

Massachusetts Department of
Environmental Protection

MassDEP Geographic Response Plan – 2015 Waquoit Bay (CI-16) Exercise

October 14, 2015

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	2015 Cape & Islands GRP Exercise
Exercise Dates	October 14, 2015
Scope	This exercise is a Full Scale Exercise, planned for approximately six hours in Falmouth, MA and upon the waters of Eel Pond. Exercise play is limited to Eel Pond and the adjacent shoreline in the vicinity of Menauhant Yacht Club.
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, harbor masters, and other state and federal first responders using both UHF and VHF communications.</p>
Threat or Hazard	Discharge of oil into a navigable waterway
Scenario	An oil spill has occurred that threatens Eel Pond and Waquoit Bay. The Falmouth and Mashpee Fire Departments and Harbor masters staff and personnel from Waquoit Bay National Estuarine Research Reserve (WBNERR) will utilize GRP CI-16 to deploy protective booming to protect sensitive resources in and near Eel Pond, Waquoit Bay and the Waquoit Bay National Estuarine Resource Reserve.
Sponsor	Massachusetts Department of Environmental Protection

**Participating
Organizations**

Participating organizations will include:

- Falmouth Fire Department (FFD)
- Falmouth Harbormaster (FHM)
- Mashpee Fire Department (MFD)
- Mashpee Harbormaster (MHM)
- Waquoit Bay National Estuarine Resource Reserve (WBNERR)
- MassDEP
- 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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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 departments, police departments, harbormasters, and other state and federal first responders using both UHF and 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 • Full participation by students in classroom and demonstration portion of the instruction. • Deployment of trailers at WBNERR and MYC afforded instruction and hands on demonstrations at both sites. Special thanks to the WBNERR staff and the MYC for providing the space to support this training exercise. • Inclusion of Mass Maritime cadets in drill added to the learning environment. They worked hard and actively participated in the exercise. • Best Practice: MER instructor taught the loop technique for setting anchors. This technique is a much safer way of setting an anchor and should be included in future instruction and hands on demonstrations.
	<p>Basic Booming Operations</p>	<ul style="list-style-type: none"> • Transport and tow boom. • <i>Critical Task:</i> Anchoring and Connecting boom to shore • <i>Critical Task:</i> Safe vessel and crew operations. (Refer to ICS-208) 	<ul style="list-style-type: none"> • Performed Without Challenges (P) • Outstanding job by all participants. Strong currents made boom deployment extremely difficult but they accomplished deployment of modified GRP tactic in an exemplary manner. • Vessels from Falmouth FD lacked the horsepower to pull boom in the strong currents where this tactic was employed. Recommendation: Recommend Falmouth FD review vessel powering requirements and add horsepower where able to better enable them to carry out GRP assignments. • One vessel suffered a steering casualty during the drill and had to be towed back to the boat ramp. • Shore team Menahaunt side used one piece of rebar and danforth anchor to effectively secure boom to shore. Outstanding initiative. • Additional training on shoreline anchoring paid off as shore crew on Washburn Island did an excellent job. Recommend putting together a simulated rebar shore anchor (cut rebar placed into a wood base) for students to practice tying knots. • Safety officer did an excellent job. Corrected improperly worn PFD on the spot.

Core Capability	Organizational Capability Target	Associated Critical Tasks	Observation Notes
			<ul style="list-style-type: none"> Towing of boom was completed in a safe and effective manner. Wind was stronger than anticipated and current was as strong as advertised. Tow vessels used strong current to their advantage and showcased skills normally seen in professional crews. Strong currents made recovery/demobilization of boom extremely difficult. Breaking boom into shorter sections was an excellent idea. Assets on scene likely would not have been able to pull entire length of boom back to boat ramp for demobilization.

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

Core Capability	Organizational Capability Target	Associated Critical Tasks	Observation Notes
	Implement Tactics in GRP	<ul style="list-style-type: none"> Deploy Diversions Boom Tactics for Flood and Ebb tides 	Diversion deployment: <ul style="list-style-type: none"> Performed Without Challenges (P) Modified exclusion tactic successfully deployed. Diversions tactic (DV01b) at entrance to Eel River modified to move western shore anchor to the south to a better location for shoreside recovery. Modified tactic successful and requires less boom than tactic called for in GRP. Tactic should use 450-500 feet of boom instead of 550. Angle of boom prevented entrainment of surrogate in very strong current. Recommendation: Recommend revising the GRP to include modifications to tactic (DV01b). Peat moss is a very effective surrogate for oil. All surrogate captured but remained offshore in a boom "belly" because too much boom was used in the tactic.
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"> ICS 201 completed and followed. IC did an effective job of controlling assets. Teams knew their tasks and objectives and effectively carried them out. Assignments followed correctly with on-scene adjustments made as necessary. Enough personnel were present to complete assignments.

