



First Responder Training and Geographic Response Strategy (GRS) Testing Exercise Series – Boston/Quincy

After-Action Report/Improvement Plan

April 24, 2023

The After-Action Report/Improvement Plan (AAR/IP) aligns exercise objectives with preparedness doctrine 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	2023 Boston/Quincy GRS Exercise
Exercise Date	April 24, 2023
Scope	This was a full-scale exercise planned for approximately six hours at Port Norfolk Yacht Club and upon the waters of Neponset River in Boston. Exercise play was limited to Neponset River and the adjacent shorelines.
Mission Area(s)	Prevention, Protection, Response
Capabilities	Environmental Response/Health and Safety, Operational Coordination, Operational Communications
Objectives	<p>Objective 1: Demonstrate the ability of local first responders to conduct initial response activities within the first 4-6 hours of an oil spill incident by deploying MassDEP oil spill response equipment and implementing common Geographic Response Strategy (GRS) tactics in alignment with the MassDEP GRS Tactics Guide.</p> <p>Objective 2: Demonstrate the ability of local first responders to establish and maintain command and control in the first 4-6 hours of an oil spill incident response by identifying relative health and safety hazards, developing an initial response organization, and communicating response objectives, strategies, and tactics through the completion of an Incident Briefing form (ICS 201) and the facilitation of an Operations and Safety Briefing.</p> <p>Objective 3: Demonstrate the ability of local first responders to effectively communicate information and actions between multiple local, state, and federal agencies within the first 4-6 hours of an oil spill incident by identifying a common UHF or VHF radio channel that can be utilized by all participants.</p>
Threat or Hazard	Discharge of oil into a navigable waterway
Scenario	An oil spill has occurred that threatens the Neponset River and the adjacent shorelines. The Boston and Quincy Fire Departments and Police Department/Harbormasters will utilize various Geographic Response Strategy (GRS) tactics to protect sensitive resources in Neponset River and the surrounding area.
Sponsor	Massachusetts Department of Environmental Protection (MassDEP)
Participating Organizations	<p>Participating organizations included:</p> <ul style="list-style-type: none"> • Boston Fire Department • Boston Police/Harbormaster • Quincy Fire Department • Quincy Police/Harbormaster • MassDEP • U.S. Coast Guard Sector Boston • Moran Environmental Recovery (MER) • Nuka Research <p>Note: See Appendix B for participant count</p>
Point of Contact	<p>Julie Hutcheson, Marine Oil Spill Prevention & Response Program Coordinator Massachusetts Department of Environmental Protection Oil Spill Prevention and Response Program 100 Cambridge St., Suite 900 Boston, MA 02114 (617) 366-7424 julie.hutcheson@mass.gov</p>

Participants establish communications protocol prior to on-water deployment



Participants receive trailer and equipment familiarization prior to hands-on training



Photos courtesy of Nuka Research & Planning Group

Participants practice proper heaving line throwing



Participants practice connecting boom sections



Photos courtesy of Nuka Research & Planning Group

EXECUTIVE SUMMARY

Exercise Planning

In preparation for the Boston/Quincy exercise, both an Initial and Final Planning Meeting (IPM/FPM) were held with members of the Exercise Planning Team (EPT), which was comprised of personnel from each of the participating organizations listed in the Exercise Overview section.

Based on general direction provided by the EPT, and the overarching exercise scope and objectives mentioned above, the following deployment plans were developed:

- Deploy 1,200 ft of boom in a chevron diversion configuration to test the DV01b strategy in the Boston Harbors (BH06) GRS (see **Figure 1** below)

Exercise Conduct

Upon arrival at the deployment site on the day of the exercise, exercise controllers and senior participant personnel conducted a pre-deployment site survey to identify any limitations or obstructions that may impact the deployment plan outlined above. The following factors are typically observed and evaluated during this process:

