PI**		Operator reports that the sea water bay level has exceeded 13' 6". This will require declaration of an **Unusual Event** per EAL HU1.5 **{Task 003 Operator}** UNUSUAL EVENT DECLARED	Crew recognizes rising sea level and makes the appropriate classifications HU1.5. Expect Operator dispatched to confirm and monitor water level and travelling screens.	EP-IP-100
10.	00:25	0825		UE Announcement **{Message CR-006}**	CR announcer announces UE over plant PA system. ERO is notified via the E-Plan notification system. SM may elect to activate any of the Emergency Response Facilities (ERFs) at this time. Announcement from Simulator will provide info.	EP-IP-100 Att 9.2
11.	00:25	0825		Engineering Support Bldg (ESB) UE Announcement **{Message SEC-007}**	Security Personnel announces UE over plant ESB PA system.	
12.	0835	~0835-0850 **DEP PI**		**Unusual Event EAL HU1.5 Off-site notification** SIMULATOR CONTROLLER LOG TIME NOTIFICATION TRANSMITTED	State and local off-site notifications will be initiated and transmitted.	

****All times are approximate****

Event #	Elapsed Time* Hr:min	Est Time*	Actual Time*	Event	Details/Expected Actions	Expected Procedures
13.	00:40	0840		If requested, Chemistry to obtain coolant sample. **{Task 004}**	Main Steam and Off-gas radiation levels are trending upward due to fuel failure occurring from the rod drift. First MSL Rad Alarm on EPIC. All Rad readings will be Normal.	2.4.40 7.4.64 Att 29
14.		At least 20 minutes after indications		Contingency UE message. **{Message SIM-008X}**	Controllers will issue this message only if the UE has not been declared by this time and have approval from Lead Drill Coordinator.	
15.	0050	~0850 **DEP PI**		**Alert per EAL HA1.6** Field reports that sea water intake levels are +16'4" and continuing to rise slowly. (Visual measurement) {see Task-003 – Ops}	Crew recognizes rising sea level and Operator at sea water bay reports back reading. SM should declare upgrade to **Alert per EAL HA1.6** - Sea water bay water level > +16' 0" MSL (LI-3831A/B) Operator may be sent to screen house with portable device to perform 5.3.8 Attachment 3	EP-IP-100 5.3.8
16.	0100	0900		**Alert** Announcement **{Message CR-009}**	CR announcer announces Alert over plant PA system. ERO is notified via the ERO notification system.	
17.	0102	0902		Engineering Support Bldg (ESB) Alert Announcement **{Message SEC-010}**	Security Personnel announces ALERT over plant ESB PA system.	
18.	0105-0120	~0905-0920 **DEP PI**		**Alert EAL HA1.6 Off-site notification**	State and local off-site notifications will be initiated and transmitted for upgrade to Alert.	

****All times are approximate****

Event #	Elapsed Time* Hr:min	Est Time*	Actual Time*	Event	Details/Expected Actions	Expected Procedures
19.		At least 20 minutes after indications		Contingency Alert message. **{Message SIM-011X}**	Controllers will issue this message only if the Alert has not been declared by this time and have approval from Lead Drill Coordinator.	
20.	01:00	0900		Main Steam Line (MSL) "B" Flow indicator fails downscale due to transmitter failure. **{Task 004 – I&C Techs}**	Crew may request I&C Techs to investigate. FI-640-23B.	
21.	0105	0905		Emergency Response Organization (ERO) Mobilization	The ERO should be mobilizing and activating Emergency Response Facilities. (unless activated at Unusual Event)	EP-IP-100
22.	0140	0940		Chemistry reports results from coolant sample if taken. **{Task 005 – Chem Techs}**	Chemistry Technician reports results from sample Isotope micro curies/cc I-131 3.65E-03 I-132 3.69E-03 I-133 2.35E-03 I-134 0.00E+00 I-135 9.30E-04 Dose Equivalent (DE) iodine 4.09E-03	
23.	0132	0942		EDG "A" trouble alarms comes in due to low system air pressure. **{Task-006 – Ops/Mech}**	Operator to investigate. (Upon investigation will hear air blowing, relief valve lifting and not reseating)	
24.	0145	0945-1005		TSC/OSC and EOF operational (approximately 60 minutes maximum after ERO activation announcement)	TSC, OSC and EOF should be made operational. On-call EOF Emergency Director should take over command and control from the Shift Manager (SM).	EP-IP-100

****All times are approximate****

Event #	Elapsed Time* Hr:min	Est Time*	Actual Time*	Event	Details/Expected Actions	Expected Procedures
25.	0150	0950		OSC/TSC assign team to replace relief valve on EDG "A" **{Task 007 – Mechanical}**	After Operator reports that relief valve is lifting and not reseating, OSC Team to replace valve.	

