MassDEP Geographic Response Strategy - 2022 Mount Hope Bay First Responder Exercise – Freetown, MA

After-Action Report/Improvement Plan

October 04, 2022

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	2022 Mount Hope Bay First Responder Exercise
Exercise Dates	October 04, 2022
Scope	This is a full-scale first responder exercise, planned for approximately 6 hours with classroom instruction held in the Berkley Fire Station #2, and the exercise held in Freetown, MA. First responder exercises include the same elements of a GRS exercise but focus broadly on deploying boom and testing common tactics instead of deploying a specific GRS tactic. Exercise play is limited to the Assonet River in the vicinity of Hathaway Park and the adjacent shorelines.
Mission Area(s)	Response
Capabilities	Planning, Environmental Response/Health and Safety, Operational Coordination, Operational Communications
Objectives	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 Strategy (GRS) tactics. 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. 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 UHF and/or VHF communications.
Threat/Hazard	Discharge of oil into a navigable waterway
Scenario	An oil spill has occurred due to a tank truck rollover on RT 24 in the vicinity of the Assonet River that threatens the Assonet River and Assonet Bay. The Freetown, Berkley, and Dighton Fire Departments will utilize various common Geographic Response Strategy (GRS) tactics to protect sensitive resources in Assonet Bay and the surrounding area.
Sponsor	Massachusetts Department of Environmental Protection
Participating Organizations	See Appendix A: Exercise Participants
Point of Contact	Julie Hutcheson, Program Coordinator Massachusetts Department of Environmental Protection Oil Spill Prevention and Response Program 100 Cambridge St. Boston, MA 02114 (617) 366-7424 julie.hutcheson@mass.gov

Participants undergo classroom instruction prior to the field exercise

Participants practice setting up marine anchor systems

Photos courtesy of Nuka Research

Participants practice tossing heaving line

Participants learn about boom components and how to connect boom sections

Photos courtesy of Nuka Research

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	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 Strategy (GRS) tactics.	Environmental Response/Health and Safety		S		
Demonstrate the ability to assemble a spill response organization utilizing Incident Command System (ICS) principles through execution of an Incident Briefing (ICS 201) and implementation of on-site incident management and tactical operations.	Operational Coordination		S		
Demonstrate the ability to effectively communicate between multiple local, state, and federal agencies including fire, police and harbormaster departments using VHF and UHF communications	Operational Communications		S		

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	Exercise Observations
Environmental Response/ Health and Safety	**Overview of Response Equipment**	• Access Mass DEP Trailer • Identify boom and sorbents • Connect boom together • Connect towing bridle to boom • Connect components of anchor system together	• All trailers were accessible and contained the appropriate equipment • Participants were attentive and engaged during classroom and trailer overview sessions • Participants connected boom sections, towing bridle to boom, and all components of anchor systems
	Basic Booming Operations	• Transport and tow boom • Anchoring and Connecting boom to shore • Safe vessel and crew operations (Refer to ICS-208)	• Participants unloaded 600 ft of exclusion boom from the oil spill response trailer • Despite initially encountering challenges identifying the components needed to properly tow exclusion boom and overcoming on-water deployment delays due to tangled anchor lines, shoreside teams effectively loaded all marine anchors onto Berkley Marine Unit 1 for transport to the other on-water vessels • Despite boom direction shifting due to strong current during towing operations, vessel crews from Berkley Marine Unit 1 appropriately adjusted their towing methods to effectively transport boom to the exclusion tactic location
	Implement Boom Tactics	• Deploy exclusion boom to protect the shoreline • Deploy containment around a vessel at a mooring • Deploy containment around a vessel at a dock	• Due to time constraints, the containment booming strategies were not utilized, and oil surrogate was not deployed • Despite low tide conditions impacting vessel maneuverability close to the shoreline, vessel crews were able to adjust marine anchor placement and boom positioning as water levels rose to successfully utilize the exclusion booming strategies depicted in the tactics map • Vessel strike teams successfully deployed marine anchor systems on either end of the exclusion boom and along the length of the boom
Operational Coordination	**Create and Execute an Assignment List (ICS 201)**	• Fill out ICS 201 • Assignments in ICS 201 are followed, and on-scene adjustments made as necessary • Participants demonstrate command and control of exercise	• The Incident Commander (IC) and Safety Officer (SO) worked well together, assigning all personnel to appropriate strike teams, overseeing the entire deployment, and adjusting the deployment plan based on on-scene conditions

