

# City of Vancouver Submission to the Tanker Safety Expert Panel Review Phase II Review: Canada's Hazardous and Noxious Substances Program

## Executive Summary

The City of Vancouver (the City) is the most densely populated urban marine centre in Canada with 630,000 residents and 70,000 businesses. Vancouver contributes more than \$40 billion per year to the Canadian economy (3% of national GDP). The City would be significantly impacted in the event of a fire, explosion, collision, spill, or other accident or malfunction occurring in or near Vancouver's waterways, and has a key role in managing consequences of an HNS incident within Vancouver's jurisdictional boundaries.

Despite numerous reports highlighting the growing risk of major HNS incidents and the need for a Canadian ship-source HNS Preparedness and Response Regime<sup>1</sup>, there is currently no regime in place for emergency preparedness, mitigation, response or recovery for ship-source HNS incidents<sup>2</sup>. Consequently there is substantial risk of such incidents escalating to threaten and impact public and environmental health and safety across a broad geographic area.

This document highlights the City's risks and concerns related to the current and planned marine transportation of HNS, as well as high level recommendations to prevent and mitigate risk and protect public and environmental health and safety.

The Federal Government is responsible for HNS Response and Preparedness. The City feels that the current level of preparedness and response capacity for HNS incidents is insufficient, and that the current level of risk to Vancouver is unacceptable. This is partially due to a lack of knowledge and understanding regarding the local impacts of a ship-source HNS incident, significant cuts to regional response and preparedness programs among the federal agencies with primary responsibility, and insufficient consultation with local governments.

With respect to current risks and issues, the City makes the following recommendations:

- The method of public consultation of this review should be revisited and extended. Future engagement and consultation should include educational workshops for local governments and First Nations, aimed at supporting meaningful participation in the development of a comprehensive HNS Preparedness, Response, and Recovery regime that explicitly addresses the values, risks and concerns of coastal communities. Widespread engagement of local first responders and health authorities should be a priority for the panel and the federal government in developing an HNS Preparedness and Response Regime.
- Information about the amount, type, fate, behavior, risks and response

requirements for all HNS transiting local waters should be pro-actively shared with and easily accessible to local emergency managers, first responders, and health authorities to enable effective risk assessment, planning, response, and recovery.

- A comprehensive HNS Preparedness and Response regime must cover all types of HNS, and the expert panel should solicit the appropriate experts and information to make educated recommendations pertaining to all types of HNS.
- The current response capacity of federal agencies to respond to a worst case HNS incident be tested through recurrent, full scale, worst case scenario exercises.
- Any HNS Preparedness and Response Regime include locally based teams representing responsible federal agencies and ministries with knowledge and capacity to prepare, mitigate, respond, and recover to worst case scenarios. A decline in federal capacity should not result in an increase in risk to local communities or governments.

In response to the Panel's Lines of Inquiry, the City makes the following key recommendations:

- Given the volatility of spilled diluted bitumen and significant risks to responder health and safety compared to spills of conventional crude, the current oil spill response regime is inadequate for responding to spills of diluted bitumen. The City recommends that diluted bitumen spills should be responded to primarily as HNS incidents with appropriate measure to mitigate impacts to public, environmental, and responder health and safety that are not part of the oil spill response regime.
- The risk assessment process for marine HNS should give at equal weight to the potential consequences of an incident as to probability, and that they consider the impacts on local governments and urban populations. Risk assessments should explicitly consider risk tolerance among local communities.
- Preparedness, response, and recovery regimes should consider the impact and consequences of HNS incidents and response methods on land in both rural and urban environments.
- Comprehensive Geographic Response and Recovery Plans (GRRPs) be developed for the Burrard Inlet and the Fraser River with input and oversight by adequately resourced local government and First Nations.
- Costs for preparedness, response and recovery should be fully covered by

industry and there should be indemnity for local governments in the event of a ship-source HNS incident.

- The Panel and the Federal Government should critically assess the time and resource investment involved in transitioning the Canadian Coast Guard to an Incident Command System, develop a multi-year transition plan that includes joint training and exercising for all stakeholders in unified command, and ensure that the transition does not result in a decrease in capacity to respond to oil or HNS incidents in the interim.

In addition to the above, Section 4 presents a number of technical recommendations in response to the Lines of Inquiry posed by the Panel. These recommendations from the City should be considered in the establishment of an HNS Preparedness and Response Regime.

## 1 INTRODUCTION

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The following submission is provided in response to the Lines of Inquiry posed to the public as part of the Tanker Safety Expert Panel Phase II review of Hazardous and Noxious Substances (HNS).

The City of Vancouver would be significantly impacted in the event of a fire, explosion, collision, spill, or other accident or malfunction occurring in or near Vancouver's waterways, and has a key role in managing consequences of an HNS incident within Vancouver's jurisdictional boundaries. Transport Canada is responsible for the development and regulatory oversight of a Marine HNS Preparedness and Response Regime<sup>3</sup>, while the Canadian Coast Guard under Fisheries and Oceans Canada is responsible for marine pollution response and ensuring an "appropriate level of preparedness and response capacity for all ship-source and mystery-source pollution incidents in waters under Canadian jurisdiction". Despite numerous reports highlighting the growing risk of major HNS incidents and the need for a Canadian ship-source HNS Preparedness and Response Regime<sup>4</sup>, there is currently no regime in place for emergency preparedness, mitigation, response or recovery of ship-source HNS incidents<sup>5</sup>. Consequently there is substantial risk of such incidents escalating to threaten and impact public and environmental health and safety across a broad geographic area. This document is submitted to highlight the City of Vancouver's risks and concerns related to the current and planned marine transportation of HNS. These risks and concerns should be considered in the development of an HNS Preparedness and Response Regime.

