2014-05-16

Captain Gordon Houston
Chair, Tanker Safety Expert Panel
Transport Canada,
330 Sparks Street
Ottawa, ON K1A 0N5

Dear Captain Houston,

Re: Invitation to Submit Input for Phase II of the Tanker Safety Expert Panel's Review

Several Departments and agencies within the Government of Nunavut, including our Deputy Minister of Environment, received an invitation to submit comments pertaining to the ongoing tanker safety review. Our Deputy Minister has forwarded your request to me for a response. ***Please note that I am responding on behalf of the Department of Environment only; and not on behalf of the other Government of Nunavut Departments and agencies to whom you sent invitations***.

The Environmental Protection Division of the Department of Environment, Government of Nunavut is responsible for the enforcement of the Nunavut *Environmental Protection Act* (EPA) which prohibits the discharge of a contaminant into the environment. The EPA applies to the whole of Nunavut but does not apply where the discharge has been authorized under other Federal or Territorial Legislation. Where a discharge of a contaminant occurs in contravention of the EPA the responsible party is required to immediately terminate the discharge and further, repair any damage caused by the discharge.

The Environmental Protection Division is also responsible for enforcing the *Spill Contingency Planning and Reporting Regulations* which require a person in ownership or management of a contaminant or contaminants above a prescribed volume to have in place, a spill contingency plan. The Regulations further require the owner or person in charge, management or control of contaminants at the time a spill occurs, to immediately report the spill where volume of the spill is equal to or greater than a prescribed amount.

A complete list of our environmental legislation and guidelines can be found on our website here:

http://env.gov.nu.ca/programareas/environmentprotection/legislation

This written submission is intended as a follow-up to our face-to-face meeting of May 12, 2014 and in particular, to provide the Panel with a level of detailed commentary which was not possible to convey over the 2-hour period during which we met. To keep matters simple, clear and understandable, I have elected to address each of the questions in your *Lines of Inquiry* document and which will constitute the Department of Environment's formal written response.

The Arctic Environment

1. ***The Arctic provides a unique operating environment, both for navigators and regulators. What factors, including future considerations, should be considered while developing spill prevention, preparedness and response requirements for the Arctic?***

The accuracy and availability of hydrographic charts and sailing directions; the response time for 3rd party responders (be it the Canadian Coast Guard or a private response organization); the ability of the vessel to contain and control a spill until a larger and better-equipped response team be brought to the site; the general lack of marine infrastructure (wharfs, protected harbours, aids to navigation) in the Arctic; poor communications; logistics; the lack of local response organizations; the need for stricter regulatory monitoring and enforcement.

2. ***Are there particularities and/or differences between regions of the Canadian Arctic that should be considered?***

   Yes. The Arctic is a very large region; of continental proportions. Consequently, weather, climate, geography and overall operating conditions can vary significantly from one region to the next. By way of example, certain areas of the arctic such as the high Arctic, are subject to year-round ice conditions and an open-water season that lasts only a few weeks. In other regions, such as Hudson Bay, the main element of risk is shallow water and uncharted shoals, coupled with sudden and violent storms. In Frobisher Bay, the 38 foot tidal range combined with numerous pinnacle shoals present unique hazards to shipping.

3. ***Are there sensitive areas where vessel traffic presents particular concerns? Where are they? What makes them sensitive areas?***

The commenter is not aware of any single comprehensive source for this sort of information. There are several national and territorial parks, wildlife preserves and other designated sensitive areas in addition to the hundreds, if not thousands of hunting areas where local people procure wild game and which, if subjected to the fallout from an oil spill, would threaten many livelihoods.

What the question really refers to, or rather illustrates the need for, is a sensitivity atlas. Currently, such an atlas does not exist for the entire Arctic region and therefore it is highly recommended that a project be undertaken to produce a publication along those lines. It would likely require several years of studies including visiting every community in the arctic where local hunters and fishermen would be in a better position to identify sensitive areas. This would be combined with data gathered by wildlife and fisheries biologists and other researchers over the last several decades. Finally, it would, out of necessity and practicality feed into and draw from, the ongoing land use planning process that is being conducted by the Nunavut Planning Commission. Suffice to say it would be a very lengthy project.

