

## WCMRC 2019 Tier 1 – 150 Tonne Exercise

### *In Collaboration with Suncor Energy Burrard Products Terminal*

## After Action Review

### Overview

On the date of November 21, 2019, Western Canada Marine Response Corporation (WCMRC) conducted its annual Tier 1 operational exercise. The exercise was planned and conducted by WCMRC, working with Suncor Energy's Burrard Products Terminal as the Polluter, and simulated the initial response to a spill of approximately 50 tonnes of marine diesel fuel during a loading operation at their terminal. Further details regarding the exercise design and scenario can be referenced in the document 'WCMRC 2019 Tier 1 Exercise Submission Rev 1'.

As described in WCMRC's Oil Spill Response Plan (OSRP), the purpose of the Tier 1 exercise is to demonstrate and evaluate the effectiveness of the Response Organization's (RO) response capability, utilizing a defined scenario that includes notification, spill assignments, and the activation of incident management personnel for a response to a spill of up to 150 tonnes within the Vancouver Harbour Designated Port. As well as achieving proscribed objectives related to certification as defined in the OSRP, WCMRC's Exercise Program also serves to further the training of WCMRC and external responders, and identify areas within the Incident Command System, training programs and response procedures that can be improved upon, and help build relationships and preparedness with industry members on the coast.

The purpose of this After Action Review is to serve as an aid to evaluation and continuous improvement, by examining the actions taken to achieve the objectives and how they relate to the expected action as defined. Based on the results of this analysis as well as debrief discussions with various elements of the Incident Management Team, recommendations will be made to make capitalize on lessons learned, build upon successes and overcome challenges. An improvement plan is outlined below to detail how these lessons will be incorporated not only into future exercises and responses, but into WCMRC's day-to-day operations as a whole.

### Exercise Scenario

On the morning of Thursday, November 21, a vessel is conducting a loading operation at Suncor Burrard Products Terminal. At approximately 0635, while actively transferring diesel fuel to the vessel, the loading arm suffers a catastrophic failure at the elbow, resulting in a spill of oil onto the deck of the vessel and into the water; the operators quickly act to shut down the flow to the arm, but it takes longer than expected - once shut off, it is estimated that approximately 50,000 litres of diesel fuel has spilled into the permanent containment boom. At the same time as the spill, a large cargo vessel is transiting from Port Moody outbound towards Second Narrows at higher than normal speed, creating a large wake; the wake repeatedly submerges the containment boom, allowing spilled oil to visibly escape from the ponding boom.

### Exercise Objectives, Observations and Recommendations

WCMRC's Exercise Program is carried out over a three year period, and is fully described in Section 13 of the OSRP. This section has details regarding the objectives, response functions and goals to be exercised over the certification cycle.

For this particular exercise, WCMRC defined the following objectives, along with expected actions and evaluation criteria.

**Objective 1:** Exercise the WCMRC Activation process with Suncor Energy

Expected Actions:

- Receive initial call from Polluter through the WCMRC Emergency Line.
- Ensure caller is an active member and the person calling is listed as an Authorized Individual.
  - If the Polluter is a non-member, a third-party agreement must be in place before deployment of resources
- Record details of the incident
- Notify the most appropriate Operations Supervisor, Manager or Director
- Notify and brief for mobilization appropriate initial response resources
- Notify senior management personnel who may be required to form the IMT
- Appoint a Spill Response Manager for on-going spill management
- Make appropriate internal and external notifications
- Complete an ICS201 (Incident Briefing) form throughout the exercise

Evaluation Criteria:

- Duty Officer will receive call from Emergency Line within 10 minutes, and will receive adequate information to reach initial caller
- Duty Officer will record Initial Incident Details Form per Duty Officer SOP
- Duty Officer confirms that the caller is a member of WCMRC
- Completion of an initial work order and/or third-party agreement as required
- Completion of Internal notifications per Duty Officer SOP
- External notifications completed per Duty Officer SOP
- A completed ICS201

Observation:

- Initial call was received by answering service at 0645
- Initial Incident Details information was recorded by Duty Officer upon reaching caller
- Caller identified as member, persons authorized identified on agreement
- Initial Work Order (No. 1) dispatched at 0717, signed copy received from authorized signee at 0727
- Internal notifications (Operations Supervisor, Manager, Director, company-wide email) completed
- External notifications (Transport Canada) completed
- Information from Quick Hits transcribed to ICS 201 and handed off to Spill Response Manager (SRM) with Admin Support assisting

Assessment/Recommendations:

Given the announced exercise circumstance, the initial emergency call from Suncor to WCMRC was reported as being smooth and issue free. The Duty Officer was able to correctly identify that the caller was an authorized signee, and the initial Work Order was quickly dispatched and received signed and approved.

