



MassDEP Geographic Response Plan – 2016 Fore River (BH-10) Exercise

May 24, 2016

The After-Action Report/Improvement Plan (AAR/IP) aligns exercise objectives with preparedness doctrine to include the National Preparedness Goal and related frameworks and guidance. Exercise information required for preparedness reporting and trend analysis is included; users are encouraged to add additional sections as needed to support their own organizational needs.

EXERCISE OVERVIEW

Exercise Name	2016 Boston Harbor GRP Exercise
Exercise Dates	May 24, 2016
Scope	This exercise was a Full Scale Exercise, planned for approximately six hours in Weymouth, MA and upon the waters of the Fore River and Kings Cove. Exercise play is limited to the Fore River, Kings Cove, and the adjacent shoreline.
Mission Area(s)	Response
Core Capabilities	Environmental Response/Health and Safety, Operational Coordination, Operational Communications
Objectives	<p>Objective 1: Demonstrate the ability to deploy oil spill equipment from one or more MassDEP pre-positioned oil spill response trailers utilizing common Geographic Response Plan (GRP) tactics.</p> <p>Objective 2: Demonstrate the ability to assemble a spill response organization utilizing Incident Command System (ICS) principles through development and execution of an Assignment List (ICS 201) and implementation of on-site incident management and tactical operations.</p> <p>Objective 3: Demonstrate the ability to effectively communicate between multiple local, state, and federal agencies including fire departments, police departments, harbormasters, and other state and federal first responders using VHF communications.</p>
Threat or Hazard	Discharge of oil into a navigable waterway
Scenario	An oil spill has occurred that threatens the Fore River and Squantum Channel. The Weymouth and Braintree Fire Departments and Harbormasters staff will utilize GRP BH-10 to deploy protective booming to protect sensitive resources in and near Kings Cove and the Fore River.
Sponsor	Massachusetts Department of Environmental Protection (MassDEP).

**Participating
Organizations**

Participating organizations included:

- Weymouth Fire Department (WFD)
- Weymouth PD/Harbormaster (WPD)
- Braintree Fire Department (BFD)
- Braintree Harbormaster (BHM)
- Attleboro Fire Department (AFD)
- MassDEP
- Massachusetts Department of Fire Services
- Massachusetts Executive Office of Public Safety and Security (EOPSS)
- U.S. Coast Guard Sector Southeastern New England (USCG)
- Moran Environmental Recovery (MER)
- Nuka Research and Planning Group, LLC (Nuka Research)

Note: See Appendix B for participant count

Point of Contact

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Boom is towed from the boat ramp on King Cove Beach Road.



Photo courtesy of Nuka Research & Planning Group

Boom deployed across King Cove from east to west.



Photo courtesy of Nuka Research & Planning Group

ANALYSIS OF CORE CAPABILITIES

Aligning exercise objectives and core capabilities provides a consistent taxonomy for evaluation that transcends individual exercises to support preparedness reporting and trend analysis. Table 1 includes the exercise objectives, aligned core capabilities, and performance ratings for each core capability as observed during the exercise and determined by the evaluation team. Table 2 includes compiled data from the Exercise Evaluation Guide (EEG) including the organizational capability targets, associated critical tasks, and observations as observed during the exercise and determined by the evaluation team.

Objective	Core Capability	Performed without Challenges (P)	Performed with Some Challenges (S)	Performed with Major Challenges (M)	Unable to be Performed (U)
Demonstrate the ability to deploy oil spill equipment from one or more MassDEP pre-positioned oil spill response trailers utilizing common Geographic Response Plan (GRP) tactics.	Environmental Response/ Health and Safety		S		
Demonstrate the ability to assemble a spill response organization utilizing Incident Command System (ICS) principles through development and execution of an Incident Briefing (ICS 201) and implementation of on-site incident management and tactical operations.	Operational Coordination	P			
Demonstrate the ability to effectively communicate between multiple local, state, and federal agencies including fire, police and harbormaster departments using VHF communications	Operational Communications	P			
<p>Ratings Definitions:</p> <ul style="list-style-type: none"> Performed without Challenges (P): The targets and critical tasks associated with the core capability were completed in a manner that achieved the objective(s) and did not negatively impact the performance of other activities. Performance of this activity did not contribute to additional health and/or safety risks for the public or for emergency workers, and it was conducted in accordance with applicable plans, policies, procedures, regulations, and laws. Performed with Some Challenges (S): The targets and critical tasks associated with the core capability were completed in a manner that achieved the objective(s) and did not negatively impact the performance of other activities. Performance of this activity did not contribute to additional health and/or safety risks for the public or for emergency workers, and it was conducted in accordance with applicable plans, policies, procedures, regulations, and laws. However, opportunities to enhance effectiveness and/or efficiency were identified. Performed with Major Challenges (M): The targets and critical tasks associated with the core capability were completed in a manner that achieved the objective(s), but some or all of the following were observed: demonstrated performance had a negative impact on the performance of other activities; contributed to additional health and/or safety risks for the public or for emergency workers; and/or was not conducted in accordance with applicable plans, policies, procedures, regulations, and laws. Unable to be Performed (U): The targets and critical tasks associated with the core capability were not performed in a manner that achieved the objective(s). 					