<p>Operational Communications</p>	<p>Effectively Communicate Using UHF and 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) • Communications interoperability between departments was seamless. Communications were very effective between agencies. • Cape Cod 800 MHZ communications system very effective for carrying out drill communications. • VHF FM 81A also used by participants. Recommendation: Harbormasters do not have 800 MHZ radios and should have them to facilitate communications with the Fire Departments. • Excellent communications between shore teams and vessel crews.
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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 (Falmouth, Mashpee, Moran Environmental, MassDEP) worked well together to complete assigned tasks

Strength 2: All participants conducted the boom deployment safely. There was only one potential safety incident but was quickly resolved by the safety officer.

Areas for Improvement

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

Area for Improvement 1: Revise Waquoit Bay GRP (CI-16) to change the boom configuration and shore side recovery location in tactic (DV01b).

Reference: Massachusetts Geographic Response Plan Tactics Guide

Analysis: The modification made to this tactic was successful in diverting the simulated oil to an area more suitable for shore side recovery than originally called for in the GRP. The modification also requires less boom than the tactic called for in GRP. Tactic should use 450-500 feet of boom instead of 550. The angle of the modified boom configuration was sufficient to prevent the entrainment of surrogate in a very strong current.

Exercise participants move boom from the MassDEP trailer to the shore so the Falmouth Fire Department boats in the background can tow the boom into place.



Photo courtesy of Nuka Research & Planning Group

Shore team on Washburn Island secures boom to the beach as boom is deployed across the Eel River.



Photo courtesy of Nuka Research & Planning Group

Falmouth Fire Department boats deploying oil spill boom in the Eel River.



Photo courtesy of Nuka Research & Planning Group

Hands on demonstration of MassDEP trailer equipment at the Reserve Headquarters for the Waquoit Bay National Estuarine Research Reserve.



Photo courtesy of Nuka Research & Planning Group

Area for Improvement 2: Include the “loop technique” into the classroom instruction and hands-on trailer equipment demonstration.

Reference: N/A

Analysis: The instructor conducting the hands-on trailer equipment demonstration showed the group a best practice known as the “loop technique” to improve safety while deploying an anchor from a vessel. To do this, a loop is put into the anchor line about 5 feet from anchor chain. Loop is put around cleat as vessel tows boom into place. When the time comes to set the anchor, the loop is pulled off cleat and the anchor goes into water. This technique is a much safer way of setting an anchor and should be included in future instruction and hands on demonstrations.

Area for Improvement 3: Recommend Falmouth FD review vessel powering requirements and add horsepower where able to better enable them to carry out GRP deployment.

Reference: Massachusetts Geographic Response Plan Tactics Guide

Analysis: Figure B-4 of the Massachusetts Geographic Response Plan Tactics Guide contains a rule-of-thumb reference to make sure that a vessel is appropriately powered to tow boom to a deployment site. Strong currents in this area combined with significant amounts of boom to carry out strategies requires appropriately powered vessels to carry out tactics in a safe and effective manner.

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

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 both UHF and 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: Clear and effective communications between all participants was maintained throughout the exercise. Communications were very effective between agencies. The Cape Cod 800 MHZ communications system proved to be very effective in carrying out drill communications. Participants also used VHF-FM channel 81A effectively because harbormasters did not have 800 MHZ radios.

Areas for Improvement

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

Area for Improvement 1: Harbormasters could only communicate on VHF-FM frequencies because they did not have 800 MHZ radios. In accordance with the statewide communications plan, harbormasters are a stakeholder group that should be integrated into interoperability goals.

Reference: Massachusetts Statewide Communications Interoperability Plan.

Analysis: Recommend Falmouth and Mashpee Harbormasters obtain 800 MHZ radios so they can communicate seamlessly with fire and police departments.

Mashpee Police Department boat deploying peat moss as a surrogate to simulate the movement of oil into the GRP booming tactic.



Photo courtesy of Nuka Research & Planning Group

APPENDIX A: IMPROVEMENT PLAN

This IP has been developed specifically for Mashpee and Falmouth Fire Departments, Mashpee and Falmouth Harbormasters, and Waquoit Bay National Estuarine Research Reserve (WBNERR) following the Massachusetts Department of Environmental Protection 2015 Cape and Islands GRP Exercise conducted on October 14th, 2015.