- Wind speed and direction
- Tidal conditions, water depth, current speed and direction, and other water flow patterns
- Vessel traffic, mooring field density, and other deployment area limitations or obstructions

Based on the results of this site survey, the following limiting conditions were noted, leading to modifications to the initial deployment plan:

- Low water depths in many areas near the deployment site, limiting vessel maneuverability.
- Tightly configured floating docks within marina limiting the deployment of boom from the shoreline

As a modification to the initial deployment, the following deployment activities were completed:

- Deploy 200 ft of a cascading diversion configuration, using a nearby floating dock as a shoreline anchor location



Figure 1. Exercise Tactics Map

ANALYSIS OF CAPABILITIES

Aligning exercise objectives and 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 capabilities, and performance ratings for each capability as observed during the exercise and determined by the evaluation team.

Objective	Capability	Rating
Demonstrate the ability of local first responders to conduct initial response activities within the first 4-6 hours of an oil spill incident by deploying MassDEP oil spill response equipment and implementing Geographic Response Strategy (GRS) tactics in alignment with the MassDEP GRS Tactics Guide.	Environmental Response Health and Safety	S
Demonstrate the ability of local first responders to establish and maintain command and control in the first 4-6 hours of an oil spill incident response by identifying relative health and safety hazards, developing an initial response organization, and communicating response objectives, strategies, and tactics through the completion of an Incident Briefing form (ICS 201) and the facilitation of an Operations and Safety Briefing.	Operational Coordination	S
Demonstrate the ability of local first responders to effectively communicate information and actions between multiple local, state, and federal agencies within the first 4-6 hours of an oil spill incident by identifying a common UHF or VHF radio channel that can be utilized by all participants.	Operational Communications	S
<p>Ratings Definitions:</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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).</p>		

Table 1. Summary of Core Capability Performance

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

Objective 1: Demonstrate the ability of local first responders to conduct initial response activities within the first 4-6 hours of an oil spill incident by deploying MassDEP oil spill response equipment and implementing common Geographic Response Strategy (GRS) tactics in alignment with the MassDEP GRS Tactics Guide.

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

Capability 1: Environmental Response/Health and Safety

Strengths

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

Strength 1: Participants were attentive during the classroom and hands-on training sessions, asking informed questions and providing immediate feedback to instructors.

Strength 2: Participants adequately connected boom sections, towing bridle to boom, and all components of anchor systems.

Strength 3: Despite encountering multiple potential obstructions (several areas of low water depth, a narrow boat ramp, and nearby piers), participants appropriately adjusted booming tactics and strategies to deploy a modified cascading diversion boom array.

Areas for Improvement

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

Area for Improvement 1: Participants from the shoreside anchor team initially struggled to anchor the first section of boom in the appropriate location on a nearby pier piling, requiring extra time to reposition the anchor system and forcing vessels and vessel operators to briefly pause towing operations.

Reference: MassDEP GRS Tactics Guide

Analysis: During the Incident Commander's delivery of deployment strategies and tactics to exercise participants, shoreside crews were directed to anchor boom in the middle of a pier south of the yacht club to avoid boom sections catching a series of docked boats at the nearby yacht club pier. After initially choosing an anchor point on the northern end of the smaller pier, shoreside crews were directed to reposition the anchor towards the middle of the pier to enable vessels to tow boom at the appropriate angle. This level of miscommunication may have been prevented if a formal Safety and Operations brief had been held.

Area for Improvement 2: Participating vessels and vessel crews were unable to deploy and test the DV01b diversion tactic as originally planned because of low water depths throughout the operating area.

Reference: MassDEP GRS Tactics Guide

Analysis: Upon arrival to the deployment site, command staff observed that the yacht club boat ramp was tightly configured within the marina's infrastructure of piers and docked vessels, and the GRS tactic deployment site was surrounded by areas of low water depth. These factors prevented deployment of the DV01b tactic as originally planned. Instead, command staff redirected participants to deploy a modified cascading diversion array

in a location just south of the DV-1b tactic. Although participants adjusted well to last minute changes, this location may need to be reconsidered for future exercises and the location of the tactic on the existing Neponset River GRS (BH-06) may need to be revised.