Table 1. Summary of Core Capability Performance

Core Capability	Organizational Capability Target	Associated Critical Tasks	Observation Notes
<p>Environmental Response/ Health and Safety</p>	<p>Overview of Response Equipment</p>	<ul style="list-style-type: none"> • Access Mass DEP Trailer • Identify boom and sorbents • Connect boom together • Connect towing bridle to boom • Connect components of anchor system together 	<ul style="list-style-type: none"> • Performed Without Challenges (P) • All operations conducted in a safe manner. • Slide hammers were not in the Braintree and Weymouth trailers. They will be added to the Boston Harbor trailer inventories during the 2016 inventory season. Recommendation: <u>Replace the sledgehammers in the Braintree and Weymouth Fire Department trailers with slide hammers during the routine maintenance cycle</u> • Transferring the boom to shore from the boat, especially at the MWRA site, was tricky due to water depth and the bottom type. Having a heaving line would have facilitated transferring the boom from the boat to the beach. Recommendation: <u>Add heaving lines as standard inventory items for all MassDEP trailers.</u> • MER staff provided effective hands-on training with equipment in the demonstration trailer. • MassDEP trailers were readily accessible. All response equipment readily available and in good condition. • Excellent involvement by students in classroom and trailer demonstration. All participants were involved in unloading the trailer, connecting boom and faking it out on the beach. • Small sections of boom and mock rebar shore anchor proved to be outstanding instructional aids. They facilitated indoor instruction during inclement weather. • All personnel had the opportunity to connect boom sections for familiarization.
	<p>Basic Booming Operations</p>	<ul style="list-style-type: none"> • Transport and tow boom. • Anchoring and Connecting boom to shore • <i>Safe</i> vessel and crew operations. (Refer to ICS-208) 	<ul style="list-style-type: none"> • Performed With Some Challenges (S) • Trailer personnel showed great teamwork in getting boom out of trailer and laid out on the beach. This preparation enabled the boats to pull all 1000 feet of boom out of trailer in a single evolution. Participation of 7 US Coast Guard Academy cadets was greatly appreciated in this work. • The Incident Commander made the initial decision to deploy a single, 1000' boom section instead of towing smaller sections and connecting them in place. In hindsight, it would have probably been quicker and easier to tow shorter lengths of boom and connect them together on scene. The benefit of hindsight also suggests that it might have been easier to connect the boom to the east shore of King Cove and let the elements assist in moving the boom to the west side. As it was, crews deployed boom to the west side first and ran into significant resistance from the wind and current. Shifting towing vessels from the Braintree FD boat to the Weymouth HM 29' Safe boat provided additional horsepower to tow the boom. The boom was broken into two sections (300 and 700 feet) that enabled connections to shore teams at the King Cove and MWRA sites but a connection could not be made in the middle without taking significant safety risks due to the strong environmental forces acting on the boom. After several close attempts, a decision by the Incident Commander to forego further attempts at connection was safest option and an excellent choice. A lot of learning occurred during this exercise despite the inability to connect the boom. The exercise debrief identified several recommendations and opportunities for improvement in future boom deployments. From the standpoint of what was learned by the participants, exercise is considered very successful. • Braintree FD and Weymouth HM boats swapped positions when deploying the boom to take advantage of Weymouth HM's FD boat's additional horsepower. IC made decision to shift safety vessel from Weymouth HM to Braintree HM concurrently. Boat crews from both municipalities worked extremely well together. It was readily