Section 2 of this document summarizes the socio-economic context and municipal emergency management roles and responsibilities which form the basis for the City's concerns, risk assessments, and mitigation and response planning. Section 3 on Local Issues and Concerns expands on 3 topic areas that the City of Vancouver believes deserve specific consideration including: the method and scope of local government consultation for the development of an HNS Preparedness and Response Regime, the transportation of HNS through Port Metro Vancouver, and recent cuts to federal programs. Section 4 of this document is written in response to the topic areas covered under the Lines of Inquiry posed by the Panel, with specific reference to local issues.

## 2 CITY OF VANCOUVER

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### 2.1 SOCIO-ECONOMIC CONTEXT

The City of Vancouver is the most densely populated urban marine centre in Canada with 630,000 residents and 70,000 businesses. Vancouver contributes more than \$40 billion per year to the Canadian economy (3% of national GDP). Vancouver's commercial and residential property is worth \$250 billion. Many residents and businesses, as well as significant park lands and beaches (including Stanley Park, a National Historic Site), benefit and depend on access to Vancouver's waterfront and Burrard Inlet. Vancouver, its businesses and residents, including Vancouver's \$3.6 billion/year tourism industry, rely on parks, beaches, the 22 km seawall and waterways for benefits of use, enjoyment and added value. In the summer, cruise ships carrying thousands of passengers dock almost daily in Vancouver.

### 2.2 ROLE IN SHIP-SOURCE HNS INCIDENTS AND EMERGENCY RESPONSE

The City of Vancouver's boundaries extend into Burrard Inlet and its responsibilities include police, fire, and emergency response services (see Map 1). The City of Vancouver is statutorily required to conduct hazard, risk and vulnerability assessments, and to develop and implement emergency plans and recovery measures. The City is contractually obligated to provide emergency response aid to other regional municipalities, including many surrounding the Burrard Inlet.

As noted above and reiterated throughout this document, the potential for a local ship-source HNS incident to impact the health and safety of the public and environment within Vancouver's jurisdiction, both on water and land, is significant. Ship-board fires, while rare, can burn for days, and the air and water quality impacts of HNS fires and spills can result in widespread human health impacts<sup>6</sup>.

In the case of a local ship-source HNS incident, the City of Vancouver has some resources that could support the Coast Guard in their response, including the potential use of Vancouver Fire and Rescue Services (VFRS) and Vancouver Police Department (VPD) marine units.

The primary role of the VFRS marine unit is to provide fire protection services to shoreline structures. However, VFRS could, if requested, support the Canadian Coast Guard during a ship-source HNS response by:

- helping to cool vessel hulls in the case of a fire
- helping to establish a perimeter around the incident
- helping to transport casualties to safety

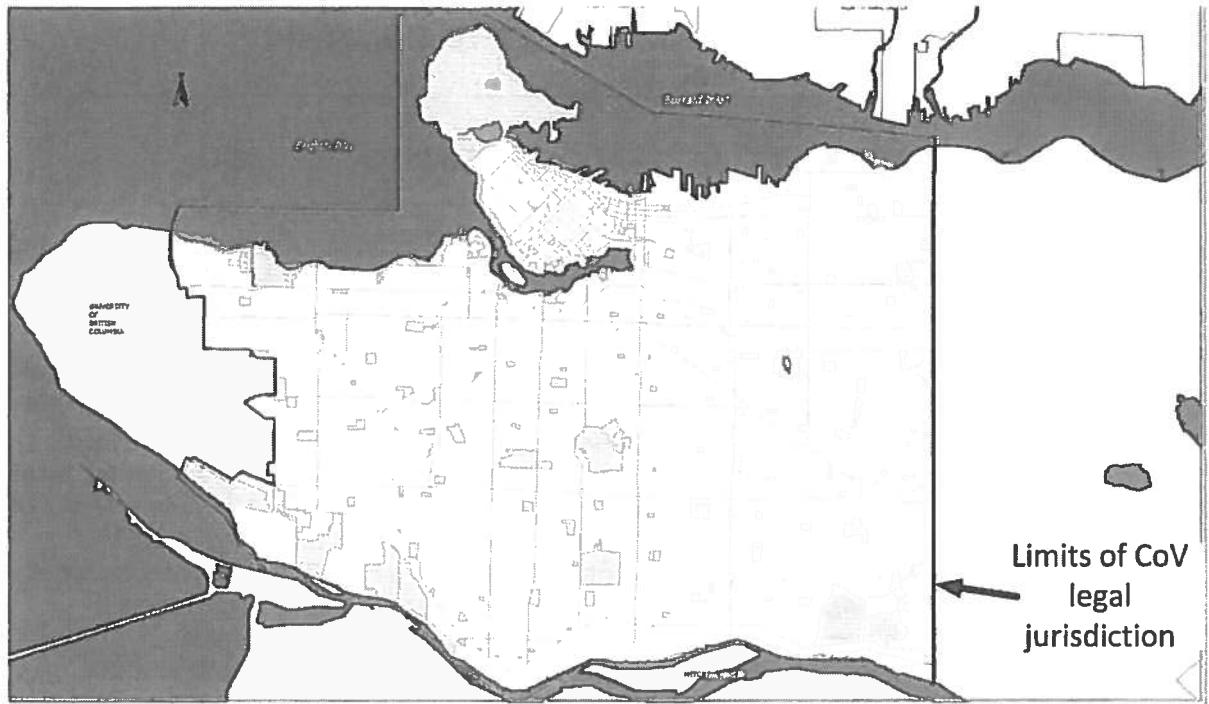
The primary role of the VPD marine unit is to enforce the Canadian Criminal Code and implement crime prevention strategies. However, VPD could, if requested, support the Canadian Coast Guard during a ship-source HNS response by:

- helping to enforce perimeters around the incident

- as a vessel of opportunity, assisting with search and rescue
- in the case of a suspected criminal act, undertake criminal investigation

Neither VPD or VFRS is equipped, trained, or responsible to lead or coordinate a response to a ship-source HNS emergency. VFRS is not equipped to board or fight fires on vessels. The role of both VPD and VFRS would be limited if information about the substance was not available, or if personal protective equipment (PPE) was not provided to them by the responsible party or the Coast Guard to enable safe response.

