Westport River System (BB-02) Geographic Response Plan Deployment Exercise

October 10, 2013

AFTER ACTION REPORT/IMPROVEMENT PLAN

October 2013

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HANDLING INSTRUCTIONS

1. The title of this document is the Massachusetts Department of Environmental Protection Westport River System (BB-02) GRP Deployment Exercise.

2. The information gathered in this AAR/IP is unclassified.

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EXECUTIVE SUMMARY

The Massachusetts Department of Environmental Protection Westport River System (BB-02) Geographic Response Plan (GRP) Deployment Exercise occurred on October 10, 2013. The goal was to deploy a diversion booming array, utilizing as many responders as possible from two towns in the Buzzards Bay Region (Dartmouth and Westport) to exercise the existing Buzzards Bay Geographic Response Plan BB-02 developed for Westport River System (Figure 1) and provide hands-on experience for oil spill first responders.

Figure 1. Westport River System (BB-02)

A total of 4 State Response Trailers are required to implement all of the tactics in this GRP.
Responders should always consider on-scene conditions before deploying GRP tactics. Tactics may not be safe or effective under certain conditions. Responder safety should always be the first priority.

Version: September 2009 *Nuka Research and Planning Group, LLC*
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The Massachusetts Department of Environmental Protection (MassDEP) GRP Program exercise at Westport River System (BB-02) was developed to exercise local area first responder's Inter-Agency Planning and Resource Coordination, Communication, and Oil Spill Preparedness capabilities. The Exercise Planning Team (EPT) was comprised of several agencies, including the Westport and Dartmouth (District 1) Fire Departments, the Westport and Dartmouth Harbormaster Departments, the MassDEP, the United States Coast Guard Sector Southeastern New England, and Nuka Research and Planning Group, LLC (Nuka Research).

In preparation for this exercise, Initial, Mid-Term, and Final Planning Conferences were held. Additionally, an on-water site survey was conducted on August 27, 2013. At the beginning of the exercise planning process EPT members expressed concern over the feasibility of deploying the tactics and strategies published in the BB-02 GRP due to the high current speed common throughout the Westport River System. This site survey was conducted to observe the currents in the Westport River System and determine whether an existing strategy could be deployed or if an alternative tactic/strategy should be developed for the exercise based on the strong current. The site survey was attended by personnel from MassDEP, Nuka Research, Moran Environmental Recovery, Westport Fire Department (WFD), and the Westport Harbormaster who provided the vessel for the site survey. The results of the survey confirmed the presence of strong tidal currents during flood tide (the period when the exercise would be carried out). Survey participants agreed that the Diversion (DV) tactic (DV01a) depicted on the BB-02 GRP (See Figure 1) should be tested to determine its feasibility during flood tide.

The Initial Planning Conference (IPC) was held on May 16, 2013 at the Westport Fire Department (Station 1) in Westport, MA. A Mid-Term Planning Conference (MPC) was held on September 5, 2013 at the Westport Fire Department and the Final Planning Conference (FPC) was held on October 1, 2013 via teleconference.

During the course of the IPC the EPT discussed and determined:

- Exercise scope
- Exercise objectives
- Design requirements and conditions including:
    - Timing of the exercise in relation to tidal schedule
    - Potential use of an oil surrogate to simulate spilled oil and determine efficacy of the booming strategy

During the MPC, the EPT further refined the exercise tasks and objectives and determined:

- Exercise scenario and schedule
- Manpower and vessel needs
- Logistical issues including identification of staging and field locations.
- Administrative and documentation requirements and assignments.

During the FPC, a comprehensive review of all exercise objectives was conducted as well as detailed, final discussions to review logistics and resolve all open issues.

Based on the EPT's deliberations, the following objectives were developed for the Westport River System (BB-02) site:

- Objective 1: Foster Inter-Agency Planning and Coordination by providing the opportunity for local responders to work with Federal (USCG) and State (MassDEP) responders to plan for and deploy a GRP protective booming tactic during a simulated incident.
- Objective 2: Promote Resource Coordination among local responders by coordinating use of assets from multiple towns. (See Table 1).
- Objective 3: Improve local Oil Spill Preparedness by deploying equipment from one or more MassDEP provided Oil Spill Response trailers, providing participants hands-on experience mobilizing and demobilizing boom in the field, and providing an opportunity to evaluate the effectiveness of the DV01a booming tactic (as depicted on the BB-02 GRP) and identify any modifications necessary.

  Note: During the FPC, the EPT decided to add an additional deployment strategy to the exercise to provide an additional training opportunity for participants. Because the existing DV01a strategy only called for the deployment of a single length of boom, an additional DV strategy (in a cascade array, as depicted in Figure 2) was developed to provide more opportunity for participants to tow, set, and anchor boom.

The exercise objectives focused on inter-agency coordination and resource coordination for improving initial response capacity to oil spills in the towns of Dartmouth and Westport.

Figure 2. Additional DV01a strategy

Image Courtesy of Nuka Research and Planning Group

The purpose of this report is to analyze exercise results, identify strengths to be maintained and built upon, identify potential areas for further improvement, and support development of corrective actions.

Major Strengths

The major strengths identified during this exercise are as follows:

- Local agencies worked together to achieve objectives.
- Local responders demonstrated ability to adapt and modify tactics and strategies as necessary to safely meet objectives.
- Assets from both communities were integrated effectively to support the exercise objectives.
- Clear, concise, and effective communications.