			<p>apparent that they maintain excellent working relationships.</p> <ul style="list-style-type: none"> Decision to disconnect/break boom during towing operations was correct. Boat crews should always have an extra bridle and anchor system in the boat in the event this should occur so the disconnected ends of the boom can be towed. King Cove (east shore) and MWRA (west shore) shore teams did an excellent job of establishing shore anchors. King Cove team built an outstanding rebar anchor system that held despite significant forces acting on it. MWRA team used a combination of rebar in riprap to hold boom. MWRA was a challenging spot to anchor boom to shore due to water depth and steep shoreline. Recommendation: <u>Consider installation of an anchor point onto the sea wall at the MWRA location.</u> Trip lines employed made anchoring evolution much safer and adjustments much easier. Recommendation: <u>Continue with program for providing all trailers with anchor trip lines.</u> All boats did an excellent job of attaching anchors to properly configure the boom Safety officer did an excellent job.
	Implement Tactics in GRP	<ul style="list-style-type: none"> Deploy Diversion Boom Tactic Deploy Containment Boom Tactic 	<ul style="list-style-type: none"> Performed Without Challenges (P) BH-10-EX-02c was a good training strategy but its value was uncertain. A review of the notes taken when the GRP was created determined that this strategy protected softshell clam beds in King Cove. Based on the environmental conditions experienced, it will be more effective to revise the strategy and use a shallow, closed chevron to give more protection from the elements. Recommendation: <u>Revise strategies in BH-10 to improve effectiveness of strategy EX-02c.</u>
Operational Coordination	Create and Execute An Assignment List (ICS 201)	<ul style="list-style-type: none"> Fill out ICS 201 Assignments in ICS 201 are followed and on-scene adjustments. Participants demonstrate command and control of exercise 	<ul style="list-style-type: none"> Performed without Challenges (P) IC effectively controlled exercise. Strike teams were well organized and effectively carried out assigned tasks. IC initial radio message to all participants very thorough. Described response actions being taken in great detail by dispersed work force. Contributed to unity of effort. IC used status board with great effect. Use of a status board is not normally seen during GRP Exercises The use of the DFS Rehab Unit provided an outstanding resource to keep personnel out of the rain and cold, enabling participants to remain engaged in the drill after taking refuge there. Personnel operating the Rehab Unit were extremely helpful and supportive of the exercise. Their participation greatly contributed to a safe and productive training event.
Operational Communications	Effectively Communicate Using VHF equipment	<ul style="list-style-type: none"> Create Communications Plan Communicate with other participants using organic UHF equipment Communicate with other participants using organic VHF equipment 	<ul style="list-style-type: none"> Performed without Challenges (P) Communications plan was followed as designed. VHF/UHF communications were flawless. Radios were tested before use in the field. Plan developed by EOPSS and executed by Field Communications Unit 10 (FC-10) underscores the proof of concept for combining Marine Channel 17 with UHF communications to create maritime/land interoperability. Special thanks to mobile communications van and Steve Staffier from EOPSS for participating in the exercise An information sheet containing bullet points on the MassDEP/GRP Exercise & Testing Program was provided to the exercise planning team in advance and was used to brief to local media who covered the exercise. Media coverage of the exercise was excellent. Recommendation: <u>Provide this tool to future planning teams for their use with local media.</u>

Table 2. Summary of Organizational Capability Targets and Associated Critical Tasks

The following sections provide an overview of the performance related to each exercise objective and associated core capability, highlighting strengths and areas for improvement.

Objective 1: Demonstrate the ability to deploy oil spill equipment from one or more MassDEP pre-positioned oil spill response trailers utilizing common Geographic Response Plan (GRP) tactics

The strengths and areas for improvement for each core capability aligned to this objective are described in this section.

Core Capability 1: Environmental Response/Health and Safety

Strengths

The full capability level can be attributed to the following strengths:

Strength 1: Participants from multiple agencies and contractors (Braintree and Weymouth Moran Environmental, MassDEP) worked well together to complete assigned tasks.

Strength 2: All participants conducted the boom deployment safely.

Areas for Improvement

The following areas require improvement to achieve the full capability level:

Area for Improvement 1: Consider towing smaller segments of boom when deploying strategy during unfavorable weather conditions.

Reference: Massachusetts Geographic Response Plan Tactics Guide

Analysis: The Incident Commander made the initial decision to deploy a single, 1000' boom section instead of towing smaller sections and connecting them in place. In hindsight, it would have probably been quicker and easier to tow shorter lengths of boom and connect them together on scene. The benefit of hindsight also suggests that it might have been easier to connect the boom to the east shore of King Cove and let the elements assist in moving the boom to the west side. As it was, crews deployed boom to the west side first and ran into significant resistance from the wind and current. Shifting towing vessels from the Braintree FD boat to the Weymouth HM 29' Safe boat provided additional horsepower to tow the boom. The boom was disconnected/broken into two sections (300 and 700 feet) that enabled connections to shore teams at the King Cove and MWRA sites but a connection could not be made in the middle without taking significant safety risks due to the strong environmental forces acting on the boom. After several close attempts, a decision by the Incident Commander forego further attempts at connection was safest option and an excellent choice. A lot of learning occurred during this exercise despite the inability to connect the boom. The exercise debrief identified several recommendations and opportunities for improvement in future boom deployments. From the standpoint of what was learned by the participants, exercise is considered very successful.