4. ***What mechanisms are in place for outreach and engagement of Northern communities in spill preparedness and response?***

The commenter can only speak to the Department of Environment's (DOE) situation. The DOE has, in every community in Nunavut, at least one or two Conservation Officers; and in each of the Regional Centers -- Iqaluit, Pond Inlet, Arviat and Kugluktuk -- a Regional Environmental Protection Officer. All of our enforcement officers receive a 4-day spill response course delivered in-house. Unfortunately, the spill course only touches on marine spills; the bulk of the course being devoted to land-based spills over which our Department has regulatory jurisdiction.

In the event of a land-based spill, our officers have, on occasion, taken a leadership role in the first response; often because they were the only individuals in that community who had the knowledge on how to mount an effective response. The DOE has neither the extensive training, nor, the type of specialized equipment required to respond to a marine-based spill. There have been occasions where our officers have gone out in their patrol boats to investigate oil slicks and reports of ship-sourced spills; in these cases, the officers served a useful purpose by providing first-hand information to the marine responders before they arrived on the scene to take charge.

Based on conversations with colleagues in the Canadian Coast Guard (CCG), it appears that it has been an uphill battle for them to secure volunteers who are willing to avail themselves of the free training that the CCG offers. This is not, in the commenter's estimation, due to a lack of effort on the part of the CCG. There is, for the most part, an expectation on the part of the individuals who are being asked to take the course, to be remunerated for their time and effort. Unfortunately, the CCG does not have a budget for this sort of expenditure.

Prevention

5. What measures and resources are currently in place to prevent marine spills in the Arctic?

The commenter is not in a position to provide an informed response to this question; primarily because the Department of Environment's regulatory jurisdiction is generally restricted to land-based spills and thus we have neither the in-house expertise nor the equipment to respond to marine spills. The commenter is aware that the Canadian Coast Guard (CCG) maintains an inventory of spill response equipment in several Nunavut communities, but he also understands that the availability of local personnel who have been trained to operate this equipment is virtually non-existent (refer to question # 4), thus any response would likely be delayed by the amount of time it would take for the CCG or another responsible agency to deploy trained personnel to the site.

As indicated above, the Department of Environment has personnel in every Nunavut community and most of whom have received basic spill response training, albeit primarily tailored to land-based spills. Nevertheless, in a pinch, these officers, with support from technical staff at Iqaluit headquarters, could be pressed into service in the event of an emergency. How effective the DOE would be in the first 24 – 48 hours of a major marine spill event is something that has never been tested.

6. What additional navigation support and resources are needed for safe shipping in the Arctic?

Navigational aids and infrastructure in the Arctic should be upgraded and expanded where it is already in place and installed where it is not. Examples include but are not restricted to the following:

- There is the paucity of detailed nautical charts for the Arctic Region; only 20% of the Arctic is charted.
- To the best of the commenter's knowledge, the Sailing Directions for the Eastern Arctic (Vol 3) have not been updated since 1994.
- VHF radio communications are poor to non-existent. By way of example, in the early 1990s a VHF repeater station was installed and maintained approximately 65 nautical miles from the town of Iqaluit on Knife Edge Mountain which is located on the southwest coast of Frobisher Bay. During the time that the repeater station was active, marine VHF communications were available along the entire length of Frobisher Bay. The repeater station blew off of its mountain perch sometime in the 1990s and was never replaced. As a result, once one has ventured 15 – 20 nautical miles from the community of Iqaluit, VHF communications (except between vessels in close proximity to one another) is non-existent. This is particularly an issue because weather forecasts, such as they are, cannot be obtained beyond a certain distance from Iqaluit, except via

satellite phone which is expensive and cumbersome. Ironically, in Iqaluit, cell-phone communication is superior to VHF but like VHF, is limited in range.

- Weather information is another sore point. The commenter is aware for example, that weather buoys have long been deployed in the Great Slave Lake but no such infrastructure has been established (that this commenter is aware of) in the Eastern Arctic. Having real-time information on sea state and weather conditions for critical areas of the Arctic, is a key element that contributes to marine safety and by extension, efficient and effective spill response operations.
- The largest community in Nunavut, with the highest volume of marine cargo traffic does not even have a proper protected harbour facility, nor, for that matter, a proper wharf.

The state of marine infrastructure in the Arctic does not appear to be consistent with the Government of Canada's often-touted ambitions about maintaining "Arctic Sovereignty".