Primary Areas for Improvement

The primary areas for improvement identified during this exercise, including recommendations, are as follows:

- This exercise and the conditions encountered on the Westport River System highlight the need to choose GRP testing sites that are conducive to both GRP tactics and strategy testing as well as first responder training. In order to maximize the training benefit for first responders that in many cases have never deployed this type of equipment, Exercise Facilitators and the Exercise Planning Teams must consider the level of complexity and anticipated environmental challenges (i.e. strong current) when selecting specific GRPs for testing. A balance must be struck between providing an adequate training benefit without introducing too much complexity and challenge while at the same time determining efficacy of GRP tactics and strategies.
- While GRP exercises present an opportunity to strengthen Incident Command System (ICS) principles amongst first responders (i.e. Fire Department personnel) who routinely utilize ICS to manage day-to-day incidents, because these exercises also focus on training first responders in carrying out activities that they have either never attempted before or have only infrequently carried out, incorporation of ICS elements can sometimes be counter-productive to successfully deploying the GRP and training inexperienced participants. For instance, assignment of Incident Command staff and Strike Team/Task Force leaders who are not familiar enough with the oil spill response tactics, strategies, and general procedures can be counterproductive as, in some cases, these participants cannot effectively oversee and direct field activities due to their unfamiliarity with these concepts. Exercise Facilitators and EPTs must take this into consideration before incorporating On-Site Incident Management capabilities, activities and tasks into future GRP exercises.
- Additional equipment (as part of standard trailer equipment) including anchor crown

buoys and snap rings for connecting towing line and anchors to boom will benefit safer, faster, and easier boom deployment.

Overall, the exercise was successful in providing an opportunity for first responders to deploy boom and strengthen inter-agency participation. Future exercises, both formally planned full-scale exercises as well as smaller inter and intra-departmental exercises and drills will be beneficial in strengthening local first responders' skill in deploying oil spill containment boom and will provide additional opportunities for inter-town and state coordination.

SECTION 1: EXERCISE OVERVIEW

Exercise Details

Exercise Name

Massachusetts Department of Environmental Protection Westport River System (BB-02) GRP Deployment Exercise

Type of Exercise

Full Scale Exercise

Exercise Start Date

October 10, 2013

Exercise End Date

October 10, 2013

Duration

6 hours

Location

The exercise briefing took place at Spindle Rock Club in the town of Westport, MA, with the field exercise following at Spindle Rock Club and adjacent waters.

Sponsor

The MassDEP was the sponsor of the exercise, with input from the participating towns, the U.S. Coast Guard, the Southeast Regional Planning & Economic Development District (SRPEDD), and facilitation by Nuka Research.

Program

Massachusetts GRP Exercise Program

Mission

This exercise was designed to provide an opportunity for municipal first responders to practice protective booming of a sensitive area in response to a simulated oil spill.

Capabilities

Planning, Communications, and WMD and Hazardous Materials Response and Decontamination.

Scenario Type

Discharge of oil.

Exercise Planning Team

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Participating Organizations

Participating organizations included:

- Dartmouth Fire Department (Dist. 1)
- Westport Fire Department
- Westport Harbormaster Department
- Massachusetts Department of Environmental Protection
- Moran Environmental Recovery
- Nuka Research and Planning Group, LLC
- United States Coast Guard Sector Southeastern New England*

* *Unable to participate due to federal government shutdown*

Number of Participants

- Players: 28
- Controllers: 1
- Facilitators: 5
- Observer: 4

SECTION 2: EXERCISE DESIGN SUMMARY

Exercise Purpose and Design

Geographic Response Plans (GRP) are tactical oil spill response plans tailored to protect a specific sensitive area from impacts following a spill. GRPs are developed by collaborative work groups that include local, state, and federal agencies, natural resource organizations, spill response organizations, and the oil industry. GRPs are incorporated into the state/federal Area Contingency Plans for oil spill and hazardous materials response. The Area Contingency Plan implements the National Contingency Plan and aligns with the National Response Framework. Once the GRPs have been published in the Area Plan, the next step in the planning and preparedness process involves exercising the GRPs to (1) field verify the resources and tactics identified in the GRP and (2) provide an opportunity for local responders to practice deploying spill response equipment utilizing an ICS framework.

The MassDEP GRP Exercise Program is currently in the fifth year of field exercises involving local fire, harbor, police, shellfish, and emergency management personnel along with state and federal agencies (Mass Division of Marine Fisheries, U.S. Coast Guard, Mass Environmental Police, National Oceanic and Atmospheric Administration). The exercise design, facilitation, planning, and reporting are funded by MassDEP. Participating towns may receive HSEEP grant funding to cover overtime and backfill costs.

The purpose of these exercises is twofold; 1) Test existing GRPs developed as part of the MassDEP GRP Program between 2009 and 2012 to determine their efficacy, and 2) Provide an opportunity for local first responders to improve skills utilizing the pre-positioned oil spill response equipment provided to them by MassDEP.

Exercise Objectives, Capabilities, and Activities

Capabilities-based planning allows for EPTs to develop exercise objectives and observe exercise outcomes through a framework of specific action items that were derived from the Target Capabilities List (TCL). The capabilities listed below form the foundation for the organization of all objectives and observations in this exercise. Additionally, each capability is linked to several corresponding activities and tasks to provide additional detail.

Based upon the identified exercise objectives below, the EPT decided to demonstrate the following capabilities during this exercise:

- **Objective 1:** Foster Inter-Agency Planning and Coordination by providing the opportunity for local responders to work with Federal (USCG) and State (MassDEP) responders to plan for and deploy a GRP protective booming tactic during a simulated incident.
  - **Planning**:
    - Successfully demonstrate the ability to plan and coordinate a multi-

town/multi-jurisdictional exercise
    - Initial, Mid-Term, and Final Planning Conferences as outlined above under Executive Summary.

- **Objective 2:** Promote Resource Coordination among local responders by coordinating use of assets from multiple towns.
  - **Communications**:
    - Assign common operating frequency (800 MHz) for Command and Operations;
    - Use WebEOC to communicate with MEMA and post incident updates;
    - Supply radios as needed to support interoperable communications; and
    - Communicate effectively during drill between shoreside/on-water responders, the Incident Commander (IC), and exercise controllers and facilitators.
- **Objective 3:** Improve local Oil Spill Preparedness by deploying equipment from one or more MassDEP provided Oil Spill Response trailers, providing participants hands-on experience mobilizing and demobilizing boom in the field, and providing an opportunity to evaluate the effectiveness of the DV01b booming tactic (as depicted on the MHB-12 GRP) and identify any modifications necessary.
  - **WMD and Hazardous Materials Response and Decontamination**:
    - Direct WMD and Hazardous Material Response and Decontamination Tactical Operations;
    - Demobilize WMD and Hazmat Response and Decontamination.

