



City of Richmond

Report to Committee

To: Community Safety Committee **Date:** May 20, 2015
From: Phyllis L. Carlyle **File:** 09-5125-02-01/2015-
 General Manager, Law and Community Safety Vol 01
Re: English Bay Bunker Oil Spill

Staff Recommendation

That the staff report titled “English Bay Bunker Oil Spill,” dated May 20, 2015 from the General Manager, Law and Community Safety, be received for information.

Phyllis L. Carlyle
 General Manager, Law and Community Safety
 (604-276-4104)

REPORT CONCURRENCE	
ROUTED TO:	CONCURRENCE
Sustainability	<input checked="" type="checkbox"/>
Communications	<input checked="" type="checkbox"/>
Fire Rescue	<input checked="" type="checkbox"/>
REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE	INITIALS:
APPROVED BY CAO 	

Staff Report

Origin

This report responds to the following referral from Council on April 15, 2015:

That staff report back on the response time, clean up, availability and location of equipment, the necessity for additional equipment, and communication strategies relating to the recent Vancouver oil spill, and how a similar spill and response from a jet fuel tanker may or may not succeed, and, if not, how it might affect the Fraser River estuary.

This report supports Council's Term Goal #1 Community Safety:

To ensure Richmond remains a safe and desirable community to live, work and play in, through the delivery of effective public safety services that are targeted to the City's specific needs and priorities.

Analysis

Background

The MV Marathassa is a Panamax sized bulk grain carrier that was on its maiden voyage from Korea when it spilled bunker oil into English Bay. The first report was made at 5:05 pm on April 8, 2015 by a sailboat owner who observed the oil and called 911, and was then connected with the Canadian Coast Guard. At approximately 6:00 pm, Port Metro Vancouver had a vessel on site. The sailboat owner remained on scene until approximately 8:00 pm when Canadian Coast Guard had still not arrived on site. The Canadian Coast Guard officially activated Western Canada Marine Response Corporation (WCMRC) at 8:06 pm.

WCMRC is privately owned by Imperial Oil, Shell Canada, Chevron, Suncor and Trans Mountain Pipeline. Transport Canada has certified WCMRC as a response organization and their geographical area of response includes the entire coast of British Columbia to the 200 nautical mile limit and all inland navigable waters. Richmond is included in the designated Port of Vancouver for response for WCMRC.

Under the Canada Shipping Act, oil tankers of 150 gross tonnage or more, vessels of 400 gross tonnage that carry oil as cargo or as fuel, groups of vessels that are towed or pushed that are of 150 gross tonnage or more in aggregate and carry oil as cargo and oil handling facilities that received more than 100 tonnes of oil in the preceding 365 days are required to have an arrangement with a response organization. WCMRC has a customer base of over 2,000 members that include full members who are required to have an arrangement and subscriber members who are not required to have an arrangement under the Canada Shipping Act but do so for the response to potential oil spills. WCMRC also offers services through third party agreements with responsible parties at the time of an oil spill when equipment and personnel are required. WCMRC's certification as a response organization from Transport Canada is for a maximum capacity of 10,000 tonnes of oil.

WCMRC crews arrived onsite at 9:25 pm and identified the mystery spill as oil. WCMRC vessels worked through the night cleaning the oil spill and when the MV Marathassa was determined to be the source of the oil spill, placed a boom around the vessel at 5:25 am on April 9th.

The City of Vancouver was notified of the oil spill by WCMRC at 5:06 am and by 5:50 am their Emergency Operations Centre (EOC) was activated. The City of Burnaby, District of North Vancouver and the North Shore Emergency Management Office were notified of the oil spill at 7:14 am. North Shore Emergency Management Office advised the CAOs of the District of West Vancouver and City and District of North Vancouver of the incident.

The North Shore Emergency Management staff were requested to support the City of Vancouver in their EOC at 9:30 am and remained there until 2:40 pm when a Coast Guard map indicated that the bunker oil spill was close to the West Vancouver. At that time, North Shore Emergency Management staff left to activate their EOC (shared among the three North Shore municipalities) for the District of West Vancouver. The first reports of oil washing up on land at Denman and Davie were received at 9:17 am.

