



MassDEP Geographic Response Plan – 2016 Ram Island (BB-15) Test

October 20th, 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 Ram Island (BB-15) GRP Test and Evaluation
Exercise Dates	October 20th, 2016
Scope	This was a Full Scale Exercise, planned for approximately six hours in Fairhaven, MA and upon the waters of Nasketucket Bay and Buzzards Bay. Exercise play is limited to Nasketucket Bay and Buzzards Bay.
Mission Area(s)	Response
Core Capabilities	Environmental Response/Health and Safety, Operational Coordination, Operational Communications, Natural and Cultural Resources.
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 to mitigate the consequences of the oil spill and prevent impact to an environmentally sensitive area/natural resource.</p> <p>Objective 2: Demonstrate the ability to effectively direct and control incident activities by using the Incident Command System (ICS) through development and execution of an Incident Briefing (ICS 201).</p> <p>Objective 3: Demonstrate the ability to effectively communicate between multiple local, state, and federal agencies using Marine VHF Channel 81A.</p> <p>Objective 4: Test and evaluate existing Ram Island GRP (BB-15) strategies and identify any changes or modifications necessary to achieve goal of excluding oil from Roseate Tern nesting and bathing areas on Ram Island immediately following an oil spill in Buzzards Bay. Test and evaluate personnel and vessel access to Ram Island for boom deployment.</p>
Threat or Hazard	Discharge of oil into a navigable waterway
Scenario	An oil spill has occurred in Buzzards Bay and is migrating toward Ram Island. Frank Corp. Environmental Services will utilize GRP BB-15 to rapidly deploy protective booming to protect sensitive resources on and around Ram Island.
Sponsor	Massachusetts Department of Environmental Protection (MassDEP).

Participating Organizations

Participating organizations included:

- Fairhaven Harbormaster
- Mattapoisett Harbormaster
- Mattapoisett Fire Department
- Mattapoisett Police Department
- New Bedford Fire Department
- Massachusetts Department of Environmental Protection (MassDEP)
- Massachusetts Emergency Management Agency (MEMA)
- Massachusetts Department of Marine Fisheries
- Massachusetts Division of Fisheries & Wildlife
- U.S. Coast Guard (USCG)
- Frank Corp. Environmental Services
- Nuka Research and Planning Group, LLC (Nuka Research)

Note: See Appendix B for participant count

Point of Contact

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Exercise Participants conduct a hotwash to identify what went well and areas for improvement.

