



MassDEP Geographic Response Plan – 2016 Marblehead Harbor (NS-27) Exercise

May 25, 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 Marblehead Harbor GRP Exercise
Exercise Dates	May 25, 2016
Scope	This exercise was a Full Scale Exercise, planned for approximately six hours in Marblehead, MA and upon the waters of the Marblehead Harbor. Exercise play was limited to the Marblehead 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 development and execution of an Incident Briefing (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 Marblehead Harbor. The Marblehead and Swampscott Fire Departments and Harbormasters staff will utilize GRP NS-27 to deploy protective booming to protect sensitive resources in Marblehead Harbor.
Sponsor	Massachusetts Department of Environmental Protection (MassDEP).

Participating Organizations

Participating organizations included:

- Marblehead Fire Department (MFD)
- Marblehead Harbormaster (MHM)
- Swampscott Fire Department (BFD)
- Swampscott Harbormaster (BHM)
- Lowell Fire Department
- Rehab-Five
- Atlantic Ambulance Service
- MassDEP
- Massachusetts Executive Office of Public Safety and Security (EOPSS)
- U.S. Coast Guard Sector Boston (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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Swampscott and Marblehead Fire Department Boats preparing to deploy boom.



Photo courtesy of Nuka Research & Planning Group

Marblehead FD boat with 800 feet of boom in tow.



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	P			
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 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
<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 skills successfully demonstrated during the exercise • MassDEP trailers were readily accessible. All response equipment readily available and in good condition. • MER staff provided effective hands-on training with equipment in the demonstration trailer. • Marblehead and Swampscott trailers did not have slide hammers. They are scheduled to be added to the north shore trailer inventories during the 2016 inventory season. Recommendation: <u>MER will replace the sledgehammers in these trailers with slide hammers during the routine maintenance cycle.</u> • Small sections of boom and mock rebar shore anchor continue to be outstanding instructional aids. • 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) • All operations conducted in a safe manner. • Marblehead FD and Swampscott FD boats showed excellent judgment by swapping positions when deploying the boom to take advantage of the additional horsepower of the Swampscott FD boat (Marine 21). Marine 21 was more than capable of towing boom in prevailing conditions. Complex maneuver conducted in safe manner. • IC made decision to deploy single, 800' boom section instead of towing smaller sections in place. Crews effectively deployed boom, maneuvered it into position and retrieved it with skill despite obstacles such as mooring balls and moored vessels. Would have probably been quicker and easier to tow shorter lengths of boom and connect them together on scene. **Reminder to crews to tend boom by using anchor rings at the bottom of the skirt instead of using exposed tension member points on top of boom. • Shore team did an excellent job of establishing a shore side anchor

Core Capability	Organizational Capability Target	Associated Critical Tasks	Observation Notes
			<p>point. They quickly realized that the rocky beach would not support a rebar anchor system and rapidly improvised an effective anchor by using large rocks on the beach.</p> <ul style="list-style-type: none"> Transferring the boom to shore from the boat was tricky due to water depth and the rocky bottom. Having a heaving line would have facilitated transferring the boom from the boat to the beach. Recommendation: <u>Add heaving lines to trailer inventory.</u> Trip lines greatly contributed to the safe deployment and retrieval of anchors. Recommendation: <u>Continue with program for providing all trailers with trip lines.</u> Safety officer did an excellent job.
	<p>Implement Tactics in GRP</p>	<ul style="list-style-type: none"> Deploy Diversion Boom Tactic Deploy Containment Boom Tactic 	<p>Performed Without Challenges (P)</p> <ul style="list-style-type: none"> Safety vessel did an outstanding job of deploying surrogate. NS-27-DV-01a effectively deployed as planned. Diversion booming array would have been effective in diverting surrogate toward shore side recovery had wind not driven the surrogate away from the boom. Despite flood tide, prevailing wind was the primary environmental force acting on the surrogate. Mooring ball field created challenging obstacles during boom deployment as boom was towed from Corinthian Yacht Club to the shore side recovery location for DV-01a. This problem would only be exacerbated later in the boating season when more boats were attached to mooring balls. Recommendation: <u>Update the special consideration section of the GRP to reflect that due to the large amount of obstacles, boom should be staged at the shore side recovery location and pulled directly off the beach in a northwest direction to facilitate rapid deployment and minimize the impact of obstructions from moored vessels.</u>