Objective 2: Demonstrate the ability of local first responders to establish and maintain command and control in the first 4-6 hours of an oil spill incident response by identifying relative health and safety hazards, developing an initial response organization, and communicating response objectives, strategies, and tactics through the completion of an Incident Briefing form (ICS 201) and the facilitation of an Operations and Safety Briefing.

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

Capability 2: Operational Coordination

Strengths

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

Strength 1: Command staff worked well to coordinate modifications to boom deployment tactics and strategies to maximize the use of on-water resources.

Areas for Improvement

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

Area for Improvement 1: A Safety and Operations brief was not held, leading to limited coordination between command staff and each strike team, and resulting in confusion related to planned deployment tactics and adjustments.

Reference: Exercise-Specific ICS-201

Analysis: A detailed and organized Safety and Operations brief is often necessary prior to initiating boom deployment activities to ensure strike teams are clear on the directives of the exercise and each participant's roles and responsibilities. This is especially important in exercises where a myriad of factors impact the intended deployment plan, leading to unavoidable adjustments to exercise tactics and strategies, and potential confusion amongst participants.

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

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

Capability 3: Operational Communications

Strengths

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

Strength 1: Participants from all agencies coordinated prior to on-water deployment to determine the appropriate radio frequencies, then utilized radios appropriately to communicate deployment tactics and adjustments.

Areas for Improvement

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

Area for Improvement 1: Not all participants had access to a radio, making radio-based communications only effective for those close enough to someone with a radio.

Reference: Exercise-Specific ICS-201

Analysis: For future exercises, command staff should ensure that radios are strategically located on each vessel and amongst vessel crews and each group of strike teams located on shore. This will help to avoid any miscommunication or confusion related to the exercise deployment plan.

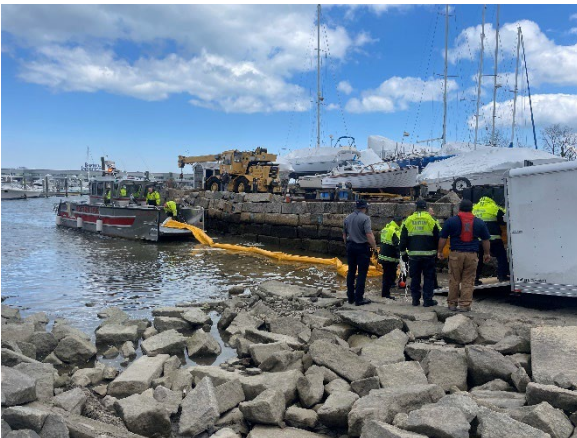
Participants prepare boom for towing to the deployment site