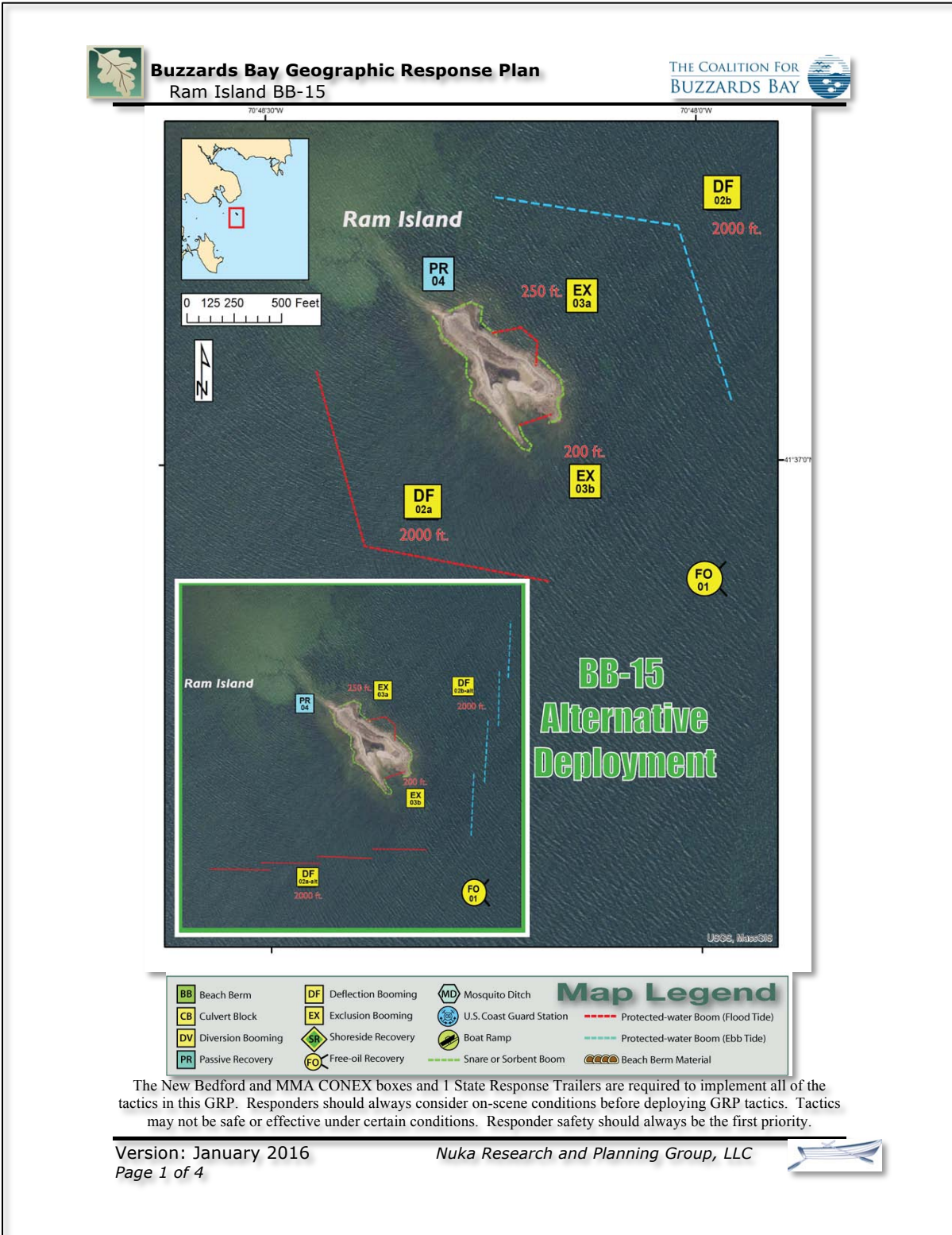


Photo courtesy of Nuka Research & Planning Group

Frank Corp vessels deploying exclusion boom on the eastern shore of Ram Island.



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			
Identify any changes or modifications necessary to achieve goal of excluding oil from Roseate Tern nesting and bathing areas on Ram Island immediately following an oil spill in Buzzards Bay. Test and evaluate personnel and vessel access to Ram Island for boom deployment.	Natural and Cultural Resources	P			

Ratings Definitions:

- 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) • All skills successfully demonstrated during the exercise • MassDEP trailer (Town of Mattapoisett) was readily accessible. All response equipment was available and in good condition. • All operations conducted in a safe manner.
	Basic Booming Operations	<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 Without Challenges (P) • Trailer personnel displayed excellent teamwork in getting boom out to boats from boat ramp. • Frank Corp Barge did an excellent job of transporting boom on deck and their Carolina skiff towed the boom from the Sea View Ave staging area. • Shore team did an excellent job of establishing a shore anchor with rebar. • Slide hammers were not in the Mattapoisett trailer. They will be added during the normal inspection cycle. Recommendation: <u>Replace sledgehammers in all trailers during routine annual maintenance cycles.</u> • All Frank Corp vessels operated safely in an extremely rocky nearshore and shoreline environment. Crews were very active in spotting and keeping their vessels off the rocks as they deployed the boom. • New Bedford's new fire boat was extremely effective in rapidly towing boom back to the Sea View Ave area. Recommendation: This vessel should be considered in any plans to rapidly deploy boom to Ram Island in the event of an actual oil spill. • Safety officer did an excellent job.
	Implement Tactics in GRP	<ul style="list-style-type: none"> • Exclusion boom tactics 	<ul style="list-style-type: none"> • Performed Without Challenges (P) • EX-03b • IC made the decision to deploy boom from the west spit to the east spit because of the rockier coastline of the east spit. This forced them to pull the boom into a northeasterly wind. Decision was sound and shore team was able to pull the boom across the entrance to the lagoon from the eastern spit. Recommendation: <u>Include this information in the Special Considerations of the Ram Island GRP so they are aware and can plan for a similar boom deployment strategy in an actual oil spill. Include the need for shore teams to bring heaving lines and a boat hook to special considerations as well.</u> • Transferring the tag line from the exclusion boom to shore from the boat was tricky due to the prevailing wind, water depth and the rocky bottom. Having a