This already bad situation will be exacerbated over the next ten years by the rapid increase in mineral, oil and gas exploration and development that far exceed the Government of Canada's ability and apparent willingness to put into place the requisite marine safety and protection infrastructure.

A challenge for the Government of Canada is to not only minimize the risk of major oil spills in the Arctic, but to also ensure that the response capacity is proportionate with the projected level of vessel traffic.

Captain Alan Johnson (ret'd), formerly with the Government of Nunavut's Department of Economic Development and Transportation and a long-term northerner with an extensive Arctic maritime background, provided the commenter with a list of deficiencies and recommendations with respect to marine infrastructure and which the commenter is providing here:

- Safe routing channels for potential commercial shipping activities have yet to be defined within the ice-covered and open water sections of the approaches and within the Northwest Passage;
- Establishing specific vessel restrictions (vessel size, class, draft requirements, etc.) will be required to determine whether or not a vessel will be able to transit Arctic waters given the limited availability of accurate charting (CHS);
- Determining safe underwater keel clearances required for voyages through the various Northwest Passage routes for the purpose of avoiding real time ice conditions, underwater hazards-grounding, potential hull breaching and subsequent fuel discharge;
- Confirming ports of refuge throughout the Arctic Region for vessel safety concerns to include availability of emergency mooring and repairs for ocean-going vessels in distress;
- Determining measures for inspection and verification of Canadian safety requirements for any foreign-flagged vessels traveling in international waters that are subsequently redirected by their owners through the Northwest Passage. Currently the only vessels subject to Canadian regulations are those that have already filed a voyage plan through the Northwest Passage and have called at a Canadian Port for inspection, verification of compliance and approval by Transport Canada. Foreign-flagged vessels in international Arctic waters that make changes to voyage plans to transit Canadian territorial waters in the Northwest Passage are not captured under the current regulatory inspection regime.
- The limited capacity of the Canadian Coast Guard fleet to support, monitor and respond to a major oil spill in the Arctic waters;
- Spill contingency planning to address major commercial traffic within the Northwest Passage and the Canadian Arctic Archipelago;
- There is a requirement to update the Arctic Ocean Circulation regime and its current flow patterns within the Canadian Arctic Archipelago to support a proper spill preparedness and response plan;
- Of particular concern is the ongoing delays in the revitalization of the CCG fleet and the Government of Canada's apparent paralysis to move this forward.

7. *What preventative practices could be undertaken at HNS and oil handling facilities and/or during HNS and oil transfers?*

The commenter is not well-versed on this subject matter; nevertheless there are basic spill prevention/spill response principles that should be followed in addition to the specific safety and operating standards common to such facilities. This includes but is not restricted to:

- Ensuring that during fuel transfers, the transfer is being monitored 24/7, including monitoring weather conditions and considering any other factors which may result in upsets to the normal operating system.
- Having appropriate spill response equipment on hand for spills that can be reasonably expected to happen;
- Having a contingency plan for catastrophic failures.
- Ensuring that all equipment employed in the transfer is in a state of good repair and that there are strict standard operating protocols and checklists in place to avoid upsets.
- Ensuring that affected parties – and in particular, the general public – are kept informed and updated.

8. *What more can shipowners and/or oil handling facility operators do to prevent or reduce potential impacts of incidents?*

This is not the commenter's area of expertise, however, as a general rule of spill response preparedness, ship owners and OHFs should have on hand, trained staff and sufficient equipment to manage spills and further, in the event that the spill overwhelms local resources, be able to manage/contain the spill for however long it takes for outside assistance to arrive on scene.

9. Should the current practice of overwintering fuel in barges in landfast ice be reconsidered? Why or why not?

Yes. This topic has been the subject of considerable concern and discussion across the Arctic: within the Arctic Regional Advisory Council on Oil Spill Response (ARAC); the NWT-NU Spills Working Group (SWG) and generally amongst regulatory authorities operating north of 60.