Scenario Summary

The scenario involved a commercial fishing vessel that struck Halfmile Rock while transiting into Westport Harbor, took on water, and partially submerged. Some minor sheening was observed. The vessel was carrying 2,000 gallons of diesel fuel. Utilizing the Westport River System (BB-02) GRP and the pre-positioned oil spill response trailers from MassDEP, first responders from the towns of Dartmouth and Westport, MA deployed the DV01a strategy (see Figures 1 and 2) to prevent oil from migrating into the Westport Harbor and Westport River System. The Westport Fire Chief acted as the Incident Commander and a safety officer from the Westport Fire Department was assigned. After initial safety and operations briefings, the field responders transported, deployed, evaluated, demobilized, and stored the boom and anchors used in the exercise (See Figures 3-13). An oil surrogate (peat moss) was deployed (See Figure 12) to evaluate the effectiveness of the strategy as deployed. Professional spill responders from Moran Environmental Recovery provided assistance and direction to participants. Personnel from Nuka Research and MassDEP acted as controllers and facilitators, providing direction, answering questions, and managing the exercise timetable.

After the boom was loaded back in the trailer, there was a post-exercise Hot Wash, during which

participants were asked to share any insights learned during the exercise and/or any suggestions on modifications needed to successfully deploy the tactic. There was a group of observers who were present for all or part of the exercise including representatives from MassDEP, members of the Westport and Dartmouth Fire Departments, and The Coalition for Buzzards Bay. Evaluation forms (Appendix C) were provided to and completed by all participants and observers who were present at the Hot Wash.

Figure 3. Deployment site overview from Spindle Rock Club

Photo Courtesy of Nuka Research and Planning Group[1]

[1] All photos in document courtesy of Nuka Research and Planning Group, LLC

Figure 4. Classroom segment inside Spindle Rock Club

Figure 5. Trailer side Equipment Familiarization

Figure 6. Hands-On Equipment Familiarization

Figure 7. Westport Emergency Management Director utilizes WebEOC to report to MEMA

Figure 8. Shoreside crew deploying the boom

Figure 9. Multiple Towns and Agencies Work Together to Deploy Oil Spill Containment Boom

Figure 10. Participants deploy Oil Spill Containment Boom

Figure 11. DV01a Booming Tactic deployed

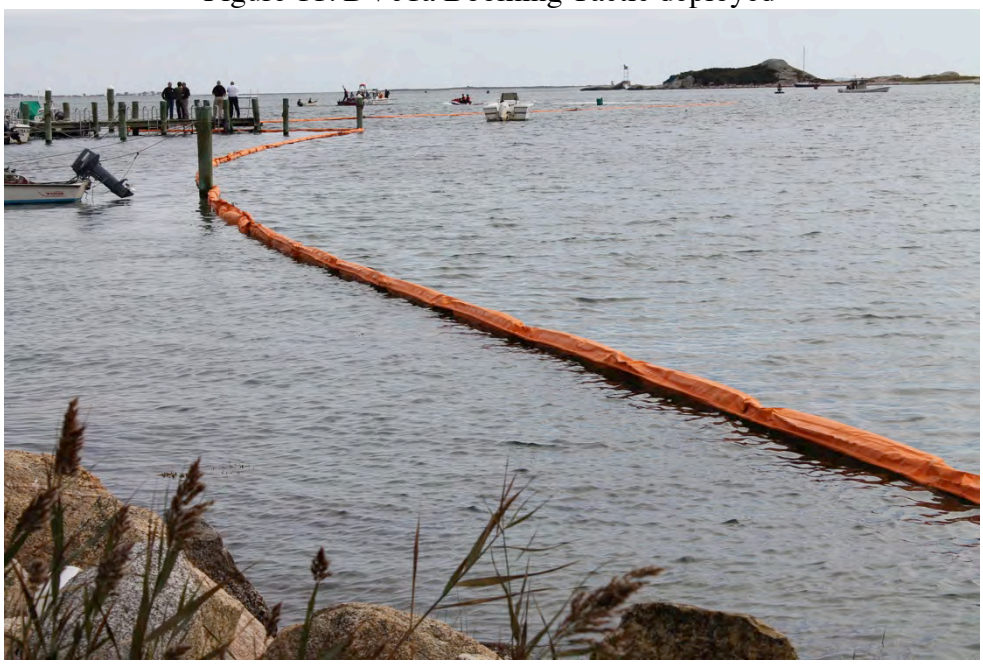
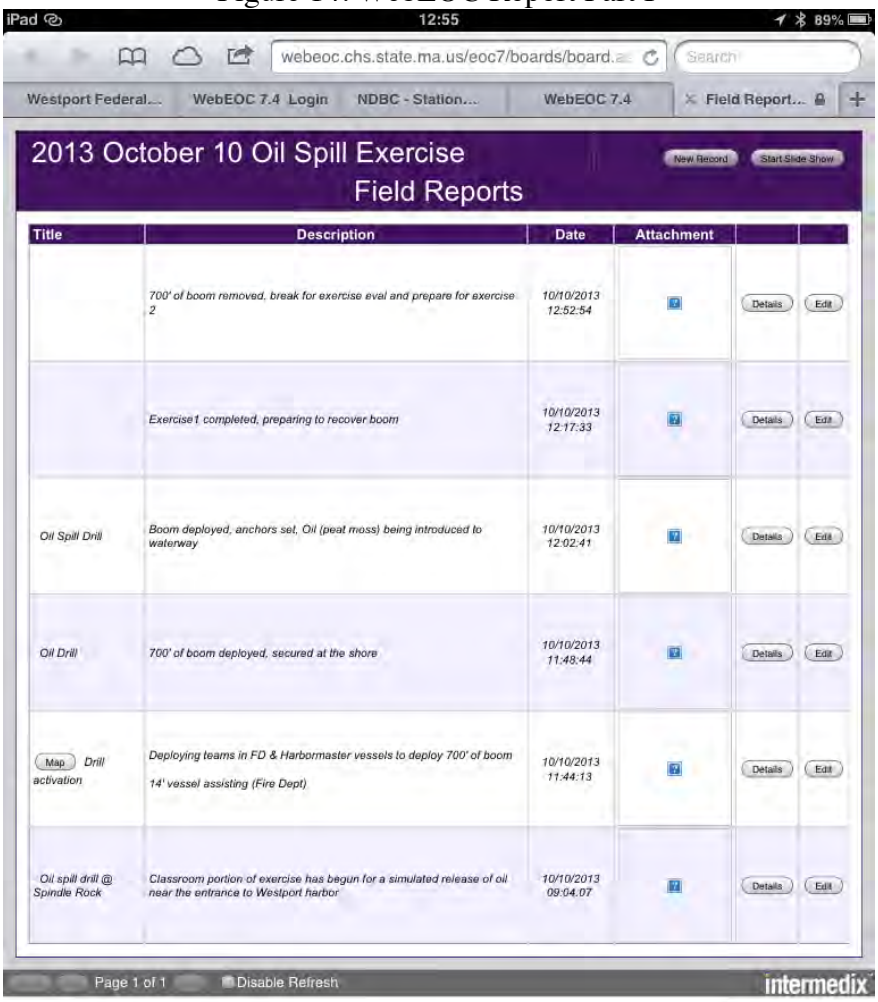