			<p>heaving line would have facilitated transferring the boom from the boat to the beach. Recommendation: <u>Continue adding heaving line balls to the standard inventory items for all MassDEP trailers.</u></p> <ul style="list-style-type: none"> • There was rebar already driven into the shore and in other places on Ram Island. Recommendation: <u>Permanent anchoring points should be considered to facilitate faster boom deployment in the event of an actual emergency.</u> • Safety vessel did an outstanding job of deploying surrogate. • BB-15 EX03b was effectively deployed as planned. Surrogate did not enter the lagoon and was effectively excluded from this area. Given the typically prevailing wind conditions from the NE or SW, this strategy should be effective during most environmental conditions except a strong southerly wind. • Shore team noted a 3-4 foot water depth in the lagoon, necessitating walking around the lagoon instead of through it. Contractors should consider the use chest waders in this area. Include this recommendation under Special Considerations. <p>EX-03a Boom was effectively deployed from the Frank Corp barge. This evolution was an all hands evolution and an additional crewmember would have been helpful to carry out this work safely and avoid having the boom enter the water twisted.</p> <ul style="list-style-type: none"> • IC made the decision to deploy a single anchor to create a chevron instead of multiple anchor points as depicted on the GRP map. This was a consideration of timing but was extremely beneficial to see that this configuration can be effective. • Adjusting the anchor in the chevron would have been made simpler with the use of trip lines. Recommendation: <u>Continue adding trip lines to MassDEP trailers during the normal maintenance cycle.</u> • The boom was effective in stopping most of the surrogate. During the hotwash, recommendations were provided to modify EX-03a to make it more effective. Recommendation: <u>Modify EX-03a based on the observations and lessons learned during this exercise to allow oil to deflect off the ends of the boom arrays (and around the island itself) and not collect on the shore.</u> • Adjusting the anchor at the tip of the chevron would have been easier if trip lines were employed. •
<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 	<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.

		demonstrate command and control of 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) • VHF communications were flawless. Given the close proximity of strike teams, voice communications were often used. • Shore team did not possess a radio. Having one would have facilitated some discussions with the exercise evaluator but did not inhibit the effectiveness of the boom deployment. During hotwash, a shore team member informed the group that he had a radio with him but left in in the boat when disembarking for the shore.
Natural and Cultural Resources	Protect Roseate Tern nesting and bathing areas.	<ul style="list-style-type: none"> • Personnel and vessel access to Ram Island. 	<ul style="list-style-type: none"> • There was evidence of splash-over along the exclusion boom deployed in EX-03a even in mild conditions and a fairly calm 10 knot easterly wind. Larger boom is needed to deploy this tactic to cope with routine conditions for Ram Island. Recommendation: <u>Assess the need for larger exclusion boom for Ram Island and possible Bird and Penikese as well and compare that with the inventory of 36-inch boom in MassDEP conex boxes to ensure there is enough boom to protect all 3 sites in the event of an oil spill in Buzzards Bay.</u> • It would be extremely useful to conduct an analysis of what the wind patterns are during the nesting seasons on Ram Island (and possibly Penikese and Bird Island as well) to clearly identify the boom type (and booming strategies) that is/are necessary to protect these islands. • The GRP should be updated to depict and include recommendations for double layer of passive recovery boom around the island.

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 (Frank Corp, Fairhaven, Mattapoisett, New Bedford, 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: Revise Ram Island GRP (BB-15) to include comments in the special considerations section for EX-03b regarding the utility of chest waders and that the rocky nearshore area and shoreline at the lagoon entrance requires a west to east deployment of boom. Also, that the best point for a shore team to access the island is on the north shore of the island.

