Lines of Inquiry Panel Review Phase II: Hazardous and Noxious Substances

These Lines of Inquiry are intended to provide general structure to the Panel’s review and draw out information and perspectives through written submissions or face-to-face discussions that will be useful in the Panel’s deliberations. The Panel is not limited to considering questions outlined in these Lines of Inquiry.

As Canada has recently signalled its intent to ratify the International Maritime Organization’s (IMO) *International Convention on Liability and Compensation for Damage in Connection with the Carriage of Hazardous and Noxious Substances by Sea, 2010* (2010 HNS Convention), the Panel’s review will not include liability and compensation matters, but will focus on matters pertaining to preparedness and response for ship-source HNS incidents. Once brought into force, the 2010 HNS Convention would establish a liability scheme to compensate victims in the event of a spill of HNS at sea. In order to implement the 2010 HNS Convention in Canadian law, the Government has proposed amendments to the *Marine Liability Act*. These proposed amendments form part of Bill C-3, *Safeguarding Canada’s Seas and Skies Act*.

The IMO has also adopted a *Protocol on Preparedness, Response and Co-operation to Pollution Incidents by Hazardous and Noxious Substances, 2000* (OPRC-HNS Protocol) that provides a high-level framework for international cooperation on preparing for and responding to HNS incidents in the marine environment. Although the OPRC-HNS Protocol is in force, Canada is not a party. The Panel’s review of ship-source HNS incidents will undoubtedly contribute to the Government’s policy regarding accession to the OPRC-HNS Protocol.

Notwithstanding the Panel’s future recommendations on a potential Ship-source Hazardous and Noxious Substances (HNS) Incident Preparedness and Response Regime in Canada, for the purposes of gathering views and information for the review, the Panel is considering vegetable and animal oils, liquefied natural gas (LNG) and liquefied petroleum gas (LPG), among many other substances, as part of HNS.

References to ‘regime’ in this document refer to a potential future Ship-source HNS Incident Preparedness and Response Regime, unless indicated otherwise.

Coverage

1. How should HNS be defined for the purposes of a Canadian ship-source incident preparedness and response regime?

ITOPF considers that the scope of the Canadian response regime itself will determine the most appropriate definition to use. The definition should, ideally, reflect any potentially harmful substance released or likely to be released during an incident and the necessary response not covered by any other regime currently in place. The two international definitions of HNS within the 2010 HNS Convention (where HNS are defined by inclusion in the prescribed lists and
codes) and the 2000 OPRC HNS Protocol (where HNS are defined as any substance other than oil which, if introduced into the marine environment is likely to create hazards to human health, to harm living resources and marine life, to damage amenities or to interfere with other legitimate uses of the sea) both have limitations. The HNS Convention only covers those chemicals within the current lists and although the OPRC HNS definition is much broader, it can be subjective i.e. will a cargo of rotting grain cause harm? It could potentially be hazardous to responders and the public if producing methane or hydrogen sulphide or to the marine environment if spilled onto a fish nursery or coral reef but it would not be considered a harmful cargo in itself. It is suggested that as Canada is planning to ratify the HNS Convention that the Convention definition is applied. However, we would suggest that a second statement concerning future additions to the nominated lists or other substances deemed to have the potential to cause harm could be included within the regime.

2. What types of substances should be included in a Canadian regime for HNS? What is the rationale for their inclusion? What criteria should be used to inform the future inclusion of additional substances?

ITOPF suggests that any substance which presents a reasonable threat to the marine environment, responders or the public is considered for inclusion within the regime. Please refer to the lists quoted in the 2010 HNS Convention for current internationally accepted HNS substances. Other resources such as bulk cargoes deemed Harmful to the Marine Environment (HME) under MARPOL and the UN Globally Harmonised Substance (UN GHS) lists (incorporating the GESAMP lists and other international HNS lists) could also be cross referenced to check for substances that could be relevant to Canada’s regime. Specifically in Canada, the lists of chemicals that could be consulted include the “Categorisation” substances list (2006), the “Challenge” substances list (2007), assessments carried out under the Food and Drugs Act, the Pest Management Regulatory Agency Re-evaluation Programme (2001) and updates to the Canadian Domestic Substances List. The Chemical Substances website, the Canadian Environmental Protection Act (CEPA, 1999) Environmental Registry and the Chemical Management Plan lists could also be consulted. Radioactive substances have been excluded from many international HNS regimes due to the specialist nature of the response required. The inclusion criteria would most likely be based on levels of human and aquatic toxicity in conjunction with biodegradability such as that stipulated within the UN GHS.