It was noted that during the course of the exercise, WCMRC generated two additional Work Orders which were dispatched but never signed and approved; this can be taken to be because of the exercise circumstance and the primary focus on the on-water deployment, however it is an important reminder for Duty Officers and Spill Response Managers to ensure that required Work Order/Third-Party Agreement documentation is completed and approved.

**Objective 2:** Exercise mobilization and response times according to the Response Organization Tier 1 Planning Standards (equipment deployed on scene within six hours)

Expected Actions:

- Upon activation, responders will be briefed upon the situation and safety considerations prior to mobilizing to the scene and staging area
- The initial vessel on scene will conduct a site assessment including air monitoring and hazard identification

Evaluation Criteria:

- Deployment times are not to exceed six hours on scene
- Responders will mobilize with appropriate PPE for the response as briefed by the Safety Officer
- Mobilization and arrival times on scene for all resources are to be recorded on the ICS201

Observation:

- Exercise briefing, operational briefing and safety briefing/tailgate took place at WCMRC Kensington facility
- Vessel/staging area crews mobilized from Kensington between 0720-0800
- Initial vessels (*Sentinel 31*, *Sentinel 24* and *Texada Sentinel*) arrived on scene at approximately 0800, conducted site assessment and commenced deploying additional containment booming to support Suncor deployment
- Initial land-based assets (TRL 219 and 303 with trucks and crew) reached IOCO Boat Club Staging Area at 0800

Assessment/Recommendations:

Mobilization of assets was smooth under the exercise circumstances, and a representative sample of Tier 1 and additional WCMRC equipment was deployed on scene well within the planning standard mandated response times.

It was noted that departure, arrival and initial activity times for most resources were not recorded on the ICS 201, although subsequent activities were generally well recorded – it is an important reminder that in the initial stages of an incident, the ICS 201 is the key document in order to log all activities and share status updates to all responders. If there are difficulties in keeping the ICS 201 up to date, it must be updated as soon as practical with information recorded on Vessel Logs or Individual Logs, and responders must ensure to report these milestones via the appropriate method of communication identified for the incident.

**Objective 3:** Exercise the establishment of primary and secondary containment booming around the casualty or source of the spill

Expected Actions:

- Primary containment to be established with solid flotation curtain boom from the *Texada Sentinel* (a Tier 1 dedicated response resource)

Evaluation Criteria:

- Primary containment to be completed by dedicated Tier 1 resources
- Secondary containment to be completed by additional resources for training and demonstration purposes
- Containment resources (boom + ancillary equipment) to be appropriate for product and environmental conditions

Observation:

- Deployment of containment boom was undertaken by Suncor around the pre-positioned ponding boom according to their OPEP procedures
- WCMRC deployed approximately 230m of boom from the *Texada Sentinel* to establish additional containment booming by 0847

Assessment/Recommendations:

Containment booming activities were smooth and efficient during the exercise. WCMRC regularly practices, trains and exercises with Suncor's Emergency Response Team (ERT) and are familiar with the location, equipment and personnel they were working with.