Area for Improvement 2: Revise the Fore River GRP (BH-10) to change the boom configuration for tactic EX=02c.

Reference: Massachusetts Geographic Response Plan Tactics Guide

Analysis: The Fore River GRP (BH-10) needs to be revised to change EX-02c to a shallow, closed chevron strategy to more effectively protect King Cove given the environmental forces at play.

Area for Improvement 3: Replace the sledgehammers in the Braintree and Weymouth Fire Department trailers with slide hammers during the routine maintenance cycle.

Reference: N/A

Analysis: Slide hammers are much safer than sledgehammers for driving rebar stakes into the ground. Some MassDEP trailers have already been outfitted with slide hammers. Sledgehammers should be replaced with slide hammers in all MassDEP trailers during upcoming trailer maintenance cycles.

Area for Improvement 4: Consider installation of a permanent anchor point onto the sea wall at the MWRA location..

Reference: N/A

Analysis: The MWRA side of King Cove was a challenging spot to anchor boom on shore due to water depth and a steep shoreline. Since GRP's are designed to prepare in advance for an oil spill, it would be useful to use the revised GRP to add a permanent shore anchor point on the MWRA side of King Cove. This will facilitate quicker response time and provide a better shore side anchor for the EX-02c strategy.

Area for Improvement 5: Add monkey fist or heaving lines to MassDEP trailer equipment inventory.

Reference: N/A

Analysis: There were instances during this drill where a heaving line of some sort would have been useful for passing towlines for boom from the shore team to a boat to keep the boat from being damaged on the concrete boat ramp.

Objective 2: Demonstrate the ability to assemble a spill response organization utilizing Incident Command System (ICS) principles through development and execution of an Incident Briefing (ICS 201) and implementation of on-site incident management and tactical operations.

The strengths and areas for improvement for each core capability aligned to this objective are described in this section.

Core Capability 2: Operational Coordination

Strengths

The full capability level can be attributed to the following strengths:

Strength 1: The Incident Commander did an excellent job of controlling the assets involved in this exercise. All teams knew their tasks and objectives during the exercise and appropriate direction was provided.

Strength 2: The Rehab Unit provided an outstanding resource to keep personnel out of the weather. Personnel operating the Rehab unit were extremely helpful and supportive of the exercise. Their participation greatly contributed to a safe and productive training event

Areas for Improvement

The following areas require improvement to achieve the full capability level:

Area for Improvement 1: None

Reference: N/A

Analysis: N/A

Objective 3: Demonstrate the ability to effectively communicate between multiple local, state, and federal agencies including fire departments, police departments, harbormasters, and other state and federal first responders using VHF communications

The strengths and areas for improvement for each core capability aligned to this objective are described in this section.

Core Capability 3: Operational Communications

Strengths

The full capability level can be attributed to the following strengths:

Strength 1: Communications was a strong point of the exercise. VHF/UHF communications were seamless. This exercise underscores the proof of concept for combining Marine Channel

17 with UHF communications to create maritime/land interoperability. Attleboro Fire Department's Field Communication Unit (FC-10) cross-patched frequencies seamlessly.

Areas for Improvement

The following areas require improvement to achieve the full capability level:

Area for Improvement 1: Provide information sheet containing bullet points on the MassDEP GRP Exercise and Testing Program to exercise planning teams for future exercises.

Reference: N/A

Analysis: An information sheet was provided to the exercise planning team to brief to local media who covered the exercise. Media coverage of the exercise was excellent.

Participants conduct hands-on equipment demonstration with Field Communications Unit 10 (FC-10) in the foreground.



Photo courtesy of Nuka Research & Planning Group

The Rehab Unit provides shelter for personnel during lunch.



Photo courtesy of Nuka Research & Planning Group

Boom is connected to the eastern shore of King Cove.



Photo courtesy of Nuka Research & Planning Group

Braintree Harbormaster towing boom by the bow from the MWRA shore toward the eastern shore of King Cove



Photo courtesy of Nuka Research & Planning Group

APPENDIX A: IMPROVEMENT PLAN

This IP has been developed specifically for Weymouth and Braintree Fire Departments and Harbormasters following the Massachusetts Department of Environmental Protection Fore River GRP Exercise conducted on May 24th, 2016.