Core Capability	Organizational Capability Target	Associated Critical Tasks	Exercise Observations
Operational Communications	**Effectively Communicate Using VHF equipment**	• Create Communications Plan • Communicate with other participants using organic VHF equipment	• All participating organizations were able to effectively communicate via a common radio channel • Despite opting to communicate without radios at times, Command Staff displayed effective communication with on-water and shoreside strike teams, effectively coordinating each team's role in the exercise and all deployment activity

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 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 Strategy (GRS) tactics

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 throughout and providing immediate feedback.

Strength 2: Despite encountering strong current conditions during boom towing operations, vessel crews appropriately adjusted their towing methods to effectively transport boom to the exclusion tactic location.

Strength 3: Despite low tide conditions impacting vessel maneuverability close to the shoreline, vessel crews were able to appropriately adjust marine anchor placement and boom positioning to successfully test the exclusion tactic.

Areas for Improvement

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

Area for Improvement 1: Participants initially struggled to identify the boom components needed to properly attach towing bridles to boom in preparation for boom towing operations, impacting the ability to begin towing boom in a timely manner.

Reference: MA GRP Tactics Guide

Analysis: After brief discussions about the components needed to properly tow boom from the shoreline to the exclusion tactic location, personnel were able to come to a consensus on what equipment was needed and how to effectively utilize each component. Although this discussion had no negative impact on the overall success of the exercise, an extended amount of time was taken to work through these uncertainties. To avoid future challenges in identifying the components needed to properly attach towing bridles to vessels, personnel would benefit from additional pre-deployment instruction, which could include a greater emphasis on the purpose of each towing component during the anchor system set up and heaving line sections of the trailer equipment familiarization session, and consideration for assigning a shoreside strike team leader. The purpose of the shoreside strike team leader is to assist the Incident Commander and the Operations Section Chief by ensuring all shoreside support personnel understand the actions and activities related to preparing anchor systems, loading, and unloading boom onto vessels, and communicating with vessel strike teams.

Area for Improvement 2: Participants initially struggled with anchoring boom sections in the appropriate locations during tidal changes and in strong current conditions, spending a considerable amount of time repositioning anchors, forcing exercise controllers to end the exercise without testing containment booming tactics.

Reference: MA GRP Tactics Guide

Analysis: Low tide conditions and strong current prevented on-water vessels from operating close to the shoreline on the southeast end of the exclusion boom tactic, impacting the ability of personnel to deploy anchor systems in the locations that were originally anticipated and planned for in the tactics map. Because of this, on several occasions, vessels needed to circle back to the southeast anchor point and reposition the anchor as water levels rose to adequate levels. For future exercises, personnel would benefit from accurate and timely current meter readings that detail the current speeds at the time of on-water deployment. These details can assist personnel in determining the appropriate towing and anchoring tactics. Additionally, personnel provided feedback during the exercise debrief suggesting that equipping each vessel with waders would enable vessel crews to operate in low tide conditions outside of the vessel, allowing them to position anchor closer to shore when vessel maneuverability is limited.

Objective 2: Demonstrate the ability to assemble a spill response organization utilizing Incident Command System (ICS) principles through execution of an Incident Briefing (ICS 201) and implementation of on-site incident management and tactical operations

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 adequately identified the roles and responsibilities of all on-scene personnel.

Strength 2: All vessel strike teams worked well together, independently coordinating on-water activity and actively providing instruction as needed to less experienced vessel operators.

Strength 3: Command Staff overcame visibility challenges by relocating to a closer location with better vantage points to properly direct on-water operations.

Areas for Improvement

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

Area for Improvement 1: Limited coordination between Command Staff and shoreside/on-water strike teams regarding roles and responsibilities of personnel prior to on-water deployment impacted the ability of participants to tow boom in a timely fashion.