Figure 12. Oil Surrogate (peat moss) deployed on DV01a Tactic

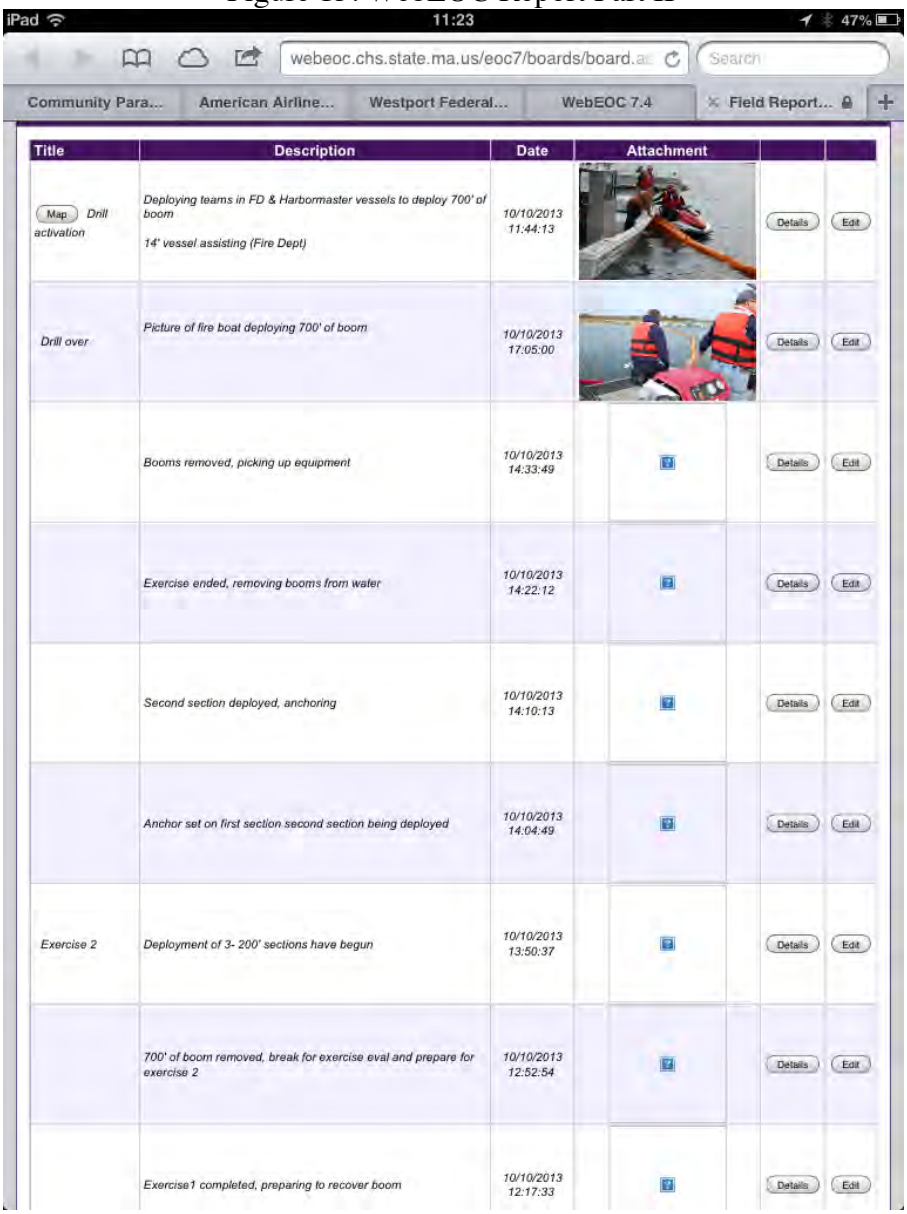
Figure 13. Alternate DV01a strategy deployed

Figure 14. WebEOC Report Part I



Courtesy of Westport FD/EMA

Figure 15. WebEOC Report Part II



Courtesy of Westport FD/EMA

Westport FD	Westport Harbormaster	Dartmouth FD
Spill Response Trailer	Vessel – Response 1 (24')	Spill Response Trailer
Vessel – Marine 1 (24')	Vessel – T1 (22')	Vessel – 10' Avon (standby)
Vessel – Marine 2 (14')		
Vessel – Jet 1 – Jet Ski		
Vehicle – Engine 3 Pump truck		
Canteen truck – EMA 1		

Table 1: Assets Supplied for Exercise by Town/Agency

SECTION 3: ANALYSIS OF CAPABILITIES

This section of the report reviews the performance of the exercised capabilities, activities, and tasks. In this section, observations are organized by capability and associated activities. The capabilities linked to the exercise objectives of the Westport River System (BB-02) GRP Deployment Exercise are listed below, followed by corresponding activities. Each activity is followed by related observations, which include references, analysis, and recommendations.