Participants from the shore-side strike team secure end of boom to a pier piling



Vessel crews begin towing boom to the deployment site



Participants monitor deployed boom as vessel crews reposition marine anchors



Photos courtesy of Nuka Research & Planning Group

APPENDIX A: IMPROVEMENT PLAN

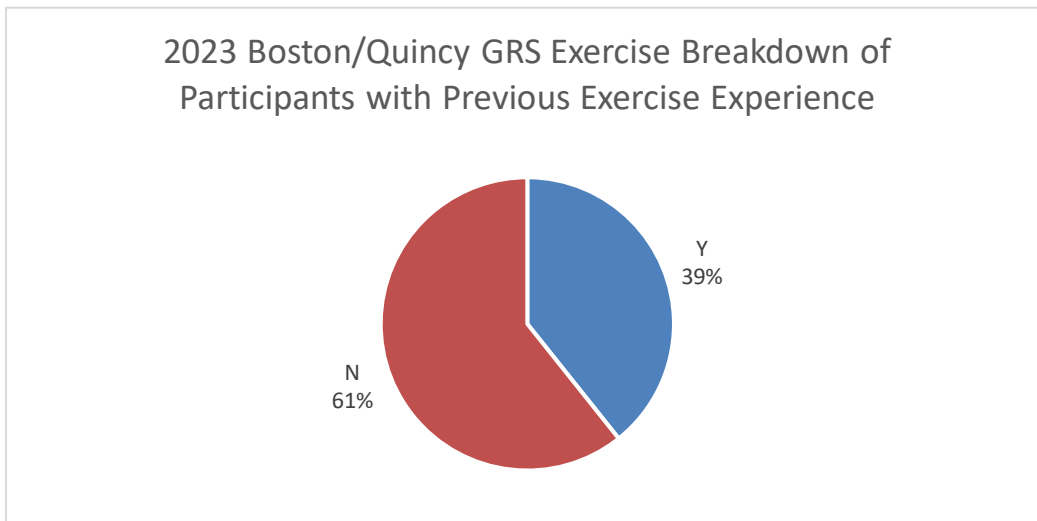
This IP is developed specifically for MassDEP, MER, Nuka Research and the Cities of Boston and Quincy as a result of the MassDEP GRS Testing and First Responder Training Exercise conducted on 24-Apr-23.

Capability	Issue/Area for Improvement	Corrective Action	Capability Element ¹	Primary Responsible Organization
Capability 1: Environmental Response	Participants from the shoreside anchor team initially struggled to anchor the first section of boom in the appropriate location on a nearby pier piling, requiring extra time to reposition the anchor system and forcing vessels and vessel operators to briefly pause towing operations.	During the Safety and Operations brief, Command Staff emphasize deployment tactics and strategies to ensure all participants are aware of their individual roles and responsibilities and the tasks to be performed.	Organization/Leadership	Fire Departments and Harbormasters
Capability 1: Environmental Response	Participating vessels and vessel crews were unable to deploy and test the DV01b diversion tactic as originally planned because of low water depths throughout the operating area.	Update the Neponset River BH06 GRS to reflect some of the challenges to anticipate in the area.	Planning	Nuka Research
Capability 2: Operational Coordination	A Safety and Operations brief was not held, leading to limited coordination between command staff and each strike team, and resulting in confusion related to planned deployment tactics and adjustments.	Ensure a Safety and Operations brief is held and assist Command Staff with preparing for and facilitating each brief.	Organization/Leadership	Fire Departments and Harbormasters
Capability 3: Operational Communications	Not all participants had access to a radio, making radio-based communications only effective for those close enough to someone with a radio.	Ensure all Command Staff and Strike Team personnel have proper communication devices during Safety and Operations brief	Organization/Leadership	Fire Departments and Harbormasters

¹ Capability Elements are: Planning, Organization and Leadership, Personnel, Equipment and Systems, Training, or Exercise

APPENDIX B: PARTICIPANTS & RESOURCES

Participating Organizations	
City of Boston, MA	Participant Count
Boston Fire Department	14
Boston Police/Harbormaster	3
City of Quincy, MA	
Quincy Fire Department	8
Quincy Police/Harbormaster	3
TOTAL TOWN/CITY PARTICIPANTS	28
Federal	
United States Coast Guard Sector Boston	3
State	
Massachusetts Department of Environmental Protection (MassDEP)	1
Nuka Research and Planning Group, LLC (contractor for MassDEP)	3
Moran Environmental Recovery (contractor for MassDEP)	3
TOTAL	38



List of Resources			
Agency	Resource	Kind	Exercise Function
Boston FD	Marine Unit 2	Vessel	Boom Deployment
Boston PD/HM		Vessel	Support
Boston PD/HM		Vessel	Support
Quincy FD	Oil spill response trailer	Trailer	Demo/Deployment

APPENDIX C: PARTICIPANT FEEDBACK

Participant feedback was not collected for this exercise.