Reference: Incident Command System (ICS) 201

Analysis: After the operations brief concluded, exercise controllers intervened to assist Command Staff with directing personnel and assigning personnel roles and responsibilities accordingly. In the time leading up to the exercise controller interjection, several personnel were unclear of the directives provided, impacting the efficient progression of on-water deployment operations. Although this did not directly impact the overall success of the exercise, it is imperative that these briefings are held in a timely and orderly fashion to ensure all personnel maintain an awareness of the exercise directives and objectives. Once the exercise controller stood down, Incident Command Staff succeeded in maintaining command and control throughout the remainder of the exercise.

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 were able to determine the appropriate radio frequencies and, at most times, utilized radios adequately to communicate deployment tactics and adjustments.

Strength 2: Vessel strike teams showed an ability to adjust to altered boom deployment tactics and follow instructions as they were communicated from the Command Staff.

Areas for Improvement

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

Area for Improvement 1: Communication between vessel strike teams and from Command Staff to both vessel strike teams and shoreside strike teams occurred without radios at times, making it difficult for all participants to maintain awareness of operational and situational updates.

Reference: Incident Command System (ICS) 201 Communication Strategy

Analysis: At times, exercise observers noticed personnel with various roles and responsibilities communicating to each other without the use of a radio. Although this form of communication was made possible due to the proximity of each party at the time the message was sent and received, it would be ideal for all communications in future exercises to occur over the previously agreed upon radio communications system. By ensuring all communication occurs over these pre-established mediums, all personnel, regardless of their location, will be able to maintain situational awareness of updates and operational adjustments as they occur.

Vessel Strike Teams load marine anchors onto Berkley Fire Marine Unit 1

Participants connect towing bridle to boom section in preparation for deployment

Vessel crew tows boom across Assonet River towards exclusion tactic site

Participants clean and re-load boom into oil spill response trailer

Photos courtesy of Nuka Research

APPENDIX A: IMPROVEMENT PLAN

The Improvement Plan lists each area for improvement observed during exercise conduct and identifies the measurable corrective actions that can be taken to strengthen each associated capability. The purpose of an Improvement Plan is to help shape each organization's preparedness priorities and support continuous improvement. As shown in the table below, each area for improvement is accompanied by a corrective action and the most relative capability element. The table also lists each corrective action's primary responsible organization and POC. The primary responsible organization and POC provide the oversight to ensure each corrective action is initiated by the start date and completed by the completion date listed in the table.

Capability	Issue/Area for Improvement	Corrective Action	Capability Element[1]	Primary Responsible Organization	Organization POC	Start Date	Completion Date
Capability 1: Environmental Response/Health and Safety	Participants initially struggled to identify the boom components needed to properly attach towing bridles to boom in preparation for boom towing operations, impacting the ability to begin towing operations in a timely manner.	During all future operations briefs exercise controllers will ensure Command Staff assigns appropriate strike team leader positions to oversee operations	Organization and Leadership	Nuka Research	M. Popovich	Fall 2022	Spring 2023
Capability 1: Environmental Response/Health and Safety	Participants initially struggled with anchoring boom sections in the appropriate locations during tidal changes and in strong current conditions, spending a considerable amount of time repositioning anchors and forcing exercise controllers to end the exercise without testing containment booming tactics.	Nuka Research will look into acquiring an on-site portable weather monitoring station and GIS-based current speed calculator prior to on-water deployment to identify, monitor, and document real-time weather and current conditions and to better prepare for	Equipment and Systems	Nuka Research	M. Popovich	November 2022	Spring 2023