Core Capability	Issue/Area for Improvement	Corrective Action	Capability Element ¹	Primary Responsible Organization	Organization POC	7/01/16	Completion Date
Core Capability 1: Environmental Response/Health and Safety	1. Implement Tactics in GRP	Revise Fore River GRP (BH-10) EX-02c.	Planning	Nuka Research	Mike Popovich	7/01/16	9/1/16
Core Capability 1: Environmental Response/Health and Safety	2. Overview of Response Equipment	MER replace the sledgehammers in Braintree and Weymouth trailers with slide hammers	Equipment	MER	John Duponte	7/01/16	12/15/16
Core Capability 1: Environmental Response/Health and Safety	3. Overview of Response Equipment	Recommend considering installation of a permanent anchor point onto the sea wall at the MWRA shore site.	Equipment	Weymouth FD	No action required	No action required	No action required
Core Capability 1: Environmental Response/Health and Safety	4. Overview of Response Equipment	Add monkey fist or heaving lines to MassDEP trailer equipment inventory.	Equipment	MER	John Duponte	7/01/16	12/15/16
Core Capability 2: Operational Coordination	N/A						
Core Capability 3: Operational Communications	5. Create Communications Plan	Provide an information sheet containing bullet points on the MassDEP/GRP Exercise & Testing Program to the exercise planning team to brief to local media covering the exercise.	Exercise	Nuka Research	Mike Popovich	7/01/16	9/1/16

¹ Capability Elements are: Planning, Organization, Equipment, Training, or Exercise.

APPENDIX B: EXERCISE PARTICIPANTS

Participating Organizations	
Town of Weymouth, MA	Participant Count
Weymouth Fire Department*	8
Weymouth Harbormaster*	3
Town of Braintree MA	
Braintree Fire Department*	10
Braintree Harbormaster*	2
Other	
Attleboro FD (FC-10)	1
TOWN PARTICIPANTS	36
Federal	
United States Coast Guard (USCG)	3
State	
Massachusetts Department of Environmental Protection (MassDEP)	2
Massachusetts Department of Fire Services	2
Nuka Research and Planning Group, LLC (contractor for MassDEP)	3
Moran Environmental Recovery (contractor for MassDEP)	2
Executive Office of Public Safety and Security (EOPSS) ***	1
TOTAL	48

* 37% of first responders reported having previous GRP Exercise experience.

** Special appreciation is warranted for crew of Rehab Unit 4. Their assistance in providing rehab services for participants was greatly appreciated and contributed to the successful completion of this exercise.

*** Special appreciation is also warranted for Steve Staffier (EOPSS) and Gregory Jolly (Attleboro FD) for providing the communications plan and Field Communications Unit 10. Their participation ensured the communications portion of this exercise was a complete success.

APPENDIX C: EXERCISE EVALUATION FORM

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**MassDEP
Geographic Response Plan (GRP)
Exercise and Testing Program**

Participant Feedback Form

1 Strongly disagree	2 Mildly disagree	3 Neutral	4 Mildly agree	5 Strongly agree
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Please use the above rating scale to answer the questions for each of the following topics.

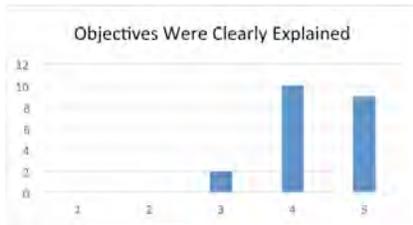
The objectives were clearly explained and the exercise met those objectives.	1 2 3 4 5
Comments:	
The material appropriately challenged me and the pace of instruction was correct.	1 2 3 4 5
Comments:	
The instructor(s) did an excellent job.	1 2 3 4 5
Comments:	
I found the classroom to be a comfortable learning environment.	1 2 3 4 5
Comments:	
I feel more prepared to respond to an oil spill than I did before this exercise.	1 2 3 4 5
Comments:	
The best thing about this training was _____.	
This training could have been improved by _____.	

Please use the back of the sheet if you need more room for comments.

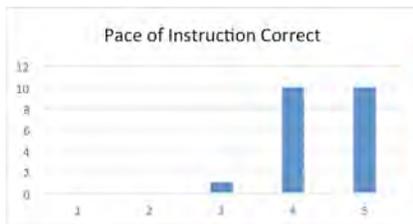
(Rev 2016)



Student Feedback Summary



Student Comments: “Great visual of boom and different parts involved.”



Comments: None



Comments: “Multiple instructors proved key.”



Comments: None



Comments: None

The best thing about this training was... “Learning something new, Multiple agencies, Challenging.”

This training could be improved by.... “Forethought. Bigger Boats and Sunshine.”