Capability 1: Planning

Capability Summary: The Planning capability was implemented during pre-exercise planning conferences and during the full-scale exercise. The capability required Fire Chiefs and local officials from Dartmouth and Westport to identify objectives select an exercise location, select a GRP tactic to be tested, and assign manpower, vessels, and other resources to support the exercise. Effective pre-planning led to a successful exercise.

Activity 1.1: Initial and Mid-Planning Conferences to discuss site selection, exercise objectives and other issues outlined above in the Executive Summary.

Observation 1.1: Strength: Representatives from all communities worked well together, offering suggestions and weighing the merit of each before accepting or rejecting them and providing alternatives.

References: **Homeland Security Exercise and Evaluation Program, Volume II, February 2007**

Analysis: Town-level objectives were well aligned and exercise design proceeded smoothly. All fire or harbor departments committed manpower and vessels to the exercise. There was agreement that the exercise should provide an opportunity for broad participation by as many local responders as possible including Harbormasters.

Recommendations: Consider future multi-jurisdictional oil spill response operations-based exercises, including drills and functional exercises.

Activity 1.2: Mid-Term and Final Planning Conferences to assign manpower and equipment, work through exercise logistics, and additional activities outlined above in the Executive Summary.

Observation 1.2: Strength: All communities coordinated and integrated town equipment, vessels, and manpower.

References: **Homeland Security Exercise and Evaluation Program, Volume II, February 2007**

Analysis: Logistical pre-planning led to a smooth exercise. Each community supplied vessels, equipment and responders, providing an opportunity to work together in a strike team setting with mixed crews from all towns.

Recommendations: Continue to periodically test GRPs and conduct exercises using spill response equipment and multi-jurisdictional approach.

Capability 2: Communications

Capability Summary: On-water spill response operations require a common tactical communications capability so that responders from multiple agencies can work together safely and effectively on the water and shoreline, and so that the Incident Command can maintain situational awareness of tactical operations.

Activity 2.1: Communicate Effectively During Drill Between On-Water/Shoreside Responders and IC.

Observation 2.1:
Strength: Radio communication was effective throughout the exercise.

References: **Homeland Security Exercise and Evaluation Program, Volume II, February 2007, National Incident Management System**

Analysis: Westport Fire Department provided handheld UHF radios for use by all participating vessels and shoreside personnel who required communications. Westport Fire Channel 1 was used for all radio communications. All participants maintained good radio discipline minimizing radio "chatter", communicated key information quickly and succinctly and confined radio communications to essential information.

Recommendations: None.

Activity 2.2: Use WebEOC during exercise.

Observation 2.2:
Strength: Computer and wireless hotspot was set up at staging area and the Westport Emergency Management Director local responder used these assets to access WebEOC and communicate exercise information to MEMA.

References: **Homeland Security Exercise and Evaluation Program, Volume II, February 2007, National Incident Management System**

Analysis: The simulated oil spill provided an opportunity to use WebEOC as a source of information and to post exercise updates (Figures 14-15). Westport Fire Department's Emergency Management Director set up and utilized a laptop and an iPad at the

deployment site (Figure 7), created an exercise event in WebEOC, and communicated exercise information to MEMA.

Recommendations: None.

Capability 3: WMD and Hazardous Materials Response and Decontamination

Capability Summary: MassDEP has developed an oil spill response capacity throughout coastal regions of the state by providing oil spill response equipment trailers to local fire departments, developing GRPs (tactical plans to protect sensitive areas from oil spill impacts), and providing initial training to local first responders. This functional exercise provided a key link by allowing first responders from different agencies within the South Shore region to work together to improve their preparedness level and exercise their ability to deploy boom from a oil spill response trailer during a mock oil spill. This community-based spill response program requires that towns and agencies be able to work together, since a major oil spill may require significant mutual aid and assistance. This field exercise provided a realistic scenario for the agencies to work together to improve their spill response capacity.

Activity 3.1: Direct/Activate WMD and Hazardous material Response and Decontamination Tactical Operations

Observation 3.1:

Strength: Participants from all three towns were assigned by the participating fire chiefs, and the exercise controller to on-water and shoreside strike teams. The four on-water strike teams who were assigned to boom deployment were comprised of three WFD vessels; Marine 1, Marine 2 and Jet 1, and two Westport Harbormaster vessels; R1 and T2 (see Table 1). Jet 1 acted as the safety vessel and assisted in boom deployment. A shoreside strike team was comprised of participants from both towns and worked well together throughout the exercise.

References: **Homeland Security Exercise and Evaluation Program, Volume II, February 2007, National Incident Management System, GRP BB-02**

Analysis: The process of assigning responders to various strike teams provided an opportunity for the departmental leadership to consider the strengths and abilities of their responders for various spill response functions. The GRP and additional deployment strategy (see Figures 1 and 2) provided a tactical plan that was ready for field implementation. Several strike teams were comprised of responders from each participating community to promote interagency coordination. The Westport Fire Chief provided direction with periodic input from the exercise controller.

Recommendations: Continue to promote inter-departmental coordination and cross-pollination during future GRP exercises. When ICS elements are included, adequate pre-planning and identification of personnel to fill key Command-level, Section, Division,

and Group leadership positions is critical to exercise success and should be accomplished at the Final Planning Conference.

Activity 3.2: Deploy Geographic Response Plan

Observation 3.2:

Strength: Vessel and shore-based Strike teams worked well together to implement the booming tactic/strategy.

