



MassDEP Geographic Response Plan – 2017 Hingham Harbor (BH-12) Exercise

September 28, 2017

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	2017 Hingham Harbor GRP Exercise
Exercise Date	September 28, 2017
Scope	This exercise was a Full Scale Exercise, planned for approximately six hours in Hingham, MA and upon the waters of Hingham Harbor. Exercise play was limited to Hingham Harbor, 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 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 Hingham Harbor. The Hingham and Hull Fire Departments and Harbormasters staff utilized GRP BH-12 to deploy protective booming to protect sensitive resources in and near Hingham Harbor.
Sponsor	Massachusetts Department of Environmental Protection (MassDEP).

Participating Organizations

Participating organizations included:

- Hingham Fire Department (HiFD)
- Hingham Harbormaster (HiHM)
- Hull Fire Department (HuFD)
- Hull Harbormaster (HuM)
- Massachusetts Department of Environmental Protection (MassDEP)
- U.S. Coast Guard Sector Boston (USCG)
- Moran Environmental Recovery (MER)
- New Hampshire Dept. of Environmental Services
- Nuka Research and Planning Group, LLC (Nuka Research)

Note: See Appendix B for participant count

Point of Contact

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Hands on training is conducted with oil spill boom from the Hingham trailer.



Exercise participants conduct an operational briefing prior to deploying boom tactics.



Photos courtesy of Nuka Research & Planning Group



Figure 1. Hingham Harbor GRP (BH-12)



Figure 2. Modified Exercise Tactics

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	P			
Demonstrate the ability to assemble a spill response organization utilizing Incident Command System (ICS) principles through 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 harbor master 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
Environmental Response/ Health and Safety	Overview of Response Equipment	<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) • Both Hingham and Hull DEP trailers were in good condition and readily accessible. • A list of work items for minor repairs to the Hingham trailer was provided to Nuka/MER prior to the exercise, allowing the MER personnel the opportunity to bring the appropriate items to affect all repairs prior to the exercise starting. Best Practice: Encourage the submission of work lists prior to exercises to <u>facilitate repairs and restocking of trailers.</u> • All skills successfully demonstrated during the exercise • Full participation by students in classroom and demonstration portion of the instruction. Once again, the trailer demonstration was highly effective in engaging students and providing a “hands on” experience. • Participation by the Fire and Harbormaster Departments from Hingham and Hull were excellent and they worked well together. All exercise participants were extremely engaged and actively involved for the entire exercise.
	Basic Booming Operations	<ul style="list-style-type: none"> • Transport and tow boom. • Anchoring and Connecting boom to shore • Safe vessel and crew operations. (Refer to ICS-208) 	<ul style="list-style-type: none"> • Performed With Some Challenges (S) • Outstanding job by all participants. • The shore team did an outstanding job of deploying boom from the Hull trailer and faking it out along the beach. • Tag lines on the boom could have been more effective in transferring boom from boats to the pier/shore. • Safety officer did an excellent job. Corrected PFD issues on the spot. No other safety issues noted. • Boom was expertly towed into position by all vessels participating in the exercise. The wind was as strong as advertised but all vessels operated in a skillful manner. Vessels towed boom both from the bow and stern, when appropriate to do so. Tow vessels used showcased skills normally seen in professional crews. • Boom deployment in all configurations and locations was performed with skill and excellent communications.
	Implement Tactics in GRP	Containment Boom (pier)	<ul style="list-style-type: none"> • Performed Without Challenges (P) • Hull Fire Department Marine 2 towed 100 feet of boom from the boat ramp to the pier. • The pier team expertly connected boom to the pier. • Hingham Harbormaster “Marine 1” deployed 2 anchors to properly shape the containment boom.