The Department of Environment has already provided Transport Canada (TC) with extensive commentary on this topic including comments on Transport Canada's *Arctic Waters Guidelines For Lay-Up Of Petroleum Barges/Vessels In Land-Fast Ice (2012)*; *Guidelines for Lay-up of Single Hulled Fuel Barges in Landfast Ice for Over-wintering Bulk Fuel Storage on the Mackenzie River and Tributaries in the Northwest Territories(2013);* and more recently, in March 2014, the Department of Environment provided additional comments to TC through this commenter's membership in the ARAC. The commenter's concerns with respect to the overwintering of fuel-laden vessels can be briefly summarized as follows:

- How are fuel volumes will be monitored when barges are stationary/beset in ice;
- How precise are the methods by which the fuel volume is measured and, further, if a leak were to develop in the barge, how much product will have escaped before the loss is detected;
- There are no demonstrated methods for effectively and efficiently managing spills in ice-infested and ice-covered waters.
- The Canadian Coast Guard is frequently cited as the response agency for marine spills in the Arctic; however, the commenter is also aware that the Coast Guard is limited in its ability to respond to an incident in ice-infested waters, which would be marginal at best, or impossible in land-fast ice conditions. Furthermore, and practically-speaking, the Canadian Coast Guard

cannot be everywhere at all times. Response time for a CCG ship to reach a spill site could be several days, depending on the location of the CCG ship nearest the spill.
- Overwintering fuel-laden barges essentially bypasses the stringent requirements for establishing a fuel storage facility on land: there are no similar stringent requirements that provide the same level of environmental protection, for the storage of fuel-laden barges in land-fast ice.

Existing Response Capacities

10. Are the vessels currently operating in the Arctic capable of responding to a spill of their bunkers or oil/HNS cargos? If not what do they need?

The commenter is not in a position to provide an informed opinion on this matter except to say that he hopes that vessels operating in the Arctic are capable of responding to spills of their bunker/HNS cargo. The commenter presumes that this requirement is already legislated and strictly enforced by Transport Canada and further enhanced through regular monitoring and inspection of vessels transiting Arctic waters. That being said, and based on his years of experience in the Arctic, he suspects that the real answer is “no”.

11. What private-sector and public-sector resources are available currently to respond to ship-source spills in the Arctic?

The commenter understands that by law, government-owned OHF are required to have on hand, sufficient equipment to manage a spill during ship to shore transfer operations. It is possible that private firms such as mining companies have similar mechanisms in place. The commenter is not aware of any other private or public sector (other than the Coast Guard) resources that could be brought to bear on a major ship-sourced spill in the Arctic; certainly he is not aware of any such resources in Nunavut. The few firms in Nunavut that are in the business of spill response are only equipped for land-based spills.

12. Are there facilities in place in the Arctic to treat or dispose of waste from an oil spill or release of HNS? How could these waste products be dealt with in the event of a spill?

To the best of the commenter’s knowledge, no such facilities exist in Nunavut. The few options available for managing waste from a spill event would include:

- Where permissible, open burn it at a designated site,
- Import the requisite equipment for managing the waste or
- Containerize and transport the waste to the south for treatment/disposal.

13. Is there any existing capability in the Arctic to treat wildlife affected by HNS or oil?

The commenter is not aware of any such capability in the Nunavut. Very likely the answer is “No”.

Preparedness and Response

14. What preparedness and response requirements are necessary for the Arctic?

This is a question about which the commenter could expound over dozens of pages, however, in the interest of brevity, the most basic of requirements would include but not be limited to:

- Trained local personnel at strategic locations across the Arctic;

- Spill response equipment of sufficient quantity and suitable for the conditions under which it will be employed;
- Regular training exercises for local responders;
- Ongoing financial resources to support and maintain this capability;
- Designated disposal sites at key locations (these being in close proximity to shipping routes);
- Modern marine infrastructure at every community;
- Updated and expanded hydrographic charts, sailing directions and land-based aids-to-navigation
- Improved and expanded marine VHF radio communications;
- Vigorous monitoring and enforcement by the appropriate regulatory authorities.

The commenter further suggests that such requirements be incorporated into existing legislation, if they have not already been, and strictly enforced through a robust inspection regime.

15. To whom should these requirements apply?

The Department of Environment (DOE), Government of Nunavut has adopted the "polluter pays" principle. This is further codified in the Department's key related legislation: the *Environmental Protection Act* and the *Spill Contingency Planning and Reporting Regulations*. Both pieces of legislation require the person in control or management of a contaminant to install safeguards to prevent the release of that contaminant; to have on hand at all times, the requisite equipment and material to respond to a spill and, in the event of a spill, take all reasonable measures to stop the spill and to repair any damage caused by the spill.