**Objective 4:** Exercise the operation of oil recovery resources appropriate to the spill incident

Expected Actions:

- *Seymour Sentinel* (a Tier 1 dedicated response resource) will undertake recovery operations as directed
- Additional WCMRC resources will undertake recovery operations as directed

Evaluation Criteria:

- Main oil recovery operations to include dedicated Tier 1 resources
- Other oil recovery operations undertaken for training and demonstration purposes
- Oil recovery resources (skimmers + ancillary equipment) to be appropriate for product and environmental conditions
- Oil recovery operations to work in conjunction with portable storage resources (see Objective 5)

Observation:

- *Seymour Sentinel* commenced skimming operations in the vicinity of the casualty at 0935; the *Seymour Sentinel* had its belt skimmer fitted with diesel pads, ideal for recovery of lighter viscosity oil
- *Sentinel 31* undertook skimming operations within the containment booming at 1010, utilizing the RBS-10 skimmer deployed from TRL 219 – this skimming operation initially worked in conjunction with simulated Suncor vac-trucks positioned on the dock, then with a seaslug deployed from WCMRC's warehouse
- Additional skimmer deployed to the Staging Area included the Sala Roll Pump with Manta Ray head – these resources were available for demonstration but not run up

Assessment/Recommendations:

Deployment of oil recovery operations proved smooth and efficient in the exercise context. It is acknowledged that in a real scenario, oil recovery resources would be directed to follow the oil trajectory as determined in the Emergency Operations Centre/Incident Command Post, and work in conjunction with available aerial surveillance assets to locate and target the thickest parts of the slick to maximize efficiency.

**Objective 5:** Exercise the operation of portable storage resources to support oil recovery operations

Expected Actions:

- Mini-barges and/or seaslugs will be used to simulate 'shuttle storage' operations from resources undertaking oil recovery operations

Evaluation Criteria:

- A shuttle storage and offload operation will take place from at least one oil recovery resource in operation
- Portable storage resources (storage + ancillary equipment) to be appropriate for product and environmental conditions

Observation:

- The *Seymour Sentinel* operated independently using its integral storage capacity
- *Sentinel 31* undertook skimming operations within the containment booming at 1010, utilizing the RBS-10 skimmer deployed from TRL 219 – this skimming operation initially worked in conjunction with simulated Suncor vactrucks positioned on the dock, then with a seaslug deployed from WCMRC's warehouse
- No offload operation from the seaslug was undertaken during the exercise

Assessment/Recommendations:

Seaslugs are often a 'neglected' resource due to inherent drawbacks, and are not frequently utilized in exercises; however, they remain flexible, easily transportable and WCMRC maintains a large inventory, thus it was beneficial to take advantage of the opportunity and practice deploying the gear.

Crews experienced some initial difficulties deploying the seaslug from the boat launch in the Staging Area due to some safety concerns, however were eventually able to work out a satisfactory deployment method. WCMRC should continue to practice deploying this equipment and continue to develop safe and effective procedures for deployment under different conditions.

**Objective 6:** Exercise the deployment of a protection booming strategy in the vicinity of the incident

Expected Actions:

- Incident Management Team staff working in the Emergency Operations Centre (see Objective 8) will assist in determining spill trajectory and potential resources at risk
- Direction on the deployment of a protection booming strategy will be communicated to operational resources in the field
- A protection booming strategy will be deployed

Evaluation Criteria:

- Spill trajectory model developed
- Initial resources at risk identified
- Protection booming strategy selected relevant to trajectory and resources at risk
- Successful communication of protection booming strategy directed to crews
- Protection booming resources (boom + ancillary equipment) to be deployed from Tier 1 resources
- Protection booming resources (boom + ancillary equipment) to be appropriate for product and environmental conditions

Observation:

- An trajectory model was developed in the EOC by 0815 (a second model was completed at 0945 using the revised spill volume from Suncor)
- Initial resources at risk were identified utilizing the Vancouver Harbour GRP and WCMRC's Environment Unit Portal, with the development of an ICS 232 Resources at Risk Summary accounting for the projections of the initial trajectory model

- A protection booming strategy in the form of a Geographic Response Strategy (GRS) was communicated to crews in the field at 0836, (GRS VH0009 Mossum Creek)
- *Sentinel 24* and the VOO (Vessel of Opportunity) *Mighty Cat* deployed approximately 300m of boom at Mossum Creek, completed at 1127

Assessment/Recommendations:

The entire process leading up to the deployment of the protection booming strategy was generally smooth and efficient. A trajectory model was developed using the available information and disseminated within the EOC and to the field, an assessment of resources at risk was conducted based on the trajectory using information available at hand in the GRP and WCMRC's mapping systems, applicable pre-developed strategies were quickly identified and communicated to field responders for deployment.