As per the British Columbia Emergency Program Act<sup>7</sup>, the City of Vancouver is responsible for the development and implementation of municipal emergency plans. These plans may be activated in if the health and safety of the public, property, environment or economy within Vancouver's jurisdiction was impacted or at risk due to an HNS incident. The City would not respond directly to a ship-source HNS incident as that is the responsibility of the Coast Guard. The City would coordinate response and mitigation to consequences and impacts of a ship-source HNS incident *within* Vancouver's jurisdictional boundaries. For example, if smoke from a fire on board a vessel carrying HNS threatened the health and safety of the public in Vancouver, the City of Vancouver would implement evacuation or shelter-in-place plans to protect residents. The City has significant expertise in the areas of emergency management, public safety, fire suppression, environmental planning, environmental protection, and land-based hazardous material response, as well as critical local knowledge relevant to logistics, planning, and would expect to be a member of unified command in response to any incident impacting or threatening public or environmental health and safety, or property within the City of Vancouver's jurisdictional boundaries.



**Figure 1: The red line denotes the City of Vancouver's legal jurisdiction, extending into English Bay, the Burrard Inlet, and the Fraser River.**

### **3 LOCAL ISSUES AND CONCERNS RELATED TO THE MARINE TRANSPORTATION OF HNS**

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#### **3.1 LOCAL AUTHORITY CONSULTATION ON SHIP-SOURCE HNS PREPAREDNESS AND RESPONSE**

Coastal municipalities are seriously impacted by the transportation of HNS through and near their communities. Unfortunately, few have the expertise or resource capability to fully understand and analyze local risks and implications for their communities, or to contribute to comprehensive and informed discussions and risk assessments. The short timelines in which the Panel sought input were not conducive to the substantial amount of research and regional collaboration that would result in useful information with which to define an HNS Preparedness and Response Regime. In order to solicit meaningful engagement, the Panel should engage in an educational campaign for local governments, health authorities, and other stakeholders. This could include a series of workshops to educate local governments and stakeholders on the International Maritime Organization (IMO) HNS Convention, the OPRC - HNS Protocol, the current status of HNS in Canada, examples of HNS regimes internationally, and proposed options for a Canadian HNS response regime. This would also enable local governments, health authorities and stakeholders to assess the risks, costs, and benefits of HNS, and to collaborate to put forward locally acceptable options and solutions.

Given the short time frame for response, and the lack of information and ship-source HNS expertise available, the City of Vancouver's response is limited to a preliminary identification of potential risks and concerns, and general recommendations for HNS Preparedness and Response. The City acknowledges and appreciates the invitation from the Panel to VFRS to provide comments through an interview, but notes that no other local municipality appears to have been engaged, and that there was very little context provided prior to the meeting to enable preparation. Further, the questions posed by the panel are indicative of the need to recast this review as an exploratory and preliminary scan of stakeholders.

The City of Vancouver strongly recommends that the method of public consultation of this review be revisited and extended; and that future engagement include educational workshops for local governments, First Nations and local health authorities, aimed at supporting meaningful participation in the development of a comprehensive HNS Preparedness, Response, and Recovery regime that explicitly addresses the values, risks and concerns of coastal communities. Widespread engagement of local first responders should be a priority for the panel and the federal government in developing an HNS Preparedness and Response Regime.

#### **3.2 MARINE TRANSPORTATION OF HAZARDOUS AND NOXIOUS SUBSTANCES THROUGH THE BURRARD INLET AND FRASER RIVER**

Port Metro Vancouver is Canada's busiest Port. The City of Vancouver recognizes that safe vessel movement through the Burrard Inlet is critical not only for public safety in the surrounding urban environment, but also for the local, regional, and national economies. A wide range of HNS are imported and exported through the Burrard Inlet.



Port Metro Vancouver has a strong safety record, and does require some additional measure be undertaken in addition to current requirements set by Transport Canada through the Canada Shipping Act and the Transportation of Dangerous Goods Act<sup>8</sup>. However, the absence of a comprehensive and robust HNS preparedness and response regime at a time of expansion in the Port increases the risk of a catastrophic incident occurring that would halt all trade from the Port, and lead to major consequences for public and environmental health and safety.

The Port Metro Vancouver website lists 12 bulk terminals importing and/or exporting HNS from the Burrard Inlet and the Fraser River. This does not include a number of other terminals shipping bulk products not currently listed as HNS in the IMO database. In addition, there are 4 container terminals including 2 in the Burrard Inlet, the Fraser Surrey Docks, and Delta Port. HNS regularly transported by bulk through the Burrard Inlet include but are not limited to<sup>9</sup>:

- diluted bitumen
- heavy fuel oil
- intermediate fuel oil
- marine gas oil
- crude and crude mixtures
- jet fuel
- aviation turbine fuel
- caustic soda
- sodium chlorate
- mineral concentrates liquids
- metallurgical and thermal coal
- potash
- bulk fertilizers
- canola oil
- sulphur
- ethylene glycol
- fish oil
- coal

In addition to the above listed products, the City recognizes a number of proposals to increase shipment of LNG, LNG, and crude condensate from planned terminals along BC's coast, but does not have adequate information to assess the impact of these projects and related incidents to the City of Vancouver.

Given the short time frame of this review, and the lack of information on HNS Preparedness and Response, the City of Vancouver has focused this submission largely on risks posed to the City from HNS in general, and not on specific types of HNS that are or could be transported through local waters. That said, detailed research reports and risk assessments for all types of HNS that are shipped in bulk and by container should be part of a future phase in the development of an HNS Preparedness and Response Regime. Information about the fate and behavior of all types of HNS when spilled in the marine environment is critical to accurately assess risk, and to develop appropriate geographic response and recovery plans.

The City recommends that information including the amount, type, fate, behavior, risks, and response requirements for all HNS transiting local waters should be proactively shared with and easily accessible to local emergency managers and first responders to enable effective risk assessment, planning, response, and recovery.