3. Should a regime address HNS transported in bulk or in packaged form (e.g. containers), or one or the other? Why?

ITOPF considers that both bulk and packaged HNS present a potential threat and need to be dealt with during incidents and thus it would appear prudent to address both scenarios within the regime. This approach would be in line with international practice as both bulk and packaged goods are included under the 2010 HNS Convention and several international maritime chemical spill contingency plans already in use.
Prevention

4. What measures are already undertaken, either by government or industry, to prevent ship-source HNS incidents?

The international codes and regulations (IMDG, BC, IBC, IG etc.) in use around the world, help to prevent incidents and include improved chemical tanker build specifications such as double hulls and adequate training for vessel crew. Correct container weight declarations for stowage reduce the risk of structural failure in the stacks. Control of quantities, safe packaging and careful stowage of Dangerous Goods (DG) on container vessels reduce the risk of chemical interactions during incidents such as collision, allision and grounding. Accurate tracking of vessel movements and navigation, in conjunction with accurate and up to date weather forecasts also help to prevent incidents. Risks are also being reduced through the Canadian Emergency Management Act (2007), the Transportation of Dangerous Goods Act (1992) and CEPA (1999) which provide for planning, exercises and training.

5. What additional measures should be taken to reduce the risk of a ship-source HNS incident?

Potential shipping routes could be assessed in relation to the quantities of HNS transported, in order to locate any hotspots of increased incident risk. This could be followed by an assessment of the navigational risks in those areas to identify any outstanding issues which require attention. Advice to shippers regarding container weight declarations and packing might also reduce the risk of an incident. Measures taken to reduce oil spill incidents are also applicable to HNS incident reduction and improving general vessel safety and onboard navigation aids could also help reduce the risk of vessel collision and grounding.

Existing Response Capabilities

6. What private-sector capability currently exists to respond to HNS incidents in the marine environment, including at HNS handling facilities, on board vessels that carry HNS, and with emergency response contractors?

No comment available.

7. What public-sector capability, at all levels of government, currently exists to respond to or oversee the response to HNS incidents in the marine environment?

No comment available.

8. What response techniques exist for responding to various HNS incidents in the marine environment? Are all of them authorized under current legislation? If not, under what circumstances should they be authorized?

ITOPF is unfamiliar with the details of the HNS response options approved under Canadian legislation. However, in general, HNS response techniques include:

I. Monitoring (atmospheric or within the water column). Useful for evaporators and dissolvers.

II. Modelling (trajectory, fate and risks) used to aid response planning.
III. Containment and recovery (requires specialist equipment and only applicable for the small percentage of HNS that are persistent floaters and very occasionally persistent sinkers). Can also apply to lost containers.
IV. Chemical techniques (neutralisation, herders etc., not generally advised for HNS response by ITOPF).
V. In Situ Burning and chemical dispersant – not advised by ITOPF for HNS incident response.
VI. Flushing (can aid dilution if applicable – dependent upon the substance).

Preparedness and Response
9. What preparedness and response requirements should be incorporated into a new HNS regime?
Canada has not ratified the 2000 OPRC HNS Protocol but the possibility is briefly mentioned within the introductory paragraph to these questions. Those states who have ratified the HNS Protocol (currently 33 states) require all vessels and shore-side HNS facilities to have a specific HNS pollution incident plan (relevant for substances carried) and a national plan as well as a designated authority and contact lists. These states also have a requirement for limited amounts of pre-positioned HNS spill equipment. Incorporating the OPRC Protocol requirements into the Canadian regime is suggested.

10. To whom should these requirements apply?
Ship owners, freight companies, relevant industry bodies and government authorities would all have obligations relevant to an HNS incident under these requirements.

11. Is the current reporting/record keeping of HNS cargo on vessels in Canada adequate to prepare for and respond to HNS incidents? What could be done to improve the quality and accessibility of the information?
In ITOPF’s experience, in most countries, obtaining adequate information on DG carried onboard a container vessel is often time consuming and complex. The DG lists do not always contain enough detail and stowage plans can be difficult to obtain quickly. Cargo owner’s and freight company’s contact numbers reported on the available cargo manifests can be helpful in resolving any issues in a timely fashion.

12. Are there international best practices (ship-source or other) that should be considered when creating a national HNS incident preparedness and response regime?
There are several state and regional plans that deal with HNS planning and response. A list of those known to ITOPF is provided as an attachment to this document.

13. How do health and safety considerations for both responders and adjacent populations impact preparedness and response for HNS incidents?
Health and safety is the foremost priority during a HNS incident. The necessity for safe working operations in potentially hazardous environments, evaluating likely risks, identifying evacuation routes and the location of available medical facilities, and consideration of deployment times are considerations that all impact preparedness and response. These considerations are in
addition to logistic considerations such as the availability of safety and air monitoring equipment.

14. What scientific advice and expertise is required during an HNS incident? Does this expertise currently exist, either in government or private industry? What expertise needs to be developed in Canada?
During the initial assessment phase of a HNS incident, identification of the HNS involved, determination of the likely public and responder health risks and the scale and extent of the likely spread of HNS is important to confirm. Scientific consultants and chemical manufacturers worldwide can provide HNS trajectory modelling and hazard profiles respectively, as well as advice regarding the handling and clean-up of specific HNS. The creation of contact lists of relevant industry experts, government personnel and private organisations within the regime would be advisable. The Canadian fire service, Environment Canada and HAZMAT qualified responders will be able to pass on experience in relation to land-based chemical spills and could be a valuable asset during a HNS incident. The Coast Guard could also be a valuable source of response advice based on experience. It is understood that information regarding HNS pollution prevention can also be found on the Canadian Pollution Prevention Information Clearinghouse portal. As HNS incidents are infrequent and complex, it is recommended that spill managers are trained regarding the generic types of risks associated with a HNS incident rather than specific chemical interactions.