References: Homeland Security Exercise and Evaluation Program, Volume II, February 2007, National Incident Management System, GRP BB-02

Analysis: The primary objective of GRPs is to deploy boom ahead of an oil spill to prevent or reduce negative impacts to environmentally sensitive areas. Successful deployment of GRP booming tactics requires that the boom be effectively anchored and positioned so that it will divert, deflect, or exclude oil from the identified sensitive area (s). The diversion boom configuration in the Westport River System (BB-02), as depicted in Figure 1 above, was deployed by two vessels (WFD Marine 1 and WHM T2) and one shoreside team (multi-jurisdictional). Based on the operational briefing conducted prior to equipment deployment, on-water strike teams, under the direction of the Westport Fire Chief, coordinated their activities towing, anchoring, and positioning boom and generally worked well together throughout the deployment and retrieval phases of the exercise.

As expected, the strong current made deployment of the single length of 700 ft. of diversion boom from the Spindle Rock Club pier extremely difficult. Marine 1 was the primary deployment vessel and the most powerful of all participating vessel in terms of horsepower. Upon reaching the western edge of the main channel which is just East of the end of the Spindle Rock pier complex, Marine 1 experienced difficulty maintaining both forward speed and station while towing and attempting to anchor the end of the boom. With some assistance from one of the Westport Harbormaster vessels (T2), Marine 1 was able to deploy and anchor the boom although it ended up in a "J" configuration when observed from shore with the open part of the "J" facing in a South-Southeasterly direction.

Following deployment of the DV01a strategy, a surrogate, in the form of oranges, was used to simulate floating oil and both generally assess the effectiveness of a the published booming strategy, and, through observation, better understand how floating oil might travel through this section of the North River during an incoming tide and under these conditions. The oranges were deployed approximately 200 yards upstream (Southeast) of Spindle Rock Club. The deployed boom captured some of the surrogate while some passed to the East of the boom and continued drifting north. Some surrogate was carried under the boom by entrainment where the current was strongest while some surrogate stayed within the boom and was transported along the boom face to the "pocket" formed by the boom and shoreline.

Following deployment of the DV01a strategy as depicted on the BB-02 GRP, the alternate strategy was deployed as depicted in Figure 2. As noted above under the Executive Summary, this strategy was developed to provide more opportunity for participants to tow, set, and anchor boom. Two out of the three 200 ft. boom legs were deployed but due to shifting winds and shallow water, participating vessels were encountering some difficulty deploying this cascade array in this location and under the conditions at the time of the deployment.

Recommendations: Conduct future GRP deployment exercises to keep boom deployment skills current and to test GRP strategies at other locations. Improve boom deployment and tending skills by incorporating more basic boom set-up, connecting, anchor rigging, and towing elements. For towing purposes, both due to the relatively small size of vessel used by local first responders, harbormasters and others, and due to relative lack of boom towing experience amongst first responders, towed boom segments do not exceed 200 ft. Utilization of surrogate(s) to assess boom effectiveness should be incorporated as much as practicable in future exercises.

Based on observations made during this exercise, MassDEP will review the DV01a booming strategy for Westport River System (BB-02), and if necessary, revise the strategy, update the GRP document, and, due to the significant current speed throughout the Westport River, generally reconsider the other strategies depicted on GRP BB-02.

Activity 3.3: Demobilize WMD and Hazmat Response and Decontamination

Observation 3.3:

Strength: The boom was offloaded, staged, deployed, retrieved, rinsed and restowed without incident.

References: **GRP BB-02**

Analysis: Demobilization of boom can be time-consuming and tedious. In this exercise, demobilization and transport was done primarily by hand as the boom itself was deployed directly from the WFD trailer and into the water adjacent to the Spindle Rock Club pier. Tall marsh grass and rip-rap along the shoreline at the deployment location did pose minor obstacles during deployment and retrieval but the shore strike team leader and members made necessary technique and location adjustments to ensure a safe and effective shore-side deployment. Long distance towing was not required as the deployment location was immediately adjacent to the staging area. Responders worked well throughout this process, showing strong teamwork. WFD provided an engine to support boom rinsing.

Recommendations: None

SECTION 4: CONCLUSION

This was a useful and successful exercise exposing first responders to the unique challenges in deploying oil containment boom, familiarizing them with the pre-positioned oil spill equipment provided to them by MassDEP, and providing an opportunity to work with other local municipalities. Both communities worked together with minimal difficulty. Both phases of the boom deployment were accomplished safely, without putting any participant at risk or in harms way. Spindle Rock Club proved to be an ideal staging area.

Weather conditions for the GRP deployment exercise at Westport River System (BB-02) did not pose any significant challenges although a freshening breeze from the East-Northeast in the earlier afternoon did make deployment of the cascade array (Figure 2) difficult as the wind was pushing the boom towards shore and the shallow water and close proximity limited the participating vessels from effectively deploying the strategy.

The group demonstrated the capability to assign participants to various roles, including IC, Safety Officer, vessel-based and shore responders, strike teams, and observers. Equipment from the Westport Oil Spill Response trailer was deployed from vessels provided by the WFD and Harbormaster, and participants became more familiar with deploying, setting, and demobilizing boom, anchors, and floats. The Incident Command communicated effectively and clearly with both vessel-based and shore-based responders. Interagency communications were successful, using handheld UHF radios and Westport Fire Channel 1.

Current speed proved to be a significant limiting factor in successfully deploying the DV01a strategy as written in the BB-02 GRP. This was anticipated by the EPT and led to the decision to conduct a site survey to determine which existing BB-02 GRP strategy would be the most feasible based on the first responders vessels, equipment, and experience. Despite the difficulty in towing the boom and maneuvering in the strong current, participants were ultimately able to deploy the DV01a strategy, albeit with a significant belly in the boom, which can impede efficient oil diversion to shore.

It must be noted that the strategy as written can likely be deployed by professional spill responders who possess the experience and equipment to deploy boom in areas with strong current or under other challenging conditions. It's also possible that local first responders could have successfully deployed these strategies given more time. Additional artificiality was built-in to the exercise as the exercise facilitators and Exercise Planning Team deliberately broke down the second deployment into stages, deploying short segments at a time in a specific order using multiple vessels in order to provide multiple opportunities to repeat various boom deployment techniques and procedures.