		<p>Diversion Boom</p>	<ul style="list-style-type: none"> • Performed Without Challenges (P) • Hull Fire Department Marine 2 towed 400 feet of boom offshore to create the diversion boom tactic. • Originally, the plan was to transfer the boom to Hingham Harbormaster Marine 1, with much more horsepower, but the water was too shallow. Hull Fire Department Marine 2 was able to fully tow the boom offshore. • Hingham Harbormaster Marine 1 transferred an anchor to Hull Fire Department Marine 2 and they were able to set the anchor offshore. • Communications between vessels and the shore anchor team were outstanding, proactively averting a potentially dangerous situation when pulling on boom to set the anchor. • The shore team did an excellent job of setting up the shore anchor with re-bar and adjusting the boom once the anchor was set. The shore anchor was intentionally set below the high tide mark for instructional purposes. • The lack of a trip line made adjusting the anchor more difficult, especially given the shallow water at the end of the diversion boom leg. The shore team was able to adjust the boom by pulling it into shore. Recommendation: <u>MER revisit the Hull and Hingham trailers during this upcoming inspection season to drill holes for trip lines.</u> • Exercise participants noted that equipment to create a “throw line” in the trailer would have been very helpful in transferring the boom from the shore to Hull FD Marine 2. Recommendation: <u>Continue furnishing trailers with heaving balls.</u> • Trip lines were not installed on the anchors for this exercise due to a drill malfunction earlier in the morning. There was some difficulty recovering the anchor after this portion of the exercise was completed because the anchor was set into the mud. A trip line would have made pulling the anchor much easier. Recommendation: <u>MER should revisit the Hingham and Hull trailers during the inspection season to drill holes in the anchor crowns to allow trip lines to be installed.</u>
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		Exclusion Boom	<ul style="list-style-type: none"> • Performed Without Challenges (P) • The exclusion boom tactic used in this exercise (see figure 2) is intended to replace the culvert blocking strategy in the GRP. It was modified slightly to shift the west portion of the chevron to the west side of the floating pier in the marina. This worked effectively. In an actual event, boom or sorbents could have been placed in between sections of the floating dock but were not for purposes of the exercise. Recommendation: <u>Revise GRP BH-12 to include an exclusion booming strategy that reflects the strategy used in this exercise.</u> • Hull Fire Department Marine 1 and Hingham Fire Department Marine 1 towed the boom into position with skill. Both vessels operated in close proximity to other vessels moored in the harbor and rocks along the shore. • The original placement of the boom caused the surrogate to pool up in a pocket in the middle of the west side of the chevron. By shifting the boom to a cleat further north on the pier, the surrogate started moving toward the sea wall, where a designated shoreside recovery location would be anticipated. • As modified, this plan was extremely effective in moving surrogate along the length of the boom and to the shore side recovery locations on both the east and west sides of the chevron.
Operational Coordination	Execute An Assignment List (ICS 201)	<ul style="list-style-type: none"> • 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 was very engaged and effective in directing the exercise, which involved multiple assets and multiple towns. All units operated in a safe manner. • The ability of the IC and participants to shift from one tactic to the next so quickly enabled the completion of a demanding exercise workload. • Assignments were followed and adjustments made as necessary by boat crews and shore teams. Contingency planning was considered and communicated to strike teams. • Large-scale printout of the GRP was extremely useful for the IC to use during the exercise.
Operational Communications	Effectively Communicate Using VHF equipment	<ul style="list-style-type: none"> • Create Communications Plan • Communicate with other participants using organic VHF equipment 	<ul style="list-style-type: none"> • Performed without Challenges (P) • Communications plan was followed as designed. All participants used the identified frequencies or voice communications when appropriate. • There was a shortage of marine radios during the exercise preventing all units and shoreside teams to communicate directly. If this exercise were held in an offshore location, communications would have been much more challenging and much less effective. Recommendation: <u>Both Hull and Hingham Fire and Harbormaster Departments should review their need for marine radios and procure additional radios to fully outfit boat crews and shore teams/IC with the ability to communicate on VHF-17.</u> • In an exercise with multiple vessels named “Marine 1” and “Marine 2”, the lack of a naming convention for vessels made radio communications a bit confusing. Recommendation: <u>Draft a letter to EOPSS to recommend that a standard naming convention be created for all local marine vessels to eliminate confusion during an event with multiple municipalities responding with vessel strike teams.</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: Exercise participants from Hull and Hingham, along with MassDEP, Nuka Research and Moran Environmental worked well together to complete assigned tasks.

Strength 2: The use of stations during the trailer demonstration was effective in facilitating increased student participation during the trailer equipment demonstration.

Strength 3: All vessels did an excellent job of towing sections of boom and setting anchors. Shore teams were also outstanding in securing containment boom to the pier. The shore anchor was expertly deployed and personnel on the pier did an outstanding job of adjusting boom during the exclusion boom portion of the exercise.

Strength 4: The Incident Commander did an outstanding job of modifying the exclusion booming tactic so that it effectively moved surrogate along the boom to designated shoreside recovery locations. This will result in a modified GRP that will be more effective than the current edition.

Areas for Improvement

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

Area for Improvement 1: Encourage the submission of work lists to identify discrepancies in trailer condition and inventory shortages.

Reference: N/A

Analysis: Hingham Fire Department demonstrated excellent initiative to inspect the trailer prior to the exercise. This resulted in the development of a work list that was provided to the MER inspectors and all issues were corrected prior to the conduct of the exercise. It is extremely helpful for MER inspectors to know what issues need to be addressed for trailers in advance. This way, they can bring the appropriate materials to either make repairs to the trailer or restock inventory.