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

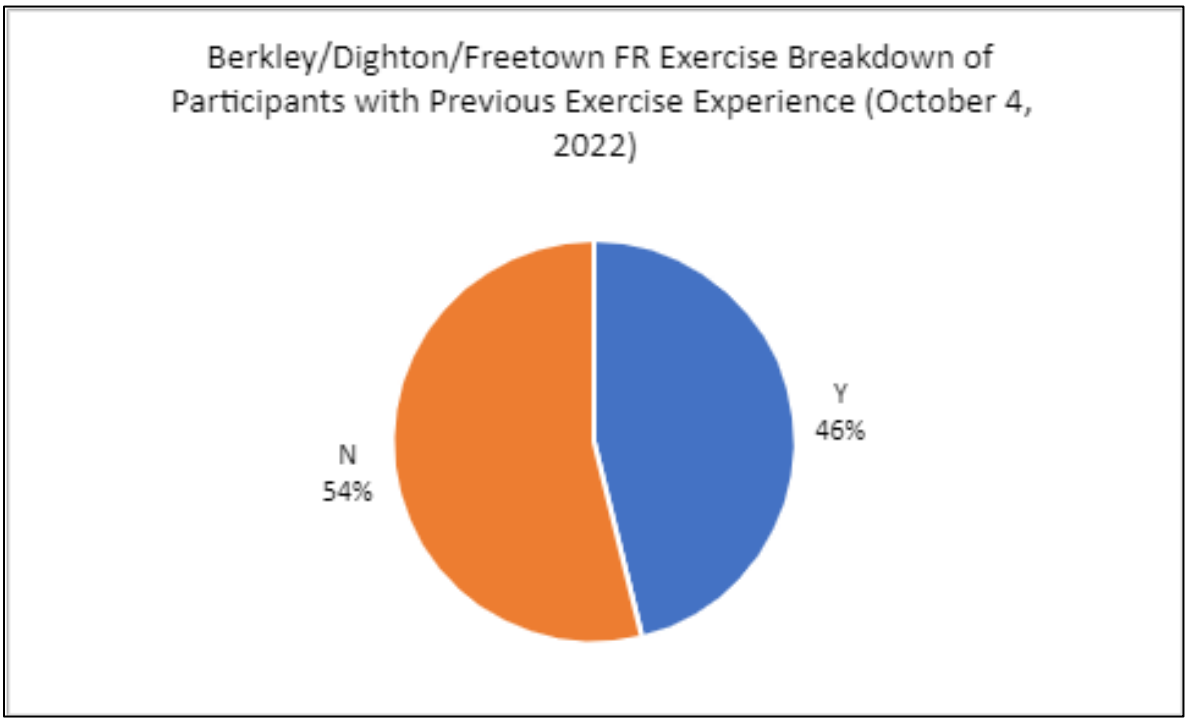
Capability	Issue/Area for Improvement	Corrective Action	Capability Element[1]	Primary Responsible Organization	Organization POC	Start Date	Completion Date
		on water deployment and adjustment of boom and oil surrogate deployment tactics if necessary					
Capability 1: Environmental Response/Health and Safety	Participants initially struggled with anchoring boom sections in the appropriate locations during tidal changes and in strong current conditions, spending a considerable amount of time repositioning anchors and forcing exercise controllers to end the exercise without testing containment booming tactics.	During each exercise planning phase, encourage first responder organizations to have available and utilize waders to enable vessel crews to operate in low tide conditions outside of the vessel, allowing them to position anchor closer to shore when vessel maneuverability is limited.	Equipment and Systems	Nuka Research	M. Popovich	Fall 2022	Spring 2023
Capability 2: Operational Coordination	Limited coordination between Command Staff and shoreside/on-water strike teams regarding roles and responsibilities of personnel prior to on-water deployment impacted the ability of participants to tow	During all future operations briefs, exercise controllers will ensure that Command Staff directs and assigns personnel roles and responsibilities	Organization and Leadership	Nuka Research	M. Popovich	Fall 2022	Spring 2023

Capability	Issue/Area for Improvement	Corrective Action	Capability Element[1]	Primary Responsible Organization	Organization POC	Start Date	Completion Date
	boom in a timely fashion.						
Capability 3: Operational Communications	Communication between vessel strike teams and from Command Staff to both vessel strike teams and shoreside strike teams occurred without radios at times, making it difficult for all participants to maintain awareness of operational and situational updates.	During future exercises exercise controllers will ensure that participants always utilize radios for communication to ensure all other participants and observers maintain situational awareness	Equipment and Systems	Nuka Research	M. Popovich	Spring 2023	Spring 2023

This IP is developed specifically for MassDEP, MER, Nuka Research and the towns of Berkley, Dighton, and Freetown as a result of the 2022 Mount Hope Bay GRS Exercise conducted on October 4, 2022.