Lessons learned from this exercise included but were not limited to:

- Responders were able to work well in strike team setting that mixed responders from both towns and multiple agencies.

- This exercise and the conditions encountered on the Westport River highlight the need to choose GRP testing sites that are conducive to both GRP tactics and strategy testing as well as first responder training. In order to maximize the training benefit for first responders that in many cases have never deployed this type of equipment, Exercise Facilitators and the Exercise Planning Teams must consider the level of complexity and anticipated environmental challenges (i.e. strong current) when selecting specific GRPs for testing. A balance must be struck between providing an adequate training benefit without introducing too much complexity and challenge while at the same time determining efficacy of GRP tactics and strategies.

- Exercise Facilitators and the Exercise Planning Team should structure these exercises in a way that provides a training benefit to First Responders who have never deployed oil spill containment boom before while at the same time incorporating ICS and incident management elements that allow first responders to direct certain aspects of exercise activity utilizing the skills they already possess.

- Due to the strong tidal currents, this strategy (DV-01a) can be difficult for inexperienced first responders to deploy. A notation under Special Considerations should be made in the Westport River System GRP (BB-02) alerting First Responders and Planners to this.

- Not all GRP strategies can be deployed by first responders based on their experience and available resources. This does not negate the need to take pre-emptive action to protect sensitive coastal resources by utilizing the GRPs to proactively deploy protective booming in advance of an actual or potential oil spill.

- Additional equipment including additional crown anchor buoys and lines as well as D-rings can make towing, setting, and adjusting the boom easier for First Responders. This additional equipment is not currently provided in the pre-positioned trailers.

- Spindle Rock Club is an excellent staging area for First Responder equipment and MassDEP trailers and is an adequate potential temporary Incident Command Post.

APPENDIX A: IMPROVEMENT PLAN

This IP has been developed specifically for Massachusetts, Bristol County, as a result of the Massachusetts Department of Environmental Protection Westport River System (BB-02) Geographic Response Plan Exercise conducted on October 10, 2013. These recommendations draw on both the After Action Report and the After Action Conference.

Improvement Plan Matrix

Capability	Observation Title	Recommendation	Corrective Action Description	Capability Element	Primary Responsible Agency	Agency POC	Start Date	Completion Date
Capability 3: WMD and Hazardous Materials Response and Decontamination	1. Direct/Activate WMD and Hazardous material Response and Decontamination Tactical Operations	3.1 Continue to promote inter-departmental coordination and cross-pollination during future GRP exercises.	3.1.1 MassDEP's GRP exercise and first responder training program continues through 2015.	WMD and Hazardous Materials Response and Decontamination	MassDEP	DEP representative	October 2013	October 2014
Capability 3: WMD and Hazardous Materials Response and Decontamination	2. Vessel and shore-based strike teams work well together to deploy tactic/strategy	3.2 Vessel and shore-based Strike teams worked well together to implement the booming tactic/strategy.	3.2.2 MassDEP will consider revising the DV01a booming strategy for Westport River System (BB-02) and update the GRP document.	WMD and Hazardous Materials Response and Decontamination	MassDEP	DEP representative	October 2013	October 2014

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APPENDIX B: LESSONS LEARNED

While the After Action Report/Improvement Plan includes recommendations which support development of specific post-exercise corrective actions, exercises may also reveal lessons learned which can be shared with the broader homeland security audience. The Department of Homeland Security (DHS) maintains the *Lessons Learned Information Sharing* (LLIS.gov) system as a means of sharing post-exercise lessons learned with the emergency response community. This appendix provides jurisdictions and organizations with an opportunity to nominate lessons learned from exercises for sharing on *LLIS.gov*.

For reference, the following are the categories and definitions used in LLIS.gov:

- **Lesson Learned:** Knowledge and experience, positive or negative, derived from actual incidents, such as the 9/11 attacks and Hurricane Katrina, as well as those derived from observations and historical study of operations, training, and exercises.
- **Best Practices:** Exemplary, peer-validated techniques, procedures, good ideas, or solutions that work and are solidly grounded in actual operations, training, and exercise experience.
- **Good Stories:** Exemplary, but non-peer-validated, initiatives (implemented by various jurisdictions) that have shown success in their specific environments and that may provide useful information to other communities and organizations.
- **Practice Note:** A brief description of innovative practices, procedures, methods, programs, or tactics that an organization uses to adapt to changing conditions or to overcome an obstacle or challenge.

Exercise Lessons Learned

The entire MassDEP GRP development and testing program should be considered a best practice as it provides a model for other states to follow. This program is unlike any other in the country in that it provides a comprehensive method to:

- Develop and test Geographic Response Plans for oil spills
- Train first responders on boom deployment basics as well as specific GRP tactics

Additionally, MADEP:

- Provides equipment in the form of pre-positioned and fully stocked pollution response trailers that are assigned to select Massachusetts coastal communities
- Provides long-term maintenance and support of the equipment via a maintenance and equipment replacement program

This program has proven highly successful and garnered praise from the international community. In 2011, MADEP and Nuka Research and Planning Group, (the contractor overseeing the project) submitted a white paper (later approved and entered as a poster) at the International Oil Spill Conference in Portland, OR in 2011. The poster was entitled “Approaches

to Development and Testing of Geographic Response Plans in Massachusetts and Rhode Island" and won first place in the Preparedness category.

In 2013, this GRP testing and exercise program was featured at the British Columbia Land Based Spill Preparedness and Response Symposium held in Vancouver, BC.

In 2014, this program will again be highlighted at the International Oil Spill Conference which will be held in Savannah, GA with a poster entitled, "Massachusetts First Responder Exercises: Preparing Local Communities for Oil Spill Response."