The City also recommends that a comprehensive HNS Preparedness and Response regime must cover all types of HNS, and the expert panel should solicit the appropriate experts and information to make educated recommendations pertaining to all types of HNS.

### **3.3 CUTS TO FEDERAL PROGRAMS**

The City of Vancouver is gravely concerned by cuts and cancellations of locally based programs within the Fisheries and Oceans Canada (FOC) and Environment Canada (EC), both lead agencies in response to incidents involving marine pollution by oil or other HNS. This includes the closure of the Kitsilano Coast Guard base, the relocation of Marine Communications and Traffic Services (MCTS) from Vancouver to Victoria, restructuring of FOC to eliminate regional offices, and the decision to close EC's Environmental Emergency Program office in Vancouver and to relocate EC staff responsible for responding to oil and chemical spills in Montreal. These changes eliminate critical local knowledge and planning and response capacity from Canada's busiest port during a time of significant investment in and proposed expansion of the shipment of HNS through and near local waters including diluted bitumen. Further, these changes were done without consultation with local governments and have resulted in the downloading of responsibility and risk to municipalities without additional funding, training, or information sharing.

The City recommends that the current response capacity of federal agencies to respond to a worst case HNS incident be tested through full scale worst case scenario exercises.

The City also recommends that any HNS Response and Preparedness Regime include locally based teams representing responsible federal agencies and ministries with knowledge and capacity to prepare, mitigate, respond, and recover to worst case scenarios. A decline in federal capacity should not result in an increase in risk to local communities or governments.

## 4 RESPONSE TO THE TANKER SAFETY EXPERT PANEL'S LINES OF INQUIRY

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The following sections correspond to the topics addressed in the Lines of Inquiry posed by the Tanker Safety Expert Panel:

- Coverage
- Prevention
- Existing Response Capabilities
- Preparedness and Response
- Roles, Responsibilities and Legal Framework

The information provided represents a high level, non-comprehensive overview from a municipal perspective that requires further investigation and research by subject matter experts, followed by further consultation by Transport Canada with Local Government.

### 4.1 COVERAGE

The scope of an HNS regime in Canada must include bulk and packaged substances. The definition of HNS must include any product or substance that could be deleterious to human or environmental health and safety if released into the environment in any amount, regardless of the method of transportation. It must include substances, such as coal, that are not considered to be hazardous in small quantities but are hazardous in bulk.

An HNS regime must, at a minimum include all substances identified under the IMO 2010 HNS Convention, and the 2000 OPRC - HNS Protocol. The Canadian regime should also include coal and radioactive material (notable omissions from the IMO HNS Convention and the OPRC - HNS Protocol), as well as any substances as per the following:

- Canadian Environmental Protection Agency's Toxic Substances List:  
<https://www.ec.gc.ca/toxiques-toxics/default.asp?lang=En&n=98E80CC6-1>
- National Contaminants Information System: <http://www.meds-sdmm.FOC-mpo.gc.ca/isdm-gdsi/ncis-snic/index-eng.htm>
- Canadian Environmental Quality Guidelines:  
[http://www.ccme.ca/publications/list\\_publications.html#link2](http://www.ccme.ca/publications/list_publications.html#link2)
- BC Contaminated Sites Regulation standards:  
[http://www.env.gov.bc.ca/epd/remediation/leg\\_regs/csr.htm](http://www.env.gov.bc.ca/epd/remediation/leg_regs/csr.htm)
- British Columbia Water Quality Guidelines  
[http://www.env.gov.bc.ca/wat/wq/wq\\_guidelines.html](http://www.env.gov.bc.ca/wat/wq/wq_guidelines.html)

All substances covered under the HNS regime should be contained within a common database that includes relevant hazardous materials data for responding to incidents in the marine environment and on land. This database must be is easily accessible to first responders.

#### 4.1.1 Diluted Bitumen

In addition to the above, the City recommends that diluted bitumen spills should be responded to primarily as HNS incidents with appropriate measures to mitigate impacts to public, environmental, and responder health and safety that are not part of the oil spill response regime. This issue is highlighted based on the fact that different types of diluent, which makes up about 30 % of diluted bitumen, are high in Volatile Organic Compounds (VOCs), such as benzene, toluene, and xylenes, as well as and Polycyclic Aromatic Hydrocarbons (PAHs).<sup>10</sup> The separation of these 'light-ends' from the bitumen threatens public, environmental, and responder health and safety, and could substantially delay response times. The human health impacts of diluted bitumen spills have been documented by the Michigan Department of Community Health following the 2010 Enbridge Pipeline spill in the Kalamazoo River.<sup>11</sup> Given the volatility of spilled diluted bitumen and significant risks to responder health and safety compared to spills of conventional crude, the current oil spill response regime is inadequate for responding to spills of diluted bitumen.

#### 4.2 PREVENTION

Prevention is an important part of emergency management, but preventive measures alone are insufficient to mitigate risk, and thresh-holds should be established to limit the transportation of HNS where the consequences of an incident exceed the capacity to respond and recover. The prevention of HNS incidents is clearly under the authority of the federal government and should be resourced by industry with input and oversight from local and provincial governments, First Nations, and local stakeholders including other users of the marine environment. Port Metro Vancouver has a strong safety record, however the steady increase in recreational and commercial vessel traffic warrants regular analysis of the effectiveness of current rules and regulations to safely accommodate future growth.

With respect to the health and safety of Vancouver's densely populated neighbourhoods and natural environment, there is no formal method for sharing information about the transportation or production of HNS with local responders or authorities. This leaves a major gap in the ability for local authorities to assess risk or to contribute to solutions to prevent harm to public and environmental health and safety.