The commenter acknowledges that Territorial legislation does not necessarily apply to ocean-going vessels; that ocean-going vessels are regulated under Federal legislation. Nevertheless the commenter draws the GN's environmental legislation to the Panel's attention to convey our guiding principle with respect to who should be responsible for the proper management of contaminants; in this case, oil and/or HNS.

This is not to say that there is neither a need nor value in having a local response capability as briefly noted in question 14; in fact there is a very strong case to be made for having in place, a robust and effective local spill response organization. The primary purpose of a local spill response organization would, however, be to provide <u>support</u> in the event of a major spill where the responsible party is overwhelmed and requires immediate assistance, but the primary onus for responding to oil/HNS spills should lie with the owner of those materials and/or the person in control or management of the materials.

16. Should the Arctic be treated differently than the parts of the country south of 60° in terms of response capacity and response time requirements? Why or why not?

Yes. It is a well-known and established fact that arctic ecosystems are fragile and additionally, not as productive as habitats in southern Canada. That is to say, it takes a far greater area of land and sea to support "X" number of wildlife in the arctic, than it does in the south. Furthermore, while all ecosystems have the ability to recover from environmental insults, arctic ecosystems can take decades and in some cases, hundreds of years longer than southern ecosystems, to recover from the same serious insults. Any kind of upset in arctic ecosystems could have long-term effects on wildlife and the humans who depend on that wildlife for their livelihood and culture.

This delicate situation is further exacerbated by factors previously discussed in this submission. These include but are not restricted to:

- A lack of immediately-available resources – including equipment and trained personnel -- to mount an effective and timely response;

- Absence of proper facilities for disposing of oily wastes;
- A harsh climate that can significantly hinder spill response operations and can further bring them to a halt as would be the case in the event of a blizzard or a violent autumnal storm at sea;
- Nunavut does not have an internal road nor rail transportation network; communities are only accessible by boat or by aircraft. In the case of the latter, the amount of material that can be brought to bear on a spill response operation will be limited by the length of the runway in the nearest community, which in turn will dictate the type and size of aircraft that can be employed to transport equipment and personnel. In a worst-case scenario, a spill might happen hundreds of miles from the nearest community; in which case materials will have to be brought in by boat, which could take several days;
- Notwithstanding the amount of materiel, equipment and personnel required to mount a spill response operation, basic logistics – something as fundamental and feeding and housing response personnel -- would present additional hurdles to an effective and efficient response.
- By way of example, the Deepwater Horizon event provides a useful illustration of the type and amount of resources that are required to respond to major spill events. The following statistics were compiled by this commenter in 2011 based on communications with his American counterparts:

    - More than 47,000 people were working on the response after the first 100 days;
    - At the height of the spill 17,500 National Guard troops from Gulf Coast states were deployed, to respond to the crisis;
    - More than 6,500 vessels responded on site, including skimmers, tugs, barges, and recovery vessels, to assist in containment and cleanup efforts;
    - 120 aircraft were employed in the cleanup effort;
    - 13 million feet of containment boom and 9 million feet of sorbent boom were deployed to contain the spill—and approximately 2 million feet of containment boom and 3 million feet of sorbent boom had to be made available on standby;
    - 6,800 contractors were used;
    - More than 35 million gallons of an oil-water mix were recovered for treatment;
    - Approximately 2 million gallons of total dispersants were applied; approximately ½ million gallons were made available on standby;
    - Over 400 controlled burns were conducted in an effort to protect shoreline and wildlife.
    - 17 staging areas were put in place to protect sensitive shorelines;
    - Approximately 132 miles of Gulf Coast shoreline experienced moderate to heavy oil impacts; approximately 524 miles of shoreline experienced light to trace oil impacts;
    - At one point approximately 52,395 square miles of Gulf of Mexico federal waters were closed to fishing;
    - By June 2011, 1600-2,000 people were still working on the response, plus another 2,000 working on the Natural Resource Damage Assessment.

The Deepwater Horizon spill happened in semi-tropical waters and under near ideal climatic and sea conditions. Conditions in the arctic would entail hostile weather, wind, waves, ice, virtually no response resources and a fragile ecosystem.