An Incident Command Post was established at 6:00 am on April 9th at Port Metro Vancouver's offices at Canada Place as a matter of convenience. Port Metro Vancouver does not have a response role, they have a supporting role by assisting the lead agencies. A Unified Command was established with the Canadian Coast Guard as the lead agency with over a hundred representatives from Canadian Coast Guard, the responsible party (owner of the MV Marathassa), Polaris Applied Sciences (providing scientific support for spill response), Squamish and Tsleil-Waututh First Nations, BC Ministry of Environment, City of Vancouver, District of West Vancouver, City and District of North Vancouver and WCMRC. On April 18th, the Incident Command Post was relocated to the Fisheries and Oceans Canada regional offices at 401 Burrard Street.

Roles and Responsibilities

<u>Agency</u>	<u>Responsibility</u>
Canadian Coast Guard	Incident Command on the water
Responsible Party (ship owner)	Liable for response and recovery costs
WCMRC	On water oil clean up
BC Ministry of Environment	Environmental monitoring and shoreline assessment (Shoreline Cleanup and Assessment Technique – SCAT)
Canadian Wildlife Services	Wildlife response
Vancouver Coastal Health Authority	Public health
Local Authority (City of Vancouver, District of West Vancouver)	Emergency Operations Centre response, situational awareness, communications, volunteer management

Response to the oil spill included the cleanup of the oil on and in the water, the inspection, cleaning and reopening of beaches and shoreline in English Bay and Burrard Inlet, the inspection and cleaning of affected vessels and the rehabilitation and return to habitat of affected wildlife. The MV Marathassa was confirmed to be the responsible party at 8:00 pm on April 10th and at 12:55 am on April 11th, Transport Canada issued a detention order on the MV Marathassa. The ship was decontaminated and released back to its operations on April 20th.

Shoreline Cleanup Assessment Techniques (SCAT) teams and Environmental Health Officers from Vancouver Coastal Health conducted shoreline and beach inspections since the spill occurred. SCAT teams from the Ministry of Environment, Canadian Coast Guard, Tsleil-Waututh Nation, Squamish First Nation, and supported by impacted local authorities identified sixteen affected beaches and progressed through the stages of inspection, cleaning, clearing, and sign off by all parties.

On April 24th, a Project Management Office under the leadership of the Canadian Coast Guard was established to oversee the long-term monitoring and the continuation of the environmental assessment and sampling program required to follow up on any future potential impacts of the oil spill at the Fisheries and Oceans Canada's regional offices. Their work continues with support from Environment Canada, Fisheries and Oceans Canada, BC Ministry of Environment, Tsleil-Waututh Nation, Squamish Nation, City of Vancouver, District of West Vancouver, City and District of North Vancouver, and the Vancouver Aquarium.

All agencies involved in the response to the MV Marathassa oil spill are debriefing their response and developing lessons learned with a view to improving coordination and response to an oil spill. Those reports will not be available for some time.

A Jet Fuel Tanker Spill on the Fraser River

In the MV Marathassa oil spill, the spilled product was bunker oil, used to fuel ships. It is a dense, viscous oil that when spilled on water, typically spreads in thick patches of large amounts of oil, often with tarballs that can travel great distances and wash up on shore. Bunker oil can float, remain suspended in water or sink to the river floor and remain present for many years. It does not evaporate, and has severe impacts to birds and fish because it covers their airways and they ingest it.

Vessels delivering jet fuel to the Vancouver Airport Fuel Facilities Corporation proposed marine terminal would likely be Panamax ocean going vessels, similar to the MV Marathassa. The Fraser Surrey Docks have submitted an application to amend their existing permit from Port Metro Vancouver (Permit No. 2012-072) that gives it conditional approval to build and operate a Direct Transfer Coal Facility onto Panamax ocean going vessels rather than barges. This could increase the number of Panamax vessels headed to their docks by as much as 29%. Both of these activities would increase the number of bunker oil fueled Panamax vessels in the Fraser River and a potential exists that a similar bunker spill may occur.

WCMRC has two trailers, a boom trailer and an equipment trailer at Tilbury. Their vessels are located in Burnaby on the Burrard Inlet. They do not have any vessels on the Fraser River but

they do contract with fishermen and others on the water as part of their emergency response team to deploy this initial response equipment.