The development and enforcement of preventive measures must include at a minimum:

- Clearly defined roles and responsibilities related to prevention, response and recovery
- Establishment of performance metrics to assess the ability to respond to different types of incidents and substances including but not limited to fires and explosions on board vessels carrying diluted bitumen
- Sufficient response capacity at the federal level and within industry to respond to worst-case scenarios within time limits defined by experts and with local input

- Application of the precautionary principle in the approval of expansion projects or the increased shipment of current or new HNS (as per the Oceans Act)
- Thresholds for risk and decision making defined in partnership with local municipalities that include strict limitations to growth or expansion of HNS production or transportation where public and environmental health and safety is at risk
- Mandatory public reporting of incidents and near-misses
- Mandatory after action reports to be shared with local authorities
- Mandatory development of recovery and remediation plans for multiple scenarios
- Industry funded training and education for all parties who may be involved in a response
- Regular exercising and public after action reports for all parties who are responsible for handling and / or transporting of HNS and for responding to HNS incidents

The scope of preventive measures must include prevention of accidents and malfunctions, as well as smaller operational spills that contribute to long term cumulative damage to the environment and the health of humans and ecosystems.

### 4.3 EXISTING RESPONSE CAPABILITIES

Response capabilities for marine HNS incidents are inadequate. Current federal and provincial agencies and ministries responsible for HNS are under-resourced and there is no clear framework to deal with response<sup>12</sup>. Western Canada Marine Response Corporation (WCMRC), the local Response Organization for oil spill response, is not equipped to deal with HNS, fires or explosions.

As noted above, the City of Vancouver has some resources that could provide limited support to the Coast Guard in response to an HNS incident, including the VPD and VFRS marine units. VFRS fire boats are primarily designed to fight shoreline structure fires, but could potentially support perimeter control on the water, provided that sufficient information about the incident was known and that the health and safety of responders was not at risk. VFRS does have a hazardous materials response team, however, they are trained and resourced only to respond to limited hazmat incidents on land. The City of Vancouver, including VFRS, does not have the capacity or authority to respond to marine HNS incidents. Further without adequate training, resources, personal protective equipment, or air quality monitoring equipment local first responders in Vancouver cannot contribute in any way to marine based HNS response.

Given the lack of response capabilities and available information for HNS, even a relatively small incident could remain uncontained, resulting in substantial risk to public and environmental health and safety well beyond the incident site. This may necessitate the activation of local emergency plans. The local responder role in this case would be to facilitate evacuations and shelter-in-place orders, and to conduct other consequence management functions as the situation requires. Local authorities are also required under the BC Emergency Program Act to notify the public of imminent danger. However, the provision of this information is strongly dependent on communication and notification protocols between the responsible party to the local

authority. There is currently no formal method for the responsible party of a marine based incident to relay real-time information to local responders in order to inform mitigation and response to protect the public and the environment within Vancouver's jurisdiction.

#### **4.4 PREPAREDNESS AND RESPONSE**

##### **4.4.1 British Columbia Emergency Response Management System**

The City of Vancouver adheres to the British Columbia Emergency Response Management System (BCERMS). The eight response goals of BCERMS are as follows:

1. Provide for Safety & Health of all Responders
2. Save Lives
3. Reduce Suffering
4. Protect Public Health
5. Protect Government Infrastructure
6. Protect Property
7. Protect the Environment
8. Reduce Economic & Social Losses

These goals apply to local responders whether on land or on water, and should also be incorporated into any HNS preparedness and response regime.

##### **4.4.2 Scope of Preparedness and Response**

Although the IMO HNS Convention does not include HNS incidents occurring at terminals or during transfer from terminal to ships, the reality is that incidents occurring at shoreline terminals and during transfer may easily impact the marine environment and require coordinated response not unlike ship-source HNS incidents. Preparedness and response regimes for HNS incidents should not be limited only to spills and incidents occurring on ships beyond the terminal, but should also include incidents or spills occurring during loading and across the transportation spectrum.

Further, the Lines of Inquiry as presented give insufficient attention to the issue of recovery. The City of Vancouver recommends recovery should be explicitly included in any HNS regime. Recovery must include long term human health impacts for the public and responders, long term environmental remediation and monitoring, and economic recovery.

##### **4.4.3 Risk Assessments and Worst Case Scenarios**

Robust, comprehensive, current and transparent risk assessments based on best practices are a critical element of mitigation, preparedness and response. Recent examples including the BP Deepwater Horizon disaster and the Lac Megantic train derailment provide tragic evidence of the need to plan for high consequence scenarios, however unlikely. Further, the risk tolerance level of local communities and environments should be explicitly assessed and incorporated into risk assessments. For

the purposes of HNS incident preparedness, mitigation and response, risk assessments must:

- give equal weight to consequence and probability when determining worst case scenarios
- ensure that consequence determination includes the severity of impacts to local environments, responder and public health and safety, economic impacts, long and short term recovery costs, marine and land ecosystems
- be informed by local governments and encompass municipal values
- be transparent and subject to regular review by local authorities including municipalities
- include climate change projections to assess risk of future climate scenarios to marine transportation, handling facilities and terminals
- include assessment of risks posed by other natural hazards
- include population growth and land use projections
- be inclusive of the cumulative long term impact of planned projects on vessel traffic
- rank substances on the basis of the level of potential harm to human and environmental health, estimated rate of recovery, and response capacity
- include assessment of impacts to HNS as a result of geological, weather, or manmade hazards (earthquakes, tsunamis, severe weather, sea level rise, terrorism)
- include a broad geographic and temporal scope when considering risk, including risk to land based assets and values
- specifically consider conditions which would preclude response, including but not limited to weather and marine conditions, land based traffic, and transportation impediments on land and water, and the volatility of the substance(s) released.
- be reviewed annually and updated with new information as it is available
- be based on clear standards developed and enforced by the federal government

#### **4.4.4 Lack of Continuity of Preparedness and Response Requirements Across the HNS Transportation and Handling Spectrum**

The City of Vancouver is currently involved in similar discussions related to the transportation of oil and HNS via rail. The lack of continuity in response organizations, authorities, and roles and responsibilities creates major challenges and unnecessary demand on municipal resources to participate in multiple working groups that address similar issues but are totally unaligned. The current range of response regimes dealing with incidents related to road, rail, marine and pipeline transportation, as well as at terminals and handling facilities leaves serious and dangerous gaps in the system, and results in finger-pointing, chaos and confusion during response and recovery. The reactive federal approach to addressing HNS related issues (including gaps in safety, regulation, and enforcement) is both inefficient and dangerous.