Area for Improvement 2: Modify GRP BH-12 to include the exclusion strategy used in this exercise.

Reference: Massachusetts GRP Tactics Guide

Analysis: The exclusion boom tactic used in this exercise (see figure 2) is intended to replace the culvert blocking strategy in the GRP. It was modified slightly to shift the west portion of the chevron to the west side of the floating pier in the marina. This worked effectively. In an actual event, boom or sorbents could have been placed in between sections of the floating dock but were not for purposes of the exercise.

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 outstanding job of controlling the exercise and all response efforts. All tasking was clear and concise. Personnel were used effectively to accomplish all tasks

Areas for Improvement

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

Area for Improvement 1: Ensure an Incident Commander (IC) is designated by the Exercise Planning Team (EPT) no later than at the final planning meeting.

Reference: N/A

Analysis: It took a while for participants to designate an IC for this exercise. This resulted in slower start than those experienced in most exercises where an IC is designated by the EPT in advance. IC's need to be designated prior to the conclusion of the final planning meeting to avoid delays at the start while this position is assigned.

Objective 3: Demonstrate the ability to effectively communicate between multiple local, state, and federal agencies including fire departments, police departments, harbor masters, 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: The communications plan was followed as designed in the final planning meeting. All participants used the identified frequencies or voice communications when appropriate for exercise communications.

Strength 2: All exercise participants showed great teamwork in distributing radios to all teams to enable all communications to be on Channel 17.

Areas for Improvement

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

Area for Improvement 1: All exercise participants did not have a sufficient amount of marine radios to use VHF Channel 17 as a working frequency.

Reference: US Coast Guard VHF Channels (<https://www.navcen.uscg.gov/?pageName=mtvhf>).

Analysis: Despite a shortage of marine radios, exercise participants were able to use a combination of UHF radios and marine radios, in addition to voice communications, to effectively communicate during exercise and accomplish all of the exercise objectives. Given that channel 17 is the state and local channel to be used for coordination of marine events, it is recommended that both Hingham and Hull Fire and Harbor Master Departments ensure they have sufficient radios to conduct communications with marine radios in an actual event.

Area for Improvement : Draft a letter to Massachusetts Executive Office of Public Safety and Security, Office of Homeland Security and Emergency Response to recommend that a standard naming convention be created for all local marine vessels to eliminate confusion during an event with multiple municipalities responding with vessel strike teams.

Reference: Massachusetts Statewide Communication Interoperability Plan (SCIP)

Analysis: In an exercise with multiple vessels named “Marine 1” and “Marine 2”, the lack of a naming convention for vessels made radio communications a bit confusing. While it would be difficult to implement a naming convention, it would be worth exploring the possibility of developing a standard nomenclature that would be included in the SCIP.

Containment boom is towed around the Hull Harbormaster vessel moored to the pier.



Photo courtesy of Nuka Research & Planning Group

Hingham and Hull Harbormaster personnel deploy containment boom around vessel at pier.



Photo courtesy of Nuka Research & Planning Group

Diversion boom is anchored to the shore and being pulled into position offshore.



Oil surrogate (peat moss) is fully deflected by the exclusion boom to locations where shore side recovery would occur.



Photos courtesy of Nuka Research & Planning Group

APPENDIX A: IMPROVEMENT PLAN

This IP has been developed specifically for the towns of Hingham and Hull following the MassDEP GRP Exercise conducted on September 28th, 2017.

Core Capability	Issue/Area for Improvement	Corrective Action	Capability Element ¹	Primary Responsible Organization	Organization POC	Start Date	Completion Date
Core Capability 1: Environmental Response/Health and Safety	Exercise Trailer Inspections.	Encourage the submission of work lists prior to exercises to facilitate repairs and restocking of trailers.	Planning	Nuka Research/MER	John Duponte/ Mike Popovich	10/01/17	N/A
	Heaving Balls	Continue with furnishing trailers with heaving balls.	Equipment	MER	John Duponte	10/15/17	2/15/17
	Trip Lines	MER should revisit the Hingham and Hull trailers during the inspection season to drill holes in the anchor crowns to allow trip lines to be installed.	Equipment	MER	John Duponte	10/15/17	2/15/17
	GRP Revision	Revise GRP BH-12 to include an exclusion booming strategy that reflects the strategy used in this exercise.	Planning	Nuka Research	Mike Popovich	10/15/17	12/15/17
Core Capability 2: Operational Coordination	IC Designation	Ensure an IC is designated by the EPT no later than at the final planning meeting.	Exercise	Nuka Research	Mike Popovich	10/01/17	12/15/17
Core Capability 3: Operational Communications	1. Communicate with Channel 17 VHF-FM	Recommend that Hingham and Hull Fire and Harbormaster Departments purchase additional marine radios to use Channel 17 VHF-FM	Equipment	Hingham and Hull Fire and Harbormaster Departments	N/A	N/A	N/A