****All times are approximate****

Event #	Elapsed Time* Hr:min	Est Time*	Actual Time*	Event	Details/Expected Actions	Expected Procedures
26.	0215	~1015		A steam leak develops on the RWCU line (~20 gpm) and will not isolate (Supply valves MO1201-02 and MO-1201-05 will not close). Secondary Containment Temperature and radiation INCREASE TO Max Normal values. Conditions are met for a SAE based on: EAL FS1.1 "Loss of two barriers" Criteria 9 or 14 & 18. RAD readings: Continuous Air Monitors outside of RWCU Hx start to alarm at 4 DAC. Contamination levels from steam coming out is 12K dpm/100 cm2; Rad Levels in outer hallway 50 mrem/hr. General area around MOV-5 is 1500 mrem/hr with high contamination 150K dpm/100cm2. 6 DAC in room. Operator sent out to determine steam leak per EOP-4. **{Task – 008 Ops }** **{Task – 009 Electrical}** **{Task – 010 Mechanical}**	Operators enter EOP-04 based on the rising Secondary Containment Temperatures and Radiation levels in the RWCU area. The reactor is scrammed per EOP-04 when max normal values are reached with a primary system discharging into secondary containment. Crew will request an operator to go to the RWCU to investigate for steam leak. Operators should determine that a steam leak has occurred in the RWCU HX Room and RWCU fails to isolate. The RWCU supply isolations will not close. Attempts from the simulator control room are unsuccessful If personnel get near RWCU Hx Room door then they will be contaminated and will not pass the exit monitors unless they are wearing proper PC's. If contaminated, they will follow decontamination process. Initial attempts to close these valves from their breakers will also be unsuccessful. (480 V MCC B-20 & 125 VDC D-7) The following alarms/indications are received: RWCU Temp Alarm comes in. A radioactive steam leak is occurring in the Reactor Building. (Area Temperature, Fire Alarm and Area Radiation Monitor on Rx Bldg Elevation 51' are alarming). Operators should enter EOP-04 (Secondary Containment Control).	EOP-04

****All times are approximate****

Event #	Elapsed Time* Hr:min	Est Time*	Actual Time*	Event	Details/Expected Actions	Expected Procedures
27.	0215	1015-1030 **DEP PI**		Site Area Emergency (**SAE**) Declared per **EAL FS1.1**	The Emergency Director in the EOF is expected to upgrade the event to a **SITE AREA EMERGENCY (SAE)** per **EAL FS1.1** Loss or potential loss of any two barriers: Criteria 9 or 14 and 18 Time starts when crew recognizes they cannot isolate the leak.	EP-IP-100
28.	0220	1020		Main Steam and Off-gas Rad Monitors alarm.	Main Steam and Off-gas radiation levels are trending upward due to fuel failure from the rod drift and SCRAM. PNPS procedure 2.4.40, "Rapid Increase in Main Steam Line or Offgas Activity" directs Main Steam Isolation Valve (MSIV) closure upon reaching High-High set point. Crew may isolate MSIVs before reaching set point.	ARP-C904LC A6 & B6, 2.4.40
29.	0220	1020		Reactor Scram	Scram transient causes more fuel damage	
30.	0225	1025		Reactor Scram **{Message CR-012}**	CR announces SCRAM over plant PA system.	
31.	0228	1028		Reactor Scram **{Message ESB-013}**	Security Personnel or designated controller announces SCRAM over plant PA system.	
32.	0230	1030		**SAE** Announcement **{Message CR-014}**	CR announcer announces SAE over plant PA system. State and local off-site notifications will be initiated and transmitted of upgrade to SAE.	

****All times are approximate****

Event #	Elapsed Time* Hr:min	Est Time*	Actual Time*	Event	Details/Expected Actions	Expected Procedures
33.	0233	1033		Engineering Support Bldg (ESB) **SAE** Announcement **{Message SEC-015}**	Security announces SAE over plant ESB PA system.	
34.	0230	10:30		Post Scram actions to be performed by: **{Task – 011 RP}** **{Task – 012 Ops}** **{Task – 013 Chemistry}**	Rad conditions: Scram Surveys are taken. Piping in overhead of scram header is now reading 250 mrem/hr contamination level: west bank of HCUs 90K dpm/100cm2 Operators sent to close CRD 25 valve and remove condensate demineralizers from service. Chemistry to obtain sample. RP's will perform Post Scram surveys per PNPS 6.1-220, "Radiological Controls for High Risk Evolutions"	2.1.6 7.4.64 6.1-220
35.	0230	**~1030-1045** **DEP PI**		**SAE EAL FS1.1 Off-site Notification**	State and local off-site notifications will be initiated and transmitted of upgrade to Site Area Emergency.	
36.		At least 20 minutes after indications		Contingency SAE message. **{Message EOF-016X}**	Controllers will issue this message only if the SAE has not been declared by this time and have approval from Lead Drill Coordinator.	
37.	0240	1040		JIC activated	JIC should be activated – may be sooner but have 2 hr response	