#### 4.4.5 Preparedness, Response, and Recovery in Urban Settings

Preparedness, response, and recovery regimes should consider the impact and consequences of HNS incidents and response methods on land in both rural and urban environments.

Containment and mitigation of HNS incidents is contingent on the speed of notification, concrete information about the substance fate and behaviour, and the availability of trained responders with appropriate PPE. Given the lack of all of the above in the Vancouver area, it is likely that HNS incidents would not be effectively contained. This can lead to the spread of substances to Vancouver's shoreline, as well as risks of unconfined fuel-air explosion down-wind.

The immediate impacts to the City of Vancouver from an HNS incident in the Burrard Inlet could include, but are not limited to:

- restricted access for first responders to densely populated areas
- implementation of evacuations and shelter-in-place orders
- short and long term civilian and responder health impacts
- closure of businesses
- cancellation of events
- impacts to critical infrastructure including but limited to the dedicated fire protection system, Port Metro Vancouver, BC Hydro, telecom providers, St Pauls Hospital and other health service providers, multiple fire halls

Longer term impacts to the City of Vancouver could include but are not limited to:

- negative impacts on human health
- decline in tourism
- decline in real estate value
- closure of beaches and outdoor areas
- impacts to the Greenest City brand, and resulting long term economic impacts

#### 4.4.6 Geographic Response and Recovery Plans

Traditionally referred to as Geographic Response Plans (GRPs), the City of Vancouver advocates for the inclusion of Recovery into pre-authorized plans based on specific regional vulnerabilities and characteristics. Given the severity of the consequences of HNS incidents, in particular related to diluted bitumen, it is recommended that Geographic Response and Recovery Plans (GRRP) be developed initially for the most common substances being shipped through Port Metro Vancouver, as well as the most hazardous substances being shipped in any amount. GRRPs should be based on standards developed and set by the Federal Government, with input and oversight from provincial and local governments, and First Nations. GRRPs must include approved methods of clean up and response, and transparent and full disclosure of the potential impacts of different response techniques (e.g. in-situ burning, use of foam, use of dispersants). The Recovery aspect of a GRRP would require the gathering of baseline data to support long term monitoring of the environmental impacts, contingency planning for response related risks, and funding mechanisms to cover unanticipated impacts for several years into the future. An effective GRRP for the



Burrard Inlet and Fraser River would likely take several years to develop, and require ongoing refinement. Strong examples of GRPs are available in both the State of Washington and the State of Alaska, although these plans do not explicitly include recovery.

GRRPs should be tested against worst case scenarios annually, exercised against standards set federally, resourced by industry, and inclusive of the entire area that could be impacted in any way from an incident. They should not be limited to marine response.

#### **4.4.7 Health and Safety of Responders**

Goal number one under BCERMS, (Provide for Safety & Health of all Responders) is of critical importance to the City of Vancouver. Currently, responders including members of the Vancouver Police Department and Vancouver Fire and Rescue Services have marine assets that would be at risk from a marine HNS incident, in particular given the current lack of notification protocols for marine based HNS incidents.

Responders must be aware of the types of HNS that are being transported and of safe response protocols for the HNS. While both VPD and VFRS marine units may be employed to establish perimeter control, it is unsafe for them to respond without proper training or information about the substance.

In order to protect first responders and facilitate efficient response to an HNS incident, PPE and response equipment for HNS should be pre-staged and accessible by any party who may be required or responsible for an element of HNS response on water or land, including local fire departments. Purchasing, training, and maintenance of this equipment should be the responsibility of industry, and overseen by the federal government.

#### **4.4.8 Public Education and Preparedness**

Public education is a critical element of preparedness. Members of the public who understand risks and individual response options are more likely to survive an incident. Carriers and owner of HNS should provide the public and municipalities with information about the potential risks of their products, and recommended response measures that can be taken in order to decrease negative impacts to human and environmental health and safety from an incident. In particular, this information should target populations that are vulnerable to the potentially negative air quality impacts of an HNS incident. The public should also be consulted on all expansion projects, and notified when there is a planned increase in the amount of a particular product identified under the HNS regime being transported.

#### **4.4.9 Communication and Real-time Information Sharing**

There is currently no formal mechanism for local authorities to receive notification about an HNS incident from the responsible party in order to warn or notify responders or the public of impending risk. Any response regime must clearly identify the process for notification of all impacted parties.

Real time information sharing of the types of products being transported through Burrard Inlet and the Fraser River is critical to inform response on land and on water. This information should be readily available to local first responders, municipal emergency managers, health authorities, and response organizations.

#### **4.4.10 Modelling and Scientific Information - Environment Canada, Fisheries and Oceans Canada**

Changing wind and water currents can complicate marine response by carrying volatile and toxic compounds in different directions. Modelling of spills, fires, and air and water quality impacts under multiple weather scenarios is of critical importance to assessing risk, and to developing appropriate response and recovery plans. This information should also be readily available for responders and local authorities during a response. On land, this can help facilitate evacuation or shelter in place orders for populations at risk.

#### **4.4.11 Vessel Salvage and Areas of Refuge**

The lack of salvage capacity for vessels of any size in British Columbia is a major threat to human and environmental health, and does not reflect a proactive approach to emergency management in the marine environment. The inability of responsible parties to quickly access and deploy salvage equipment, assess the structural integrity of a vessel, and transfer remaining oil and cargo from a damaged vessel creates unacceptable risk to public safety and the environment, and substantially worsens the potential impact of any spill or incident. Any HNS regime must include salvage capabilities, training, and pre-positioning of salvage equipment able to respond to incidents involving all types of HNS being transported through Burrard Inlet.