Reference: Massachusetts Geographic Response Plan Tactics Guide

Analysis: Despite a northeasterly wind, the Incident Commander made the decision to deploy boom from the west spit to the east spit because of the rockier nearshore area and coastline of the east spit. This forced them to pull the boom into a northeasterly wind. Decision was excellent and shore team was able to pull the boom across the entrance to the lagoon from the eastern spit. Also, the shore team noted a 3-4 foot water depth in the lagoon, necessitating walking around the lagoon instead of through it. Contractors may want to consider deploying with chest waders to facilitate boom deployment in the lagoon.

Area for Improvement 2: Modify EX-03a based on the experiences of this exercise to allow oil to deflect off the ends of the exclusion tactic and not collect on the shore.

Reference: MassDEP GRP Tactics Guide

Analysis: The boom was effective in stopping most of the surrogate. During the hot wash, recommendations were provided to modify EX-03a to make it more effective.

Area for Improvement 3: MER replace the sledgehammers in the Mattapoisett Fire Department trailer with slide hammers during the routine maintenance cycle.

Reference: MassDEP Trailer Inventory

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 routine maintenance cycles.

Area for Improvement 4: Add heaving line balls to MassDEP trailers.

Reference: MassDEP Trailer Inventory

Analysis: Transferring the tag line from the exclusion boom to shore from the boat was tricky due to the prevailing wind, water depth and the rocky bottom. Having a heaving line would have facilitated transferring the boom from the boat to the beach.

Area for Improvement 5: Permanent anchoring points on Ram Island should be considered to facilitate faster boom deployment in the event of an actual emergency.

Reference: MassDEP Trailer Inventory

Analysis: There was rebar already driven into the shore and in other places on Ram Island serving other conservation purposes. Establishing permanent anchor points would greatly facilitate boom deployment in the event of an actual oil spill and not impact the habitat of the birds that nest on the island.

Area for Improvement 6: Continue adding trip lines to MassDEP trailers during the normal maintenance cycle.

Reference: MassDEP GRP Tactics Guide.

Analysis: Adjusting the anchor at the apex of the chevron for EX-03a would have been made simpler with the use of trip lines.

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.

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:

Communications was a strong point of the exercise.

Strength 1: • VHF communications were flawless. Given the close proximity of strike teams, voice communications were often used.

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 4: Identify any changes or modifications necessary to achieve goal of excluding oil from Roseate Tern nesting and bathing areas on Ram Island immediately following an oil spill in Buzzards Bay. Test and evaluate personnel and vessel access to Ram Island for boom deployment.

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

Core Capability 4: Natural and Cultural Resources

Strengths

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

Strength 1: The attempted protection strategies worked well but had some room for improvement.

Areas for Improvement

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

Area for Improvement 1: Assess the need for larger exclusion boom for Ram Island and possible Bird and Penikese as well and compare that with the inventory of 36-inch boom in MassDEP conex boxes to ensure there is enough boom to protect all 3 sites in the event of an oil spill in Buzzards Bay.

Reference: N/A

Analysis: There was evidence of splash-over along the exclusion boom deployed in EX-03a even in mild conditions and a fairly calm 10 knot easterly wind. Larger boom is needed to deploy this tactic to cope with routine conditions for Ram Island. It would be extremely useful to conduct an analysis of what the wind patterns are during the nesting seasons on Ram Island (and possibly Penikese and Bird Island as well) to clearly identify the boom type (and booming strategies) that is/are necessary to protect these islands. Lastly, the GRP should be updated to depict and include recommendations for double layer of passive recovery boom around the island.

Frank Corp vessels at staging area preparing to get underway for the exercise.



Photo courtesy of Nuka Research & Planning Group

Frank Corp vessels and shore team deploy exclusion boom on south shore of Ram Island.



Photo courtesy of Nuka Research & Planning Group

Shore team member anchoring boom on the beach on the eastern shore of Ram Island.



Fairhaven Harbormaster acting as safety vessel for the exercise.



Photos courtesy of Nuka Research & Planning Group

New Bedford Fire Boat tows boom back to staging area after the exercise is complete.