APPENDIX B: PARTICIPANTS & RESOURCES

Participating Organizations	
Town of Freetown, MA	**Participant Count**
Freetown Fire Department	11
Town of Berkley, MA	
Berkley Fire Department	8
Town of Dighton, MA	
Dighton Fire Department	7
State	
Massachusetts Department of Environmental Protection (MassDEP)	2
Moran Environmental Recovery (MER) *	3
Nuka Research and Planning Group, LLC (Nuka Research) *	3
Federal	
United States Coast Guard	2
TOTAL	**36**



List of Resources			
Agency	**Resource**	**Kind**	**Exercise Function**
Freetown FD	Harbor Whaler/14’		Boom deployment
Freetown FD	Pump Truck		Boom rinse
Dighton FD/EM	Flat Bottom Jon Boat/12’		Boom deployment
Berkley FD	Mako/19’		Boom deployment
Berkley	Oil spill response trailer		Trailer demo
Freetown	Oil spill response trailer		Boom deployment

APPENDIX C: PARTICIPANT FEEDBACK

Participant feedback was solicited from the group using a combination of online and paper feedback forms. Participants were asked to rate each question using the scale listed below:

- 1 = Strongly Disagree
- 2 = Mildly Disagree
- 3 = Neutral
- 4 = Mildly Agree
- 5 = Strongly Agree

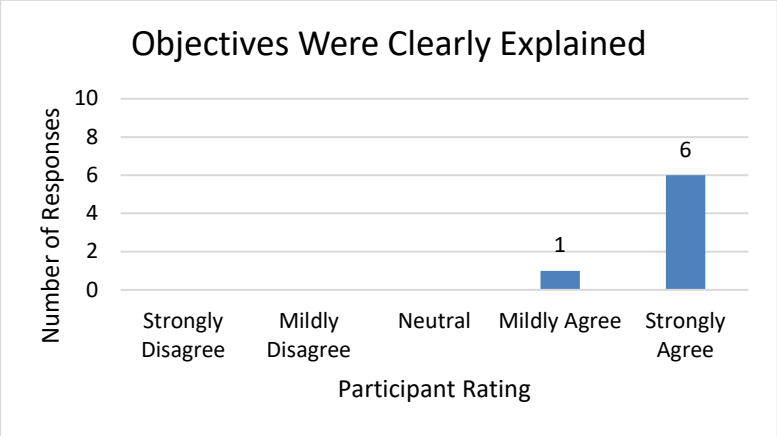
Participant feedback questions included the following:

- The objectives were clearly explained, and the exercise met those objectives
- The material appropriately challenged me, and the pace of instruction was correct
- The instructor(s) did an excellent job
- I found the classroom to be a comfortable learning environment
- I feel more prepared to respond to an oil spill than I did before this exercise

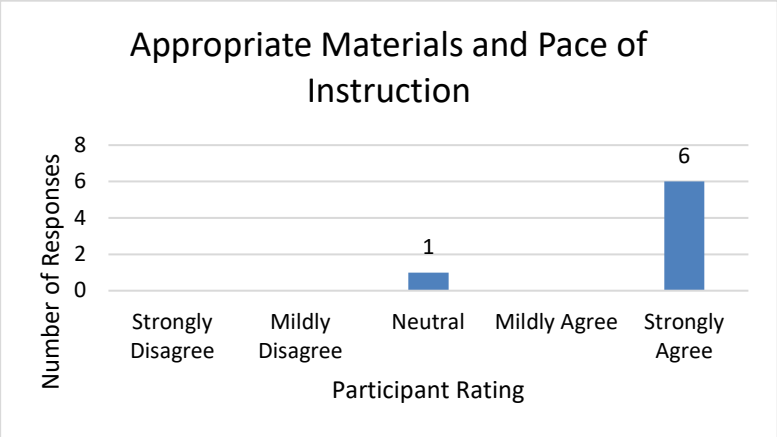
After each question above is ranked, participants are then asked to provide their open text responses to identify both the best thing about the training and any suggested improvements. A summary of this exercise's participant feedback is listed on the succeeding pages.