The commenter recognizes that the scope and severity of an undersea well blow-out such as Deepwater Horizon, is several orders of magnitude worse than that which would be expected from even a catastrophic oil tanker accident, however, the above statistics are cited only to illustrate the logistical challenges of responding to a major oil spill in a remote arctic location which would, in the commenter's opinion, very quickly overwhelm local and possibly national resources.

While it would not be reasonable to expect every community to have in place, sufficient infrastructure to accommodate a large influx of personnel and equipment, it should also be understood that in the absence of such basic infrastructure, responsible agencies should be prepared to be self-sufficient if they are called upon to manage a major spill in remote arctic waters.

17. How should the placement of spill response equipment be determined for the Arctic?

Ideally, every community in Nunavut should have a substantial stock of spill response equipment as well as trained personnel that can deploy it effectively and efficiently; at least to the extent that the spill can be managed for however long it takes for the responsible party to marshal any equipment, supplies and personnel that are not immediately on hand and that must be brought in from elsewhere. The amount of equipment located at each community would be determined through an analysis of current and projected shipping traffic within a pre-determined radius of the community. In short this would entail conducting a risk assessment.

18. What spill response techniques are appropriate and effective for oil spills and HNS incidents in Arctic waters?

Response techniques will be dependent upon, among other considerations, local conditions, sea state, weather, the properties of the spilled substance, the availability of trained personnel and equipment and finally, what logistical support is locally-available.

In some cases, such as open water conditions, techniques successfully employed in the south could be used effectively in the Arctic but this would be entirely dependent upon how quickly personnel and equipment could be deployed to the spill site and further, what logistical support could be provided to the responders. In the Arctic, the greatest impediment to a successful spill response operation is weather, ice, inaccessibility, a paucity of equipment and trained personnel and finally, the lag time between the incident and the commencement of a clean-up operation. In the south, a response can be mounted fairly quickly but in the Arctic, the requisite resources are, more often than not, days away.

The difficulty of managing spills under ice cannot be over-emphasized. Methodologies for managing oil spills under ice and in ice-infested waters have been extensively studied, however, to the best of this commenter's knowledge; the hypothetical recovery rates for these methodologies are based on laboratory and/or optimally-controlled field conditions that seldom, if ever, exist in an actual arctic context.

Nor is the commenter aware any historic spill event in ice-infested and/or ice-covered waters where the response effort yielded high recovery rates or where the various textbook methodologies for such situations have proven to be effective and efficient. A cursory review of the available literature on this topic, a well as consultations with experts in the field, suggests that oil spill recovery under ice and in ice-infested waters is still an issue that requires considerable more research before proven and effective response and recovery methodologies can be developed; especially for large-scale events.

In the final analysis, proposed methodologies for managing an oil-under-ice/in ice-infested waters scenario should identify real-world effectiveness, efficiency and recovery rates.

19. *Should the use of dispersants, in-situ burning and other response techniques be permitted in the Arctic if they yield a net environmental benefit?*

Yes. The salient point is "net environmental benefit". The commenter, as one of the Co-Chairs of the NWT-NU Spills Working Group, has had several opportunities to attend lectures by experts in the field of dispersants and in-situ burning. When planned and deployed properly and with all things considered, these tools provide a valuable means of managing oil spills and protecting the environment.

20. Are the availability, the frequency and the quality of training and exercises in the Arctic adequate? Who should participate in training and exercises?

No. The commenter believes that more emphasis should be placed on training and exercises. Most importantly more effort should be made to train and equip northern residents. The commenter is aware that the Canadian Coast Guard (CCG) has made a concerted effort to do just that, however, for reasons already cited, the CCG requires more resources toward this end. Even if the CCG were to be successful in training a large contingent of responders, it is not enough to provide a short training course; regular exercises must be conducted in order to keep the response teams current.

The Department of Environment (DOE) for its part delivers a 4-day spill response course to all of our Conservation Officers and Environmental Protection Officers; we also deliver this course to the local community college once per year and open up seats to industry and other government agencies. The course is primarily geared towards land-based spills and thus is of limited utility in preparing students for major ship-sourced spills. Nevertheless, some of the fundamentals that are taught in the DOE course could be applied to a marine situation.