Core Capability	Organizational Capability Target	Associated Critical Tasks	Observation Notes
<p>Operational Coordination</p>	<p>Create and Execute An Assignment List (ICS 201)</p>	<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) • Participation by the Fire and Harbormaster Departments from Marblehead and Swampscott was excellent and everyone worked well together. All exercise participants were actively engaged. • The IC was very effective in directing the exercise, which involved multiple assets and multiple towns. All units operated in a safe manner. • Assignments were made as necessary and followed by boat crews and shore teams. • The use of the Rehab Unit 5 provided an outstanding asset for exercise participants. Personnel operating Rehab 5 were extremely helpful and supportive of the exercise. Their participation greatly contributed to a safe and productive training event.
<p>Operational Communications</p>	<p>Effectively Communicate Using VHF equipment</p>	<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) • VHF/UHF communications were flawless. This exercise underscores the proof of concept for combining Marine Channel 17 with UHF communications to create maritime/land interoperability. • Lowell Fire Department's Field Communication Unit (FC-60) cross-patched frequencies and was a tremendous asset. Its participation in this exercise was greatly appreciated. Special thanks also goes to Steve Staffier, MA EOPSS for coordinating this asset and preparing the communications plan for this exercise. • Marblehead Town Dispatch could not monitor VHF Channel 17. Recommendation: The town should consider upgrading communications equipment to enable compliance with the new national policy regarding use of Channel 17 as a state/local maritime response channel.

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 (Marblehead, Swampscott Moran Environmental, MassDEP) worked well together to complete assigned tasks.

Strength 2: All participants conducted the boom deployment safely.

Strength 3: The use of trip lines greatly contributed to the safe deployment and retrieval of anchors. Continued use of trip lines for exercises and adding them to all trailer inventories is strongly encouraged.

Strength 4: Rehab Unit 5 provided an outstanding asset for exercise participants. Personnel operating Rehab 5 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: Revise Marblehead Harbor GRP (CI-04) to include a recommended deployment strategy for DV-01a.

Reference: Massachusetts Geographic Response Plan Tactics Guide

Analysis: The Marblehead Harbor GRP (NS-27) GRP needs to be revised in the “Special Considerations” section to add a note recommending that the boom be staged at the shore side recovery location and pulled directly off the beach in a northwest direction to facilitate rapid deployment and minimize obstructions from moored vessels. It should also be noted that smaller sections of boom are easier to tow and place into position in busy harbors like Marblehead.

Area for Improvement 2: MER to replace the sledgehammers in the Marblehead and Swampscott 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. Marblehead and Swampscott trailers are scheduled to have their sledgehammers replaced by slide hammers during the 2016 inventory season.

Area for Improvement 3: Add monkey fist or heaving lines to MassDEP trailer equipment inventory.

Reference: N/A

Analysis: Transferring the boom to shore from the boat was tricky due to water depth and the rocky bottom. Having a heaving line would have facilitated transferring the boom from the boat to the shore anchor point.

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 many assets involved in this exercise. All teams knew their tasks and objectives during the exercise and appropriate direction was provided.

Strength 2: The use of the Rehab Unit 5 provided an outstanding asset for exercise participants. Personnel operating Rehab 5 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, 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:

Communications was a strong point of the exercise.

Strength 1: VHF/UHF communications were flawless. This exercise underscores the proof of concept for combining Marine Channel 17 with UHF communications to create maritime/land interoperability. Lowell Fire Department's Field Communication Unit (FC-60) cross-patched frequencies seamlessly.

Areas for Improvement

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

Area for Improvement 1: Marblehead Town Dispatch should consider upgrading their capability to monitor VHF Channel 17.

Reference: Massachusetts Statewide Communications Interoperability Plan.

Analysis: Marblehead Town Dispatch could not monitor VHF Channel 17. It is recommended that they identify resources to upgrade their equipment and enable compliance with the new national policy regarding use of Channel 17 as a state/local maritime response channel.

Marblehead Fire Department boat preparing to transfer boom to the shore team.



Photo courtesy of Nuka Research & Planning Group

Swampscott and Marblehead Fire Department boats towing boom around mooring balls in Marblehead Harbor.



Photo courtesy of Nuka Research & Planning Group

Shore team uses rocks to anchor boom in place.



Photo courtesy of Nuka Research & Planning Group

Marblehead Harbormaster boat deploys surrogate to evaluate effectiveness of the boom deployment.



Photo courtesy of Nuka Research & Planning Group

Swampscott FD boat tending boom.



Photo courtesy of Nuka Research & Planning Group

Boom fully deployed.



Photo courtesy of Nuka Research & Planning Group

APPENDIX A: IMPROVEMENT PLAN

This IP has been developed specifically for Marblehead and Swampscott Fire and Harbormaster Departments following the MassDEP Marblehead Harbor GRP Exercise conducted on May 25th, 2016.