15. How should response capacity for an HNS regime be developed? What factors should be considered?
Development of response capacity could involve; creating national and regional contingency plans, training government agency and private-sector response personnel and, establishing suppliers of suitable response equipment. A HNS risk assessment identifying the substances most likely to be faced and the most probable location of an incident would assist in preparing the most suitable response.

Roles, Responsibilities and Legal Framework
16. Should a separate preparedness and response regime for HNS be created, or should the existing Ship-source Oil Spill Preparedness and Response Regime be expanded to include HNS? Why or why not?
Worldwide, there is no consistent pattern of either separate or joint national regimes. However, with both approaches, the priority is to create an operationally functional structure. ITOPF would suggest that a system of two separate, but linked regimes, may be a useful structure. This approach would avoid response arrangements, plans and documentation becoming too cumbersome, it should avoid potential duplication of material, and as many ship-source HNS incidents also involve an oil spill, the two regimes and operating logistics should be cooperative wherever possible.
17. Could Canada’s Response Organizations (ROs) fulfill the role of responder to certain ship-source HNS incidents, as they currently do for ship-source oil spills?
It is understood that this type of role would be possible as some of Canada’s ROs already have a level of HNS response training and capability. However, they may require additional specialist training and safety equipment required in order for ROs to fulfill the role of primary responder for a broader range of HNS incidents.

18. What factors would need to be considered in broadening the Response Organizations’ mandate to include HNS?
The broadening of the RO’s mandate to include HNS would be possible through expanding the roles and responsibilities already stipulated within the oil spill response regime. However, the challenges associated with HNS response include the necessity to address the risks and impacts of an HNS incident on the general public. It is therefore likely that governmental agencies would still need to be involved within the response mandate for HNS incidents to cover those responsibilities that would fall outside an expanded RO mandate.

19. If adopted, should the requirements for an HNS regime be integrated into current legislation, such as the Canada Shipping Act, 2001 and the Arctic Waters Pollution Prevention Act, or should new legislation be created?
No comment available.

20. How should an HNS regime interact with the regulations for the transportation of dangerous goods in Canada?
The HNS regime could utilise information such as the placards, DG lists and safety information available through the IMDG code. Any issues with variability between land and sea DG transport requirements and documentation should be considered, as historically discrepancies have been an issue in other countries.

21. What role should the Canadian Coast Guard play in an HNS incident?
The Canadian Coast Guard has extensive experience in dealing with pollution and vessel casualty incidents at sea and could be a valuable asset in both monitoring and response during a HNS incident. It is likely that the Coast Guard would require capacity building, both for personnel and equipment, in order to effectively respond to HNS incidents.

22. What are the current roles and responsibilities of other levels of government (provincial and municipal) in this area? Are any of these governments considering new prevention, preparedness and response requirements that could be of benefit to a national regime?
No comment available.

23. What other parties (i.e., first response agencies, health agencies, marine services, etc) have a role in the preparedness for or response to ship-source HNS incidents? What role could they play?
The safety of the facility or vessel crew, responders and the public is the primary concern in preparing for and responding to HNS incidents. Public health and safety is, under normal circumstances, under the mandate of national and local government agencies such as the police, medical and fire services. Non-government agencies with specialist advisory positions such as wildlife and parks personnel, chemical, health and safety experts might also have roles to play within an HNS response.

24. Should responders be provided immunity from liability in the context of their response, as they are in the Ship-source Oil Spill Preparedness and Response Regime under the Canada Shipping Act, 2001?
No comment available.

25. How could a future HNS incident preparedness and response regime be financed or funded?
No comment available.

26. How should an HNS regime be overseen and enforced?
Enforcement of the HNS regime will be dependent upon the legal requirements established and the parties’ responsibilities under the regime. There are several aspects of the management of the regime that require consideration, such as reviewing vessel and facility plans, maintaining response preparedness and reporting requirements. Transport Canada is believed to already be responsible for reviewing emergency plans under the Transport of Dangerous Goods Act (1992) and could potentially extend this expertise to include facility and regional plans. The government agencies already involved in overseeing and enforcement for the oil spill regime could also expand their responsibilities to HNS. The establishment of a joint-agency inspection and enforcement capability using personnel from Transport Canada, the Coast Guard and Environment Canada may be an appropriate option.

Research and Development

27. How should priorities for HNS-related research and development be established?
Globally, there is a considerable amount of research being conducted on the aquatic toxicity of HNS by both the chemical industry and shipping sector. This is being driven by both the number of new commercial substances being shipped each year and tighter regulations concerning potentially harmful substances. Under the lists outlined within Q2, priority for research could be given to evaluating those substances with suspected high toxicity and low biodegradability. With regards to potential research involved with evaluating response methods, the HNS risk assessment could be used to identify the most likely HNS incident scenarios and the necessary research regarding response to those substances.

28. Who should be responsible for funding and conducting this research?
A partnership between government and industry would appear appropriate for funding research given the potential advantages for both parties in developing an effective HNS response capability in Canada.