****All times are approximate****

Event #	Elapsed Time* Hr:min	Est Time*	Actual Time*	Event	Details/Expected Actions	Expected Procedures
38.	0330	~1130		Torus High Range Monitor exceeds 50R/hr Conditions **are met** for a **GE** based on: **EAL FG1.1** "Loss of two barriers and loss or potential loss of third barrier". Criteria: 2, 9 or 14 and 18.	Staff should recognize the Torus High Range Monitor exceeds 50R/hr as an indication of failed fuel clad barrier and combined with the SAE conditions, this meets GE criteria. Radiation level: 20-50 mrem/hr General area in 23' RB Crew requests starting all available turbine roof exhaust fans.(Control Room High Efficiency Air Filtration System - CRHEAFS) The Emergency Director in the EOF is expected to upgrade to a **GENERAL EMERGENCY (GE)** per **EAL FG1.1** Loss of two barriers and loss or potential loss of third barrier Criteria: 2, 9 or 14 and 18.	EP-IP-100 Att 9.5 EP-IP-400

****All times are approximate****

Event #	Elapsed Time* Hr:min	Est Time*	Actual Time*	Event	Details/Expected Actions	Expected Procedures
39.	0330	~1130 DEP PI		**General Emergency (GE) Declared** **EAL FG1.1** Loss of any two Fission Product Barriers and Loss or Potential Loss of the Third Barrier (Table F-1). EOF CONTROLLER LOG TIME GE DECLARED and PAR determination time.	Upon confirmation of the status of the Fuel Clad Barrier, RCS Barrier and Primary Containment Barrier, the EOF Emergency Director should declare a **General Emergency** per **EAL FG1.1**. This should include declaring the loss of the Fission Product Barriers based on the following EAL conditions contained in EP-IP-100.1 Table F-1. **Fuel Clad Barrier** Loss of Fuel Clad 2- Torus High Range Rad Monitor >50R/hr **RCS Barrier** Loss of the RCS Barrier 9 - Release pathway exists outside Primary Containment resulting from isolation failure in any of the following (excluding normal process system flow paths from an unisolable system): - Main steam line - HPCI steam line - RCIC steam line - ***RWCU*** - Feedwater **OR**	EP-IP-100 Att 9.5 EP-IP-400

****All times are approximate****

Event #	Elapsed Time* Hr:min	Est Time*	Actual Time*	Event	Details/Expected Actions	Expected Procedures
					(Potential Loss) 14- Unisolable primary system discharge outside primary containment AND A valid entry condition into EOP-04 exists due to Secondary Containment area radiation or temperature above any Maximum Normal Operating Value. (EOP-04 Table H) **AND** **Primary Containment (PC) Barrier:** Loss of PC 18 - Failure of **any** valve in **any** one line to close **AND** Direct downstream pathway to the environment exists after PC isolation signal. At the time of declaring the General Emergency, the EOF Emergency Director will formulate and issue Protective Action Recommendations (PARs) with the initial General Emergency declaration to the State EOF representatives.	
40.	0336	1130		**GE** Announcement **{Message CR-017}**	CR announces GE over plant PA system.	
41.	0338	1132		Engineering Support Bldg (ESB) **GE** Announcement **{Message SEC-018}**	Security announces GE over plant ESB PA system.	
42.	**0340**	**~1145** **DEP PI**		**GE EAL FG1.1 NOTIFICATION**	State and local off-site notifications will be initiated and transmitted of upgrade to GE.	

****All times are approximate****

Event #	Elapsed Time* Hr:min	Est Time*	Actual Time*	Event	Details/Expected Actions	Expected Procedures
43.	0340	~1130-1145 DEP PI		**PAR Offsite Notification**	The PAR should include evacuating the 2 mile ring surrounding the plant and 5 miles downwind of the affected sub-areas in the Emergency Planning Zone (EPZ); and sheltering all remaining sub-areas in the EPZ. This should include evacuating sub-areas 1,2,3 and 12 and sheltering sub areas 4,5,6,7,8,9 and 10, This PAR is based on postulated wind direction from the East (45 degrees) at 8-10 MPH.	
44.		At least 20 minutes after indications		Contingency GE message. **{Message EOF-019X}**	Controllers will issue this message only if a GE has not been declared by this time and have approval from Lead Drill Coordinator.	
45.	0420	~1220		**If taken and when completed (simulated), Chemistry reports coolant sample results of 350 uCi/gm I-131 dose equivalent.**	If sample is taken post scram, RP tech is to take a dose rate of sample 600 mr/hr on the sample Isotope micro curies/cc I-131 2.51E+02 I-132 3.54E+02 I-133 5.02E+02 I-134 5.61E+02 I-135 4.43E+02 DE iodine 350 This meets Criteria 3 loss of fuel clad.	
46.	0415	~1215-1230		OSC team is successful in closing MO-1201-02.	OSC team is successful in isolating the leak.	

****All times are approximate****

Event #	Elapsed Time* Hr:min	Est Time*	Actual Time*	Event	Details/Expected Actions	Expected Procedures
49	0500	~1300		Exercise Termination **when** announced by Lead Drill Coordinator. **{Message CR-020, SEC-021, EOF-022 and All-023}**	The exercise will be terminated when sufficient time has elapsed to allow appropriate objectives to be demonstrated or evaluated on site and off site. Validate Commonwealth has met extent of play criteria for their portion of the exercise requiring Pilgrim support (and FEMA evaluators concur). Exercise termination will not be announced until objective demonstration has been confirmed as needed per the Lead Drill Coordinator.	

****All times are approximate****

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