WCMRC was also able to collect information and data from the deployment to support the ongoing GRS Verification Program and continuous improvement of the strategies.

**Objective 7:** Exercise the Materials Management process flow incorporating new tools (NAV)

Expected Actions:

- A Staging Area will be deployed at a suitable location to support response efforts
- Tier 1 resources including Trailer 225 (boom trailer) and Trailer 188 or 219 (small equipment trailer) will be deployed to the Staging Area
- Logistics staff activated will include a Logistics Section Chief, Staging Area Manager, Receiving and Distribution Manager, Ordering Manager, Check-in/Out Recorder, Material Handler
- Goods received and distributed by the Staging Area will be processed, inventoried and documented according to Materials Management processes

Evaluation Criteria:

- Deployment times of resources to Staging Area are not to exceed six hours
- ICS 211e/p Check-In Lists Equipment/Personnel will be completed
- Purchase Orders, Packing Slips, Goods Received Forms, ICS 211d Stores Distribution Form will be completed
- NAV tools will be used as part of process flow

Observation:

- A Staging Area was deployed at IOCO Boat Club, staffed by a Staging Area Manager, Receiving and Distribution Manager, Check-in/Out Recorder and three Materials Handlers, with the following equipment assets
  - TRLs 219, 250, 303, 511
  - Sala Roll Pump, Manta Ray Skimmer, Seaslug deployed from Kensington Warehouse
- Logistics staff in the EOC included a Logistics Section Chief and Ordering Manager
- A decontamination corridor and area was set up and crews arriving at the dock were directed to pass through prior to entering the staging area
- Radio communications were established with on-water resources and the EOC
- Logistics staff were able to run through the process of dispatching items from warehouse inventory, sign in to Staging Area inventory, and distribute to field three times, reporting generally good results

Assessment/Recommendations:

Logistics staff reported the exercise as being an excellent opportunity to test new tools and processes, which generally worked successfully and are continually becoming more streamlined and refined as experience is gained with the new systems and workflows. Logistics intends to continue exploring more opportunities to involve Materials Management processes in exercises and workshops, especially as development and integration of NAV tools progresses. The new tools and processes should facilitate better awareness and sharing of information between Logistics and the Resource Unit during a response.

The exercise also provided an excellent opportunity for Logistics to involve a greater number of staff, and exercise roles which are not often activated during a response. It was felt this gave a better indication of the priority responsibilities for each role, as a greater span of control was achieved; in particular, it allowed the Staging Area Manager role to delegate responsibility for inventory management to the Receiving and Distribution Manager, while concentrating on overall oversight and management of the Staging Area and staff, rather than being involved in the detailed process work. As more experience with larger staffing is gained, Logistics will be able to refine the reporting structure within the Staging Area to ensure the Staging Area Manager is kept aware of all activities.

**Objective 8:** Exercise the deployment of Incident Management Team staff to form an initial Emergency Operations Centre (EOC) to support the response

Expected Actions:

- An initial EOC will be formed at WCMRC's Kensington facility, staffed by a Spill Response Manager, Operations support, Logistics support, Planning support and Finance support
- Radio communications will be established with on-water resources and the Staging Area
- Situational information will be gathered and displayed, including the development of a Common Operating Picture
- Incident Management Team staff will assist in generating and compiling required response documentation (see Objective 9)
- Incident Management Team staff will coordinate with Suncor and government agencies as required

Evaluation Criteria:

- All ICS sections staffed
- Situational information and Common Operating Picture developed and maintained
- Radio communications established

Observation:

- EOC set up commenced at Kensington facility immediately after the morning briefings finished and as crews mobilized to the field
- ICS section staffing included a Spill Response Manager, Operations, Planning, Logistics and Finance sections
- A Common Operating Picture was developed using inputs from radio communications with the field, entries of the ICS 201, AIS tracking of vessels and live visual feed from the UAV operation
- A situation board display was populated and maintained during the exercise
- Radio communications were established with the field and the Staging Area
- EOC staff worked to maintain the ICS 201 throughout the exercise

Assessment/Recommendations:

Building off previous exercise (2018 Tier 1) experience in standing up an EOC to support a response, the Incident Management Component of the exercise was generally seen as successful. Given the artificiality of the exercise situation, sufficient staffing was available to quickly activate and staff positions within

Operations, Planning, Logistics and Finance, as well as a Spill Response Manager; this allowed a number of support and planning activities to effectively take place. It is recommended to further develop and exercise a formal process to quickly identify and activate Incident Management roles required to support a response.