The above does, however, illustrate one of many fundamental problems with the spill response regime in the Arctic in that the responsible agencies, while they all have essentially the same objective -- to protect the environment from spills of hazardous materials – they are, with a few exceptions, not effectively communicating with one another on matters of mutual interest. There seems to be a duplication of effort and resources. Training and exercises would be far more effective and efficient if all of the response/regulatory agencies that operate north of 60 were to coordinate their efforts: including training and exercises. The NWT-NU Spills Working Group (SWG), which consists of representatives from both Federal and Territorial Governments, would be an ideal vehicle for moving towards this end. The scope and mandate of the SWG will be expanded upon in the response to question 27.

Roles, Responsibilities and Legal Framework

21. Should the regime(s) for Arctic oil spill and HNS incident preparedness and response be structured the same way as the Ship-source Oil Spill Preparedness and Response Regime in place south of 60°?

The commenter is not in a position to provide an informed opinion on this matter as he is not familiar enough with protocols for ship-sourced response regimes in south of 60°.

22. What should be the role of private stakeholders (e.g., potential polluters, response contractors) in terms of ship-source oil spill or HNS incident preparedness and response in the Arctic?

The commenter refers the Panel to his response to question 15. Ultimately, the responsible party – that is, the person in ownership and/or control of the materials -- should bear the cost of any clean-up operation. With respect to response contractors, their responsibilities will be contingent upon whatever contractual agreement is in place between them and their client. It only makes good business sense for response contractors to be able to manage a wide range of situations, however, this is not a legislated obligation and would be more of a matter to be sorted out in a civil court should there be a breach of contract.

23. What should be the role of the Canadian Coast Guard (CCG) in ship-source oil spills or HNS incidents in the Arctic?

Notwithstanding the Department of Environment's position with respect to "polluter pays", in reality, there will be situations where the responsible party is simply incapable of mounting an efficient, timely and effective response to a spill of oil or HNS. In which case, the government – be it territorial or federal -- has to step in and take charge in order to protect the environment and represent the public interest. The Department of Environment has, in the past, been compelled to take charge of spill response operations for reasons cited above. The Department has in place, legislated mechanisms for recovering any costs associated with spill cleanup operations where the responsible party could not, or would not meet their legislated obligations, thus forcing the Territorial Government to step in.

With respect to ship-sourced spills, the commenter believes that the Canadian Coast Guard (CCG), with their fleet of ships, their specialized equipment and their in-house expertise, are in a better position than any other agency, to provide support and/or take control over a situation where the responsible party is incapable of mounting a proper response. That being said, it should also be recognized that CCG is currently straining under its own limitations – the apparent reluctance on the part of the Federal Government to modernize their fleet being one such example -- and therefore it is this commenter's opinion that as of today, the CCG would not be able to effectively respond to a major oil spill in the Arctic. This is not intended to disparage the CCG who, in this commenter's opinion, has made admirable efforts towards this end but have not been properly resourced to effectively undertake their responsibilities. The commenter strongly recommends that the CCG fleet, equipment and personnel will have to be expanded if Canada is to keep up with the rapid pace of industrial development – and with it, increased shipping traffic – in the Arctic.

24. To what extent and how should local communities participate in spill preparedness and response?

To repeat what was stated in response to the previous question, notwithstanding the Department of Environment's policy on "polluter pays", it makes sense to have in place, local teams who can provide support to spill response operations; more significantly response teams who live north of 60° full time and who, if properly trained and equipped, could mount a spill response operation to get control of the situation in the first in the first critical hours (or days) until sufficient resources could be marshaled to the site.

The commenter earlier alluded to the difficulties experienced by the Canadian Coast Guard (CCG) in securing volunteers from the communities. Regrettably the commenter cannot offer ready-solutions to these problems. At one time, there were some informal discussions with the CCG representative to the NWT-NU Spills Working Group, about the idea of using the local fire departments and the Canadian Rangers as a logical choice for a ready-response team. These organizations already have one of the fundamental attributes of an effective response team in that they have worked together as a group for years and under high-stress, emergency situations. Unfortunately, local fire departments are not insured to operate outside of a community boundary and the Canadian Rangers – according to our sources -- only operate on land and further, the military will not task them out for marine activities.

To sum up: having properly trained and equipped personnel in the north and immediately available to respond to spills is the sensible thing to do and further demonstrates a sound approach to spill response preparedness north of 60°; where the consequences of inaction and/or delayed action can result in significantly negative consequences. Nevertheless, given the hurdles involved in realizing this goal – some of which the commenter has presented in this response -- considerable effort and ingenuity will be required to develop and maintain this local spill response capacity.