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

	2. Standardize Vessel Call Signs	Draft a letter to EOPSS to recommend that a standard naming convention be created for all local marine vessels to eliminate confusion during an event with multiple municipalities responding with vessel strike teams.	Planning	Nuka Research	Mike Popovich	10/15/17	12/15/17
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APPENDIX B: EXERCISE PARTICIPANTS

Participating Organizations	
Town of Hingham, MA	Participant Count
Hingham Fire Department	14
Hingham Harbormaster	4
Town of Hull, MA	
Hull Fire Department	8
Hull Harbormaster	1
TOWN PARTICIPANTS	27
Federal	
United States Coast Guard (USCG)	2
State	
Massachusetts Department of Environmental Protection (MassDEP)	2
New Hampshire Department of Environmental Services (NHDES)*	2
Nuka Research and Planning Group, LLC (contractor for MassDEP)	3
Moran Environmental Recovery (contractor for MassDEP)	2
TOTAL	38

52% of first responders reported having previous GRP exercise experience.

* NHDES oversees a comprehensive testing program for their existing Geographic Response Strategies and attended this exercise not only to observe this MassDEP exercise but also to provide valuable input as exercise evaluators.

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.

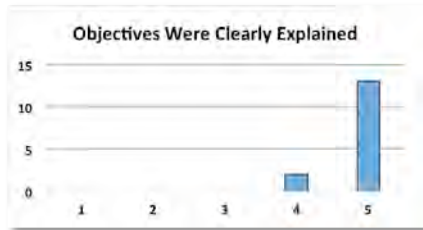
The objectives were clearly explained and the exercise met those objectives.	1 2 3 4 5
Comments:	
The material appropriately challenged me and the pace of instruction was correct.	1 2 3 4 5
Comments:	
The instructor(s) did an excellent job.	1 2 3 4 5
Comments:	
I found the classroom to be a comfortable 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.

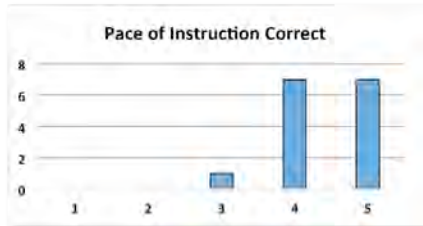
(Rev 2016)



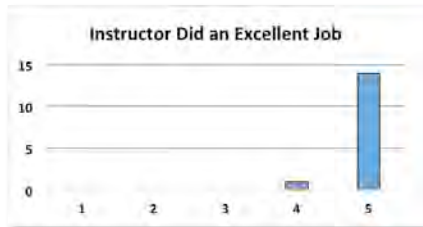
Student Feedback Summary



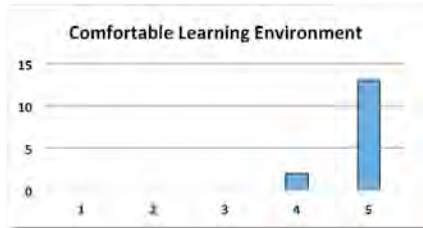
Student Comments: "Coms were poor" "Clearly explained by instructors! Then you let the Fire Service members take over. Oops!" "Very Clear. Great instruction." "Need to rally the officers more... roles defined on brief then everyone wanted to wear each others hats."



Comments: "All aspects covered in class were utilized in practical"



Comments: "Outstanding!" "Nice work, miss working with state & Federal orgs." "Very informative"



Comments: "PPP was remarkable lot of detailed information" "too many participants"



Comments: "Can always learn more but I have a better knowledge about GRP than I did this morning" "never saw any of this equipment before today" "hands on training" "great training, feel confident in system" "strongly agree"

The best thing about this training was... "tactics" "learning the equipment/deployment", "doing the hands on aspect out on the water", "doing the boom deployment with our new boat", "day on the water", "All hands on deck", "good knowledge gained", "multiple agencies working together", "hands on equipment", "multi-jurisdiction involvement. Also, answers were provided to questions that we didn't know." "weather", "on the water training".

This training could be improved by.... "coms need improvements", "easier way to clean booms... a pvc free standing structure could clean the boom better", "better coms", "nothing. All good", "it was good due to the steady wind blowing ashore w/ the current", "nothing-went well", "**Less chiefs! But that's the way it is not your issue**", "learned we need more VHF radios/communications", "nothing noted great training", "comms weren't the best. Every boat was routine 1 of 2. Fire boat/HarborMaster boats were not clear".