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 Waquoit Bay GRP (CI-16) to change the shore side recovery area in tactic (DV01b).	Planning	Nuka Research	Mike Popovich	10/15/15	2/15/16
Core Capability 1: Environmental Response/Health and Safety	2. Overview of Response Equipment	Include Loop technique in classroom and hands-on trailer demonstration.	Training	Nuka/MER	Mike Popovich/John Duponte	10/15/15	2/15/16
Core Capability 1: Environmental Response/Health and Safety	3. Basic Booming Operations	Recommend Falmouth FD review vessel powering requirements and add horsepower where able to better enable them to carry out GRP assignments.	Equipment	Falmouth Fire	TBD		
Core Capability 2: Operational Coordination	N/A						
Core Capability 3: Operational Communications	1. Communicate with other participants using organic UHF/VHF equipment	Recommend Falmouth and Mashpee Harbormasters obtain 800 MHZ radios so they can communicate seamlessly with fire and police departments.	Equipment	Falmouth and Mashpee Harbormasters	TBD		

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

APPENDIX B: EXERCISE PARTICIPANTS

Participating Organizations	
Town of Falmouth, MA	Participant Count
Falmouth Fire Department	15
Falmouth Harbormaster	2 ²
Town of Mashpee, MA	
Mashpee Fire Department	5
Mashpee Harbormaster	3
Federal	
United States Coast Guard (USCG)	3
State	
Massachusetts Department of Environmental Protection (MassDEP)	1
Nuka Research and Planning Group, LLC (contractor for MassDEP)	4
Moran Environmental Recovery (contractor for MassDEP)	1
WBNERR	2
Massachusetts Maritime Academy Cadets	4
TOTAL PERSONNEL	40

² Includes former member of Falmouth Harbormaster's office who is now the harbormaster in Scituate, MA.

APPENDIX C: EXERCISE EVALUATION FORM

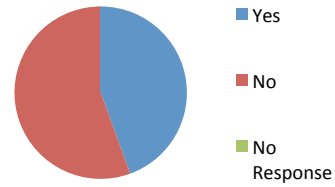
Massachusetts DEP 2015 Cape & Islands GRP Exercise – PARTICIPANT EVALUATION

Falmouth/Mashpee/Cotuit – Waquoit Bay GRP Exercise		Exercise date: 14OCT15	
Participant Name (optional):		Participant Organization:	
What was your role in exercise? (participant, evaluator, observer, etc.)			
What was your level of spill response experience prior to this exercise?			
NONE TRAINING ONLY SOME SPILL RESPONSE A LOT			
Please check a box to respond to the following.		YES	NO
1. I feel more prepared to deploy oil spill response equipment now than I did prior to this exercise.		<input type="checkbox"/>	<input type="checkbox"/>
2. I have a better understanding of spill response tactics than I did prior to this exercise.		<input type="checkbox"/>	<input type="checkbox"/>
3. I would participate in future oil spill response equipment or Geographic Response Plan deployments at other sites.		<input type="checkbox"/>	<input type="checkbox"/>
4. The objectives were clearly explained and the deployment exercise met the objectives.		<input type="checkbox"/>	<input type="checkbox"/>
5. The exercise was conducted safely.		<input type="checkbox"/>	<input type="checkbox"/>
Based on your experience today, would you feel comfortable setting a similar boom array during an actual incident?			
NOT AT ALL A LITTLE MODERATELY VERY			
Please evaluate how well the Menahunt Yacht Club worked for deploying and demobilizing boom from the trailer for this deployment:			
___ <u>Ideal</u> staging area for boom for this tactic.			
___ <u>Sufficient</u> as a staging area for boom for this tactic.			
___ <u>Not sufficient</u> as a staging area for boom for this tactic.			
Did the Exercise Plan (map diagram) provide clear direction as to how and where to deploy the boom? If not, please identify problems & suggest improvements.			

**PLEASE USE THE BACK OF THIS PAGE
FOR ANY ADDITIONAL COMMENTS**

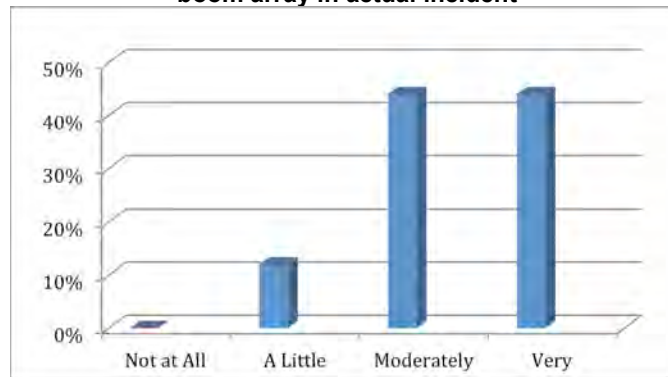
	Yes	No
Prior Oil Spill Experience	44%	56%
More Prepared after Exercise	100%	0%
Better Understanding of Deploying Spill Response Tactics	100%	0%
Participate in Future GRP Deployments	100%	0%
Field Objectives Clearly Explained and/or Met	100%	0%

Prior Spill Experience



18 Respondents

Based on experience today, comfort level with setting a similar boom array in actual incident



Menauhant Yacht Club as Staging Area