Peat moss is used as an oil surrogate to test the effectiveness of the exclusion tactic.



Photo courtesy of Nuka Research & Planning Group

Mattapoisett Harbormaster vessel off Ram Island.



Photo courtesy of Nuka Research & Planning Group

Frank Corp barge with boom onboard working off Ram Island.



Photo courtesy of Nuka Research & Planning Group



Photo courtesy of Nuka Research & Planning Group

APPENDIX A: IMPROVEMENT PLAN

This IP has been developed specifically for MassDEP following the Massachusetts Department of Environmental Protection for the Ram Island GRP Exercise conducted on October 20th, 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 Ram Island GRP (BB-15) to include comments in the special considerations section for EX-03b	Planning	Nuka Research	Mike Popovich	11/1/16	4/1/17
Core Capability 1: Environmental Response/Health and Safety	2. Implement Tactics in GRP	Modify EX-03a based on the experiences of this exercise to allow oil to deflect off the ends of the exclusion tactic and not collect on the shore.	Planning	Nuka Research	Mike Popovich	11/1/16	4/1/17
Core Capability 1: Environmental Response/Health and Safety	3. Overview of Response Equipment	MER replace the sledgehammers in the Mattapoisett Fire Department trailer with slide hammers during the routine maintenance cycle.	Equipment	MER	John Duponte	11/1/16	4/1/17
Core Capability 1: Environmental Response/Health and Safety	4. Overview of Response Equipment	Add heaving line balls to MassDEP trailers.	Equipment	MER	John Duponte	5/15/16	12/15/16
Core Capability 1: Environmental Response/Health and Safety	5. Overview of Response Equipment	Permanent anchoring points on Ram Island should be considered to facilitate faster boom deployment in the event of an actual emergency.	Planning	Nuka/MER	Mike Popovich/John Duponte	5/15/16	5/24/16
Core Capability 1: Environmental Response/Health and Safety	6. Overview of Response Equipment	Continue adding trip lines to MassDEP trailers during the normal maintenance cycle.	Equipment	MER	John Duponte		

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

Core Capability 2: Operational Coordination	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Core Capability 3: Operational Communications	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Core Capability 4: Natural and Cultural Resources	7. Overview of Response Equipment	Assess the need for larger exclusion boom for Ram Island and possibly Bird and Penikese Islands as well and compare that with the inventory of 36-inch boom in MassDEP conex boxes to ensure there is enough boom to protect all 3 sites in the event of an oil spill in Buzzards Bay. Update the GRP to depict and include recommendations for a double layer of passive recovery boom around the island.	Planning	TBD	TBD	TBD	TBD

APPENDIX B: EXERCISE PARTICIPANTS

Participating Organizations	Participant Count
Frank Corp. Environmental Services	10
Town of Fairhaven Harbormaster	3
Town of Fairhaven Fire Department	1
Town of Mattapoisett Harbormaster	3
New Bedford Fire Department	2
Massachusetts Department of Environmental Protection (MassDEP)	3
Massachusetts Emergency Management Agency (MEMA)	2
Mass Division of Marine Fisheries	1
Massachusetts Division of Fisheries & Wildlife	1
Nuka Research and Planning Group, LLC	2
U.S. Coast Guard First District	1
TOTAL	29

Special thanks to Neil Churchill from MA DMF for providing the evaluation platform. His efforts allowed documentation of the response contractor efforts and greatly contributed to the success of this exercise.

Special thanks to the MEMA personnel for attending. They provided a briefing on MEMA command and control capabilities to the exercise participants.

Special thanks to the New Bedford FD for providing their newly acquired 38' fireboat. IT proved invaluable as both an observer platform and a towing vessel as it possessed the highest horsepower of all participating vessels and was able to safely and rapidly tow boom from the deployment site to the staging area. While on-scene, NBFD also showcased the vessel's firefighting capabilities by energizing its twin, on-board fire monitors.

Special thanks to Fairhaven and Mattapoisett HM's for providing safety vessels for the exercise and to the Fairhaven FD for providing an EMT and the use of their MassDEP trailer.