While jet fuel is a much lighter petroleum product with a high evaporation rate, usually within 1 – 2 days of a spill, some of the hydrocarbons are soluble in water and, under turbulent water conditions, may remain dissolved for a longer period. Jet fuel contains high concentrations of toxic compounds that are deadly to marine life. Jet fuel also poses a health risk to people by irritating skin upon exposure and potentially harming respiratory systems and causing brain damage when inhaled. Jet A fuel is classified as a combustible product by Occupational Safety and Health Administration (OSHA). Combustible products while ignitable are determined to have a low risk of ignition because they cannot ignite under normal atmospheric conditions. Combustible liquids must either be heated to auto-ignition temperature or at least the flash point temperature and then be exposed to an ignition source” The decision to evacuate an area impacted by jet fuel would have to be made promptly, and would be based upon the size of the spill and whether it is contained or not.

The Vancouver Airport Fuel Facility Corporation (VAFFC) has done spill modeling in the Fraser River on a jet fuel spill, but has not done any spill modeling based on bunker oil. Their reports indicate that the jet fuel would reach Richmond’s shores within a few hours, but there is high variability as this would depend on timing with the tide cycle, wave conditions, etc. For an oil spill, such as the Marathassa, Environment Canada would provide spill modeling for a specific incident and would be based on current weather conditions, marine conditions, tidal changes, etc.

Fraser River Response

Should there be a jet fuel or bunker oil spill on the Fraser River, the anticipated response would be similar to that of the MV Marathassa’s spill. There would be unified command, with similar parties expected to participate under the lead of the Canadian Coast Guard.

The responsible party (ship owner or facility owner if the spill is land-based) will bear the costs of the response and recovery to the spill. The responsible party would be a member of WCMRC and could expect a response within their response standards. Similarly, there will be booms placed around the ship with WCMRC equipment used to remove the spilled fuel.

Responding to a fuel spill in the Fraser River requires different response techniques than in open waters or waters such as English Bay. Booms may be placed to deflect the oil to a location along the shoreline, placed to exclude the oil from environmentally sensitive areas, or used to collect oil in a v-shaped boom.

The nature of an oil spill in a river varies with the density of the oil. The density of river water is usually about 1 gram per cubic centimeter (g/cc). Water in the open ocean is denser due to its salinity, usually around 1.02 – 1.03 g/cc. The density of jet fuel is about 0.804 g/cc so it would float on both river and sea water. The density of bunker oil is about .99 g/cc so it will float on the river but can also be suspended in the water. When bunker oil reaches sea water, it may rise up and float. (<http://response.restoration.noaa.gov/oil-and-chemical-spills/oil-spills/resources/oil-spills-rivers.html>) Spill modeling at the time of a specific spill by

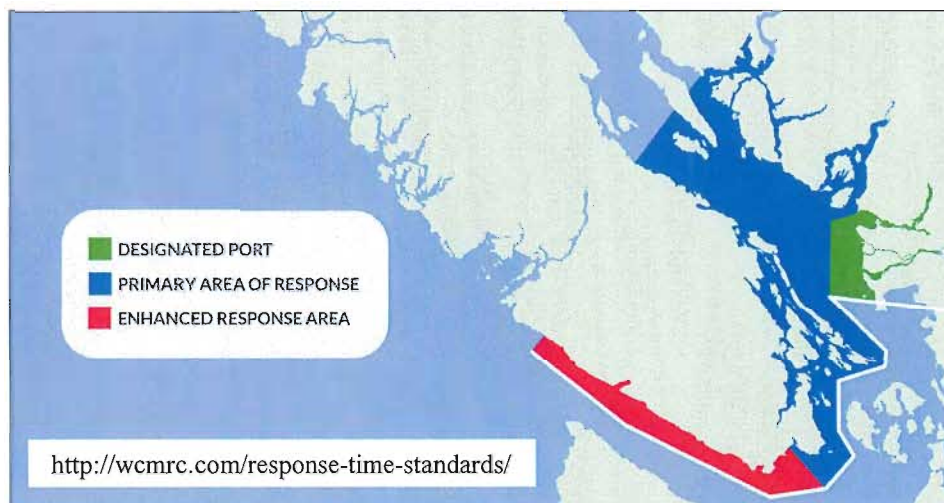
Environment Canada will take all these factors into consideration when determining the extent of the spill.