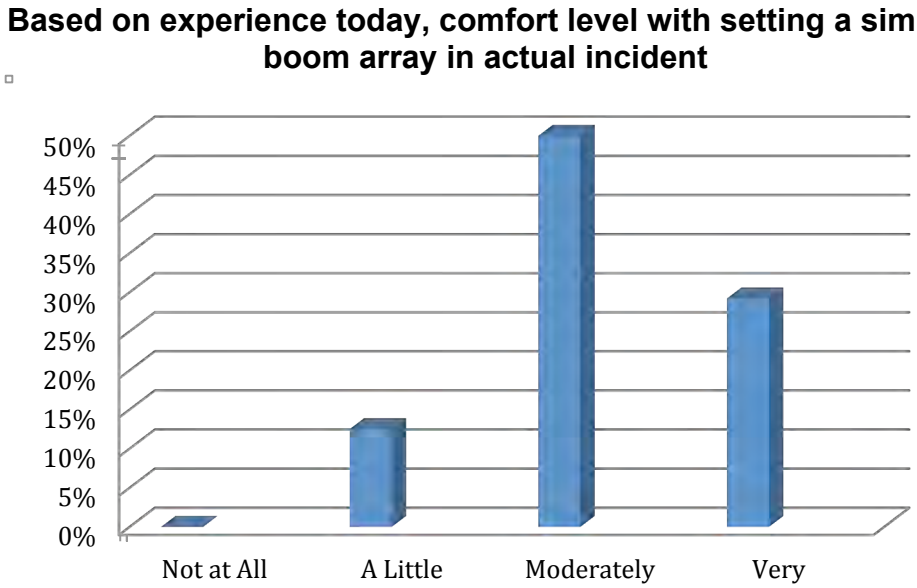
APPENDIX C: EXERCISE EVALUATION FORM

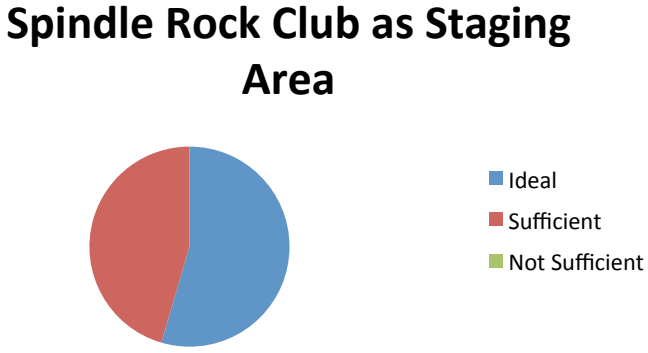
Massachusetts GRP Deployment Exercise - EVALUATION

Buzzards Bay Region GRP: Westport River System (BB-02)		
Towns: Westport, Dartmouth	**Test date: October 10, 2013**	
Instructions to Evaluators: Complete this form based on your observations of the GRP exercise.		
Evaluator Name:	Evaluator Organization:	
What was your role in exercise? (responder, observer, facilitator, 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.		
2. I have a better understanding of spill response tactics than I did prior to this exercise.		
3. I would participate in future oil spill response equipment or Geographic Response Plan deployments at other sites.		
4. The objectives were clearly explained and the deployment exercise met the objectives.		
5. The exercise was conducted safely.		
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 **Spindle Rock Club** worked for deploying and demobilizing boom from the trailer for this deployment: ___ Ideal staging area for boom for this tactic. ___ Sufficient as a staging area for boom for this tactic. ___ Not sufficient 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	62.5%	37.5%
More Prepared after Exercise	96%	4%
Better Understanding of Deploying Spill Response Tactics	96%	4%
Participate in Future GRP Deployments	96%	4%
Field Objectives Clearly Explained and/or Met	92%	8%





APPENDIX D: EXERCISE EVENTS SUMMARY TABLE

Schedule of Events

Time	Personnel	Activity	Location
October 10, 2013			
0800	All	Mobilize and Stage Equipment	Spindle Rock Club
0900	All	Conduct Operational Overview/Briefing	Spindle Rock Club
1000	All	Conduct equipment familiarization (at Oil Spill equipment trailer	Spindle Rock Club
1030	All	Safety and Operational Briefing	Spindle Rock Club
1045	All	Deploy Diversion (DV) tactic at DV01a. Deploy surrogate (peat moss). Evaluate configuration.	Spindle Rock Club boat ramp/docks
1215	All	Demobilize DV01a, rinse and repack equipment	Spindle Rock Club
1300	All	**LUNCH**	Spindle Rock Club
1330	All	Deploy additional DV01a strategy for training purposes, rinse and repack equipment	Spindle Rock Club
1415	All	Demobilize boom, rinse and repack equipment	Spindle Rock Club
1430	All	Hot Wash/Complete and turn in all Participant Feedback Forms	Spindle Rock Club
1500	All	Demobilize/Adjourn	Spindle Rock Club
Upon completion of the DRAFT AAR			
Not time specific	Controllers, evaluators, and elected and appointed officials	Controller and Evaluator After Action Review	Via E-mail

Tides (Westport, MA-10OCT13)

HIGH				LOW			
AM	ft	**PM**	ft	**AM**	ft	**PM**	ft
12:13	3.1	**12:43**	3.6	**5:44**	0.1	**6:48**	0.3

APPENDIX E: ACRONYMS

Acronym Table

Acronym	Meaning
DFD	Dartmouth Fire Department
DV	Diversion booming
EPT	Exercise Planning Team
EMA	Emergency Management Agency
FPC	Final Planning Conference
GRP	Geographic Response Plan
IAP	Incident Action Plan
IPC	Initial Planning Conference
IC	Incident Command (er)
LL	Lessons Learned
MassDEP	Massachusetts Department of Environmental Protection
MEMA	Massachusetts Emergency Management Agency
MPC	Mid-Planning Conference
SRPEDD	Southeast Regional Planning & Economic Development District
TCL	Target Capabilities List
UHF	Ultra High Frequency
USCG	United States Coast Guard
VHF	Very High Frequency
WHM	Westport Harbormaster
WFD	Westport Fire Department