Areas of refuge for damaged vessels must be carefully selected based on strict criteria that acknowledge risk to local values including public and environmental health, and in consultation with local authorities to ensure limited risk to the public.

#### **4.4.12 Response Organizations**

There should be a single point of contact and common response framework for both oil spill response and response to HNS. However, more work must be done to determine whether expansion of current ROs is the correct approach and to ensure sufficient training, staffing, and resourcing, and the development of standards. Overall response should be based on the Incident Command System (ICS), with representation from land and marine response leads in Unified Command. As in the State of Washington, local emergency managers and responders must be an active player in training and response. In Transport Canada's Information Paper on Canada's Ship-Source HNS Incident Response and Preparedness Regime, the authors refer to the joint private - public system set up to respond to rail incidents involving the transportation of dangerous goods as a model for marine HNS. A series of derailments, including the tragic incident in Lac Megantic, highlight the need for ongoing review of response regimes as industry changes to ship new and different products.

The Canadian Coast Guard's recent announcement of transition to ICS is a good step, however, there are a number of risks inherent in change management of systems that are embedded within large organizations that must be acknowledged and mitigated. The development of a response regime and expansion of response organizations must not be rushed will take several years to implement this system correctly, in that time response capacity must not suffer. It will require several years of training, exercising, assessment, and ongoing improvement before it can be considered successful.

#### **4.4.13 Reporting of Incidents and Near-misses**

All ship owners and handling facilities should be required to report publicly on near-misses and incidents. Reports must include the impacts or potential impacts of the incident or near-miss, as well as corrective actions. Similarly, ROs should file after action reports of all responses, including corrective actions that are provided to all response agencies, the responsible party, and any party who was impacted or at risk from the incident. This transparent reporting process is a necessary element of constant improvement, and serves to ensure the best possible information is being used to mitigate risks and develop response plans. This should be regulated and enforced by Transport Canada.

### **4.5 ROLES, RESPONSIBILITIES AND LEGAL FRAMEWORK**

The lack of clear roles and responsibilities in marine response to any incident, and the lack of capacity of responsible agencies to fulfill their roles, are major gaps in the current framework. As noted in the introduction, there have been significant cuts to many of the federal agencies with primary responsibility for HNS preparedness and response even as the shipment and transportation of HNS grows, including transportation of diluted bitumen. Further, there are disconnects between the responsibility of some agencies to fulfill their role and their capacity to act quickly and effectively. Where federal agencies such as the Coast Guard and Environment Canada have key roles to play but are not located anywhere near an incident, the initial response is likely to fall to unprepared and untrained local responders, and the impact of the incident is likely to be magnified. Parties with response roles at all levels of government must be adequately resourced and appropriately located to ensure response capacity.

#### **4.5.1 Liability of Ship and Cargo Owner (s) and Indemnity of Local Municipalities**

HNS response and recovery is a federal responsibility with local impacts. Marine HNS transport poses a risk to local municipalities over which they have little control. As such, municipalities should be indemnified in the event of any HNS incident impacting their jurisdiction. As in the US, the ship owner and the owner of the cargo should be responsible for the full costs of an incident including response and short and long term social, economic, and environmental recovery.

Although the panel has stated that the liability scheme of the HNS Convention is out of scope for this review, serious consideration must be given to the adequacy of the HNS

Convention to cover all costs of response and recovery. The City believes that \$375 million that would be available under the HNS Convention would not be sufficient to cover the direct and indirect costs of a major HNS incident in an urban environment. Industry must contribute to national funds to ensure that there is adequate coverage and that funds are easily accessible to impacted parties in the event of an incident.

#### **4.5.2 Incident Command System**

The City of Vancouver supports the Canadian Coast Guard's recent proposal to transition to the Incident Command System that has been used for several years in the US and in British Columbia. However, it must be recognized that transition to ICS will take several years, and includes substantial investing in internal training and exercising, and joint training and exercising with all potential players in response. In order of ICS to function, it is absolutely critical that the response framework clearly defines roles and responsibilities for all parties.

The Panel and the Federal Government should critically assess the time and resource investment involved in transitioning the Canadian Coast Guard to an Incident Command System, develop a multi-year transition plan that includes joint training and exercising for all stakeholders in unified command, and ensure that the transition does not result in a decrease in capacity to respond to oil or HNS incidents in the interim.

#### **4.5.3 Parties with a Role to Play in Preparedness and Response**

Consideration of preparedness and response roles is often limited to the roles of groups responding to the area immediately impacted by a spill and where a product is in the water. Preparedness and Response in the context of marine emergencies rarely includes consideration of the wider impacts. In order to protect public and environmental health and safety, the following parties at a minimum should all be engaged in preparedness and response activities in the marine environment and insofar as the marine based incident has impacts the land and air quality:

- First Nations
- Local Governments
- Local First Responders
- Local Health Authorities
- Provincial bodies and ministries including: Health, Emergency Management, Environment, Transportation
- Federal bodies and ministries including but not limited to: Environment Canada, Fisheries and Oceans Canada, Transport Canada, Public Safety Canada, Canadian Coast Guard, Parks Canada, Canadian Border Services Agency
- Response Organizations (WCMRC, ECMRC)
- Private Sector Hazmat Teams
- Terminal Owners and Operators
- Port Authorities
- Recreational boaters
- Conservation Authorities and Environmental Organizations
- Pacific Pilotage Authority

- Tug Operators
- Residents and businesses in high-risk zones
- International partners, including the US Coast Guard, Environmental Protection Agency, and State Departments of Ecology and Environment

There is also limited acknowledgement of the impact of HNS incidents on local governments, and responders, or of their legislated responsibility to protect public health and safety. Local governments and responders cannot carry out their legislated responsibilities without being fully integrated into preparedness and response planning, training, and exercising. All of the above groups must be involved in preparedness and response, but all must be adequately resourced and trained to do so.