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	1. Implement Tactics in GRP	Revise Marblehead Harbor GRP (NS-27) to include a recommended deployment strategy for DV-01a.	Planning	Nuka Research	Mike Popovich	10/15/16	9/1/16
Core Capability 1: Environmental Response/Health and Safety	2. Overview of Response Equipment	MER to replace the sledgehammers in Marblehead and Swampscott trailers with slide hammers.	Equipment	MER	John Duponte	12/15/16	12/15/16
Core Capability 1: Environmental Response/Health and Safety	3. Overview of Response Equipment	Add monkey fist or heaving lines to MassDEP trailer equipment inventory.	Equipment	MER	John Duponte	12/15/16	12/15/16
Core Capability 2: Operational Coordination	1. Participants demonstrate command and control of exercise	None.	N/A	N/A	N/A	N/A	N/A
Core Capability 3: Operational Communications	1. Communicate Using UHF/VHF equipment	Marblehead Town Dispatch should consider upgrading equipment capability to monitor VHF Channel 17.	Equipment	Town of Marblehead	N/A	N/A	N/A

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

APPENDIX B: EXERCISE PARTICIPANTS

Participating Organizations	
Town of Marblehead, MA	Participant Count
Marblehead Fire Department*	18
Marblehead PD/Harbormaster*	6
Marblehead Health Director	1
Town of Swampscott MA	
Swampscott Fire Department*	11
Swampscott Harbormaster*	2
Other	
Atlantic Ambulance Service	2
Rehab 5 **	2
Lowell Fire (FC-60)	1
TOWN PARTICIPANTS	43
Federal	
United States Coast Guard (USCG)	2
State	
Massachusetts Department of Environmental Protection (MassDEP)	3
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	55

* 22% of first responders have previous GRP Exercise experience.

** Special appreciation is warranted for crew of Rehab 5. Their assistance in providing rehab services for participants was greatly appreciated and contributed significantly to the successful completion of this exercise.

*** Special appreciation is also warranted for Steve Staffier (EOPSS) and Phil Charron (Lowell FD) for providing the communications plan and Field Communications Unit 60. Their participation ensured the communications portion of this exercise was a complete success.

APPENDIX C: EXERCISE EVALUATION FORM



**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.

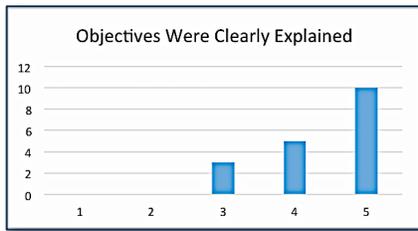
The objectives were clearly explained and the exercise met those objectives.	1 2 3 4 5
Comments:	
The material appropriately challenged me and the pace of instruction was correct.	1 2 3 4 5
Comments:	
The instructor(s) did an excellent job.	1 2 3 4 5
Comments:	
I found the classroom to be a comfortable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

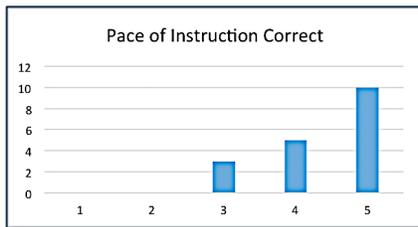
(Rev 2016)



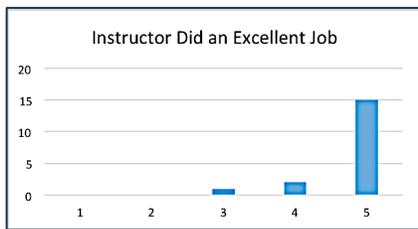
Student Feedback Summary



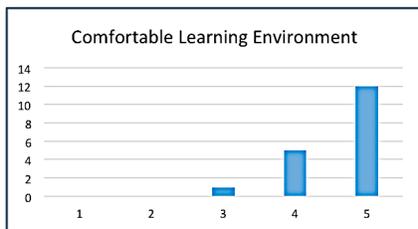
Student Comments: None.



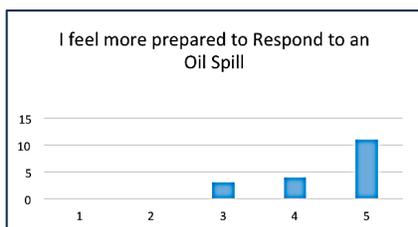
Comments: “Very clear and informative.”



Comments: None.



Comments: None.



Comments: “Good to have hands on experience.”

The best thing about this training was... “Practical, Working with multiple agencies, Beautiful weather.”

This training could be improved by.... “More hands on training.”