Participant Feedback Summary

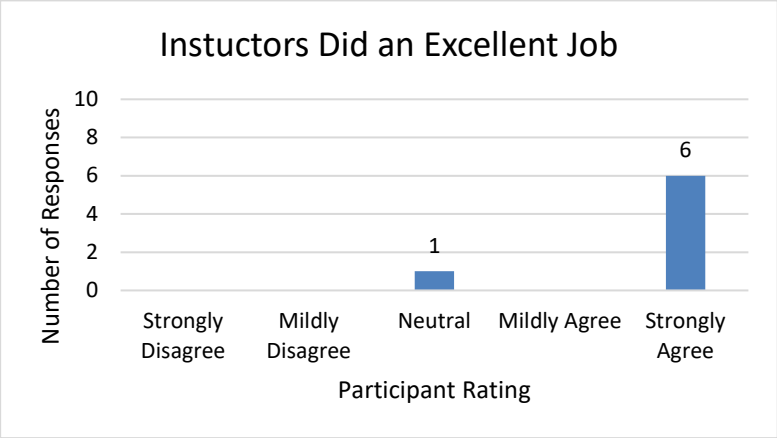
The following feedback was received from 7 of the 36 participants.



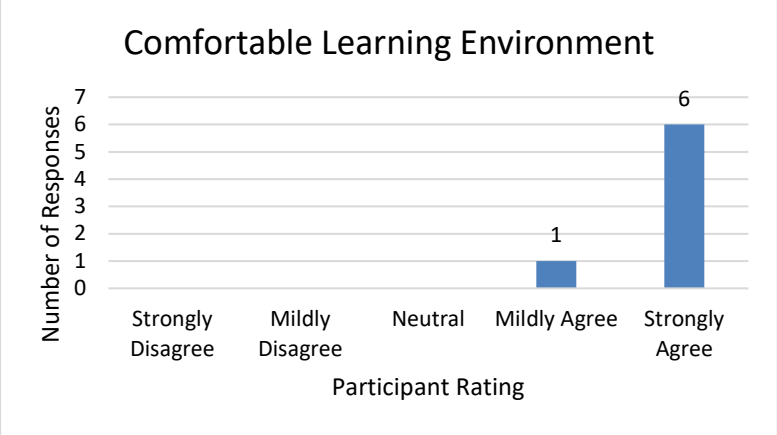
Comments: As always, the program was very thorough



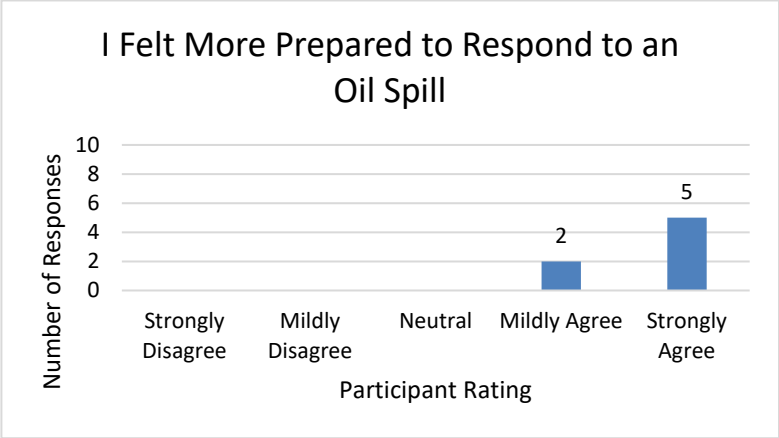
Comments: None



Comments: None



Comments: None



Comments: None

The best thing about this training was…	This training could be improved by…
The practicality of the material	Clearer on-water deployment instructions
The hands-on experience	More hands-on practice
	Better location for boom deployment