The response time standards for WCMRC responding to an oil spill off the shores of Richmond as part of the designated Port of Vancouver would be:

- Under 150 tons Deployed on scene within 6 hours
- Under 1,000 tons Deployed on scene within 12 hours

In the Primary Area of Response and the San Juan Enhance Response Areas, WCMRC's response times are:

- Under 2500 tons Deployed on scene within 18 hours
- Over 2,500 tons Deployed on scene within 72 hours



Response times are only guaranteed for their 2,000+ members. Non-members can rent personnel and equipment for emergency response once they have signed a third party agreement and accept responsibility for all response costs. WCMRC has 28 response vessels and over 50 response trailers pre-positioned along the BC coast.

City Response

Public Works would not have a significant role in an oil spill on the water. Their capacity to place containment booms is limited to minor spills in the ditches.

Public Works would shut off water intake from the River for irrigation of farms in the area and, depending on time of year, this could have a significant impact on agriculture. In the event of a jet fuel spill, shut off would likely be for a couple of days. In the event of a bunker oil spill, shut off could be for considerably longer. The farming community may or may not have the capacity to switch to the City's water. This would depend on each farmer's capacity to pump from municipal sources and from an environmental perspective; they would have to ensure chlorinated water doesn't enter into the ditch system. Additionally, such a significant draw from the City's

water system could impact fire protection in areas of the City; an assessment of the impact on the City's water would have to be done at the time.

In terms of foreshore assessment and remediation, the responsible party or ship owner remains responsible for shoreline assessment and would retain a response organization for this purpose. The Ministry of Environment has some capacity for an initial assessment and determination but the responsible party would need to bring professionals in for the prolonged response. The Shoreline Cleanup and Assessment Technique (SCAT) is an established methodology for surveying and responding to an oil spill. Local authority staff would form part of unified command and provide support and input into the SCAT process.

Response to an impacted foreshore would vary with the specifics of an incident, but strategies may include booming off environmentally sensitive areas or washing off riprap rock into a boomed containment area and cleaning the oil from that containment area. Removing oil from vegetation is much more difficult than a sandy beach; responders often cut, burn or flush it with water. The Fraser River foreshore includes beach, areas of riprap rock and environmentally sensitive grass/marsh areas.

Economic Impact

The City of Vancouver released a study titled "Potential Economic Impact of a Tanker Spill on Ocean-Dependent Activities in Vancouver, British Columbia" on May 19, 2015 that looked at the potential economic costs of a major oil spill in the Burrard Inlet. The study concluded that a major oil spill of 16 million litres could negatively impact the Vancouver's economy by up to \$380 – \$1,230 million in output value, 3,238 – 12,881 PY of employment and \$201 – \$687 million in GDP. This study looked at Vancouver's five key ocean-dependent activities:

1. Commercial fishing
2. Port activities (shipping and cruises)
3. Inner harbor transportation
4. Tourism (marine recreation, waterfront events, visiting beaches and seawall)
5. Recreation¹

The study did not look at the broader economic impacts of a major oil spill, nor did it look at the costs of response, clean up and litigation. A similar study has not been done for the City of Richmond and its river and ocean based economy but it is safe to conclude that the economic impact of a major oil spill in the Fraser River would be significant.

Communications

Similar to the MV Marathassa spill, communications to the public will be key to ensuring public health and coordinating response. The incident drew significant media interest, as well as an outpouring of support from residents who wanted to volunteer in assisting with clean-up efforts.

¹ Potential economic impact of a tanker spill on ocean-dependent activities in Vancouver, British Columbia. Accessed <http://vancouver.ca/images/web/pipeline/Bjarnason-et-al-oil-spill-economic-impact-report.pdf>

Through unified command, a joint information centre would be established with all the stakeholder agencies present to develop joint messaging for the incident. As part of the communications plan for the incident, Parks staff would place signs closing off access points to the water.

The City of Richmond has a robust Emergency Information Plan to ensure the dissemination of cohesive public messaging to safeguard public health and respond to public interest. Messaging would be distributed through media, social media, the City's website, the Emergency Notification System, and other mediums. As provided for within the Emergency Information Plan, an Emergency Call Centre and Emergency Media Centre may also be activated to respond to public and media demand for information.

Financial Impact

none

Conclusion

Because of the different properties between bunker oil and jet fuel, the response process will be similar but with a different result. The high evaporation rate of jet fuel means that it will mostly be gone within a couple of days. With bunker oil, with its slicks and tarballs and its continuing presence for many years, response means many years of monitoring and clean up for the affected shores.



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DP:dp