#### **4.5.4 Role of Local Government**

Local Government and first responders have a critical role to play in Preparedness, Response, and Recovery that should be facilitated and resourced by industry and by federal and provincial ministries that set regulations and approve projects.

Local government role in preparedness should include:

- Hazard, Risk and Vulnerability Assessment as legislated, with technical expertise from industry experts and academic scientists
- Participation in training and exercising, funded by industry and through federal emergency management programs
- Participation in risk assessment processes including impacts on land
- Environmental remediation planning
- Public communication and education about risks and response as provided by industry and the federal government
- Response planning including approval of response techniques,
- Assessment of impact of response on local communities
- PPE for first responders based on risk
- Being notified of changes or proposed changes to transportation regulations
- Being notified of changes to risk and hazard scape
- Having access to information about the transport of hazardous materials
- Provision of local knowledge relevant to preparedness, response and recovery
- Mitigation of human health risks

Local government role in response should include:

- Representation in Unified Command
- Implementation of local emergency plans, including public notification, evacuation, shelter-in-place, emergency social services, perimeter control, and traffic management.
- Implementing business continuity plans in situations where local government operations have been impacted
- Deployment of local government equipment to be utilized in response

- Deployment of hazmat teams to protect the land based population
- Declaration of local state of emergency if required
- Coordination of first responders and local stakeholders and partners within jurisdiction
- Coordination with local hospitals regarding signs, symptoms, and treatment
- Activation of local EOC if required
- Oversight of shoreline clean-up
- Enforcement of perimeters to protect human health
- Provision of local knowledge related to human health, ecosystem management, environmental sensitivities

Local government role in recovery should include:

- Oversight and approval of recovery plans including social, economic, and environmental remediation within their jurisdiction
- Business recovery planning
- Land use planning
- Monitoring of long-term environmental impacts, funded by industry

#### **4.5.5 Research and Development**

Research and development in relation to HNS should be done by accredited, unbiased universities and research institutions, and funded by industry with funds managed by independent bodies.

With respect to research and development, the City of Vancouver recommends the following:

- research on the short and long term impacts of all types of HNS releases and incidents under different seasonal conditions and future climate projections
- research on the short and long term impacts of different response techniques and options on public and environmental health and safety
- collection of baseline data and development of standards and mechanisms for long term monitoring of environmental and human health and safety impacts related to day-to-day operations and emergencies
- scientific research is needed to better understand the risk of fires and explosions on vessels and at terminals handling all types of HNS
- scientific research and development is needed to build response capacity for submerged HNS
- revised risk assessment processes must be implemented to reflect best practices that give equal weight to consequence and probability in order to avoid catastrophic situations
- development and implementation of real-time information management systems to share critical data with first responders
- development of geographic response and recovery plans inclusive of marine and land based impacts, long term monitoring, and funding mechanisms to address unforeseen risks

## 5 CONCLUSION

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The lack of an HNS Preparedness and Response Regime in Canada presents major risks to urban coastal communities like Vancouver. The City of Vancouver's submission is not intended to address all issues, and is limited by the lack of information available about ship source HNS incidents, and by the short timeline provided for response. The City expects that all issues raised through this submission will be considered, and that the Panel will recommend to the Federal Government the need for immediate action to address current gaps in the system and to build regional capacity for preparedness and response. Further education and consultation with local governments and First Nations is required to develop of a comprehensive and robust HNS Preparedness and Response Regime that effectively mitigates risk to local communities, and ensures that local values, concerns, and potential consequences are prioritized.

## **APPENDIX: CONTRIBUTORS**

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District of North Vancouver

City of North Vancouver

City of Burnaby

City of Richmond



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<sup>1</sup> Including the 1990 Brander-Smith Report; the 2001 Report of the Pacific Region Marine Chemical Emergency Response Working Group; and the 2010 Report of the Commissioner of the Environment and Sustainable Development to the House of Commons, Chapter 1.

<sup>2</sup> Office of the Auditor General. (2010) Report of the Commissioner of the Environment and Sustainable Development to the House of Commons, Chapter 1 Oil Spills from Ships.

<sup>3</sup> <http://www.tc.gc.ca/eng/marinesafety/oep-ers-regime-roles-101.htm>

<sup>4</sup> Including the 1990 Brander-Smith Report; the 2001 Report of the Pacific Region Marine Chemical Emergency Response Working Group; and the 2010 Report of the Commissioner of the Environment and Sustainable Development to the House of Commons, Chapter 1.

<sup>5</sup> Office of the Auditor General. (2010) Report of the Commissioner of the Environment and Sustainable Development to the House of Commons, Chapter 1 Oil Spills from Ships.

<sup>6</sup> [http://www.itopf.com/information/services/publications/papers/documents/interspill09\\_hnsaappendix.pdf](http://www.itopf.com/information/services/publications/papers/documents/interspill09_hnsaappendix.pdf)

<sup>7</sup> [http://www.bclaws.ca/EPLibraries/bclaws\\_new/document/ID/freeside/00\\_96111\\_01](http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/00_96111_01)

<sup>8</sup> <http://www.portmetrovancover.com/en/portusers/marineoperations/dangerousgoods.aspx>

<sup>9</sup> <http://www.portmetrovancover.com/en/portusers/landoperations/terminalsandfacilities/bulk.aspx>

<sup>10</sup> Stone, J, et al. (2013) Economic and Biophysical Impacts of Oil Tanker Spills Relevant to Vancouver, Canada: A Literature Review. Commissioned by Vancouver Economic Commission p 11. Available at:

<http://www.vancouvereconomic.com/userfiles/file/Attachments/VEC%20Report%20-%20Impacts%20of%20Oil%20Tanker%20Spills%20Relevant%20to%20Vancouver.pdf>

<sup>11</sup> See Report <http://www.battlecreekenquirer.com/assets/pdf/a5167647127.Pdf>

<sup>12</sup> Office of the Auditor General, (2010)