After some initial difficulties in identifying the best possible radio channel to connect on-water resources, the Staging Area and the EOC, effective communications were achieved; WCMRC's enhanced radio system has been demonstrating significant improvements, and will continue to develop and improve as new capabilities are enabled. This allowed for excellent awareness between Operations in the field and admin support and the Spill Response Manager in the EOC. It is recommended that future exercises and response establish a single point of communication between the EOC and the field, in the form of a radio operator role or similar, to manage the communications load to the On-Water Supervisor.

A successful Common Operating Picture was established using reports from the field, AIS feed and live UAV video. The Situation Unit also maintained the Situation Board for Incident Management Team use.

Logistics staff in the EOC were able to work with staff at the Staging Area to exercise Materials Management processes successfully (see Objective 8 for further detail). The increased awareness of assets being mobilized and drawn from inventory allowed improved collaboration with the Finance Section to quickly gather information necessary to produce a cost estimate for the Polluter.

**Objective 9:** Exercise spill documentation processes

Expected Actions:

- Completion of the following documentation:
  - Duty Officer Initial Incident Details Form
  - WCMRC Work Orders and Third-Party Agreement as required
  - ICS 201 Initial Incident Briefing
  - ICS 214a Individual Logs (for Incident Management Team personnel)
  - W302 Daily Equipment and Consumable Worksheets
  - ICS 211e/p Check-In Lists Equipment/Personnel
  - Purchase Orders, Packing Slips, Goods Received Forms, ICS 211d Stores Distribution Form
  - W302A and W302B Timesheets
  - Tailgate Safety Forms
  - Vessel Logs

Evaluation Criteria:

- Creation of a spill file on WCMRC Sharepoint for compilation
- All expected documentation will be completed and collected for review

Observation:

- Spill File (E-19-0021) was created on WCMRC Sharepoint for compilation of exercise documentation and collaborative sharing of working documents
- Field crews were distributed with required documents prior to mobilization and briefed to complete and return
- In general required documentation completed and collected – notable exception was Vessel Logs were not scanned and documented into Spill File

Assessment/Recommendations:



In previous exercises WCMRC has continually been putting a focus on spill documentation; results have been improving along with improvements to processes and training. Documentation should continue to be a focus.

### **Other Key Lessons Learned**

**Item:** Boom Deployment from Shore

**Learning:** A safety observation was noted that responders assisting with the deployment of boom from a trailer at the boat launch located at the Staging Area were not wearing PFDs. The Safety team has recommended that shoreside crew should be wearing a PFD during this activity, and that boom trailer inventory should be updated to include a small number of PFDs for crew to have on hand.

**Item:** ICS 213RR and Work Order during Initial Response

**Learning:** Debrief discussions highlighted continued questions regarding the use of the ICS 213RR – Resource Request as opposed to the WCMRC Work Order during the initial phases of the response. Incident Management Team staff, in particular Operations support, report confusion over when the ICS 213RR becomes required to activate and mobilize resources, as opposed to having it recorded and approved by the Polluter on the Work Order. WCMRC Finance, Logistics and Operations should continue to discuss this issue and formalize a resolution, which can be tested and refined in future exercises.

### **Improvement Plan**

In order to gain maximum value from the recommendations suggested in this review and debrief, an approach must be taken to ensure that improvement can be made both for day-to-day operations, as well as for future responses and exercises.

This report will be circulated internally, and is to be formally reviewed organization wide. Debrief items will be tracked on the Open Action Tracker to ensure that follow ups can be made and reviewed. RRT has taken on the responsibility to coordinate and facilitate these debrief sessions.

This report will also be reviewed periodically before and during the planning phase of future exercises, and it will be the responsibility of the exercise development team to sure ensure that applicable recommendations are acted upon.