25. Are there roles for other local parties to play in the response to an oil spill or HNS incident in the Arctic?

This question was partially covered in the commenter's answer to question 23 & 24. To add to this, another group that may be ideally suited the task is the Canadian Coast Guard Auxiliary (CCGA) Units.

Currently there are three active CCGA units in Nunavut; one each located at Cambridge Bay, Kugluktuk and Pangnirtung. Each CCGA unit in Nunavut has two vessels, however, with the exception of Cambridge Bay, the vessels are owner-operated. In terms of available personnel, Cambridge Bay has 6 members, Kugluktuk has 8 and Pangnirtung has 5.

With only 3 CCGA units and 19 personnel active across Nunavut, this is clearly not enough to cover the entire territory; that is if CCGA were identified as a possible spill response local resource.

26. *Do the Arctic Waters Pollution Prevention Act, Canada Shipping Act 2001, and Marine Liability Act provide an effective basis for a ship-source preparedness and response regime in the Arctic? Are there changes required to create a coherent spill preparedness and response regime?*

The commenter is not familiar enough with the above legislative instruments to confidently make pronouncements on whether or not they provide an effective basis for ship-source spill preparedness and response in the Arctic. The commenter suggests that this question may be premature given that the Panel is currently attempting to gather information from the public, industry and government on the current and future status of the ship-sourced spill preparedness and response regime in the Arctic and, hopefully, how to improve upon any deficiencies identified by the Inquiry.

The commenter therefore suggests the following approach: Upon completion of this phase of the Review, the Panel will have collected a significant body of knowledge, comments, and concerns from a wide variety of sources. At this juncture, it is suggested that Transport Canada request their legal counsel to examine the above legislation in the context of the information gathered from this exercise to determine if the concerns, comments and suggestions provided, are met by the aforementioned legislation.

27. How could a spill preparedness and response regime for the Arctic be funded?

The commenter suggests that a partnership between government and industry would be a suitable arrangement with each partner contributing to, for example, a permanent spill response fund and further, meeting on a regular basis to discuss ways and means of improving/enhancing the spill response regime north of 60°. The commenter believes that the Government of Canada should take a leadership role in this initiative as ultimately; it is the Government of Canada that is actively and aggressively promoting industrial development in the Arctic. Therefore, the Government of Canada should ensure that Canada's ability to respond to spill incidences in the Arctic is proportionate with the increased risks associated with industrial development and with it, increased shipping in arctic waters. In practical terms, the Government of Canada is the only government agency north of 60° that has the resources to spearhead and implement this initiative.

28. How could a regulatory preparedness and response regime for the Arctic be overseen and enforced?

The short answer is: it would be enforced by whatever regulatory agency has responsibility for the legislation that created the preparedness and response regime. In the absence of specific legislation to this effect, it would be up to the individual regulatory agencies to coordinate their efforts to ensure that

their respective legislation is being enforced, while at the same time, keeping their fellow regulators abreast of their activities.

An organization of this nature already exists north of 60° -- in Nunavut and the Northwest Territories -- and which has already been referenced a few times in this submission: the NWT-NU Spills Working Group.

The NWT/NU Spills Working Group (SWG) is an inter-agency arrangement between the Government of Nunavut (GN); the Government of the Northwest Territories (GNWT); Aboriginal Affairs and Northern Development Canada (AANDC); Environment Canada (EC); Fisheries and Oceans (DFO); the Canadian Coast Guard (CCG); Transport Canada (TC); the National Energy Board (NEB); National Defence; Parks Canada & the Inuvialuit Lands Administration (ILA). The SWG has been in existence since 1971: 41 years.

The SWG manages the *NWT-NU Spills Working Agreement*, the purpose of which is to provide a single-window approach to hazardous materials spill reporting and the dissemination of information pertaining to spills, throughout the Nunavut and the NWT. It also outlines the division of responsibilities with respect to which agency will act as the lead regulator in the event of a spill.

The SWG, in addition to its administrative function, also serves as a vehicle for inter-agency cooperation and assistance. Face to face meetings are held twice per year in Yellowknife to discuss spill response north of 60° and more recently, has been expanded to include technical seminars and guest speakers.

A central phone/fax/e-mail contact line – privately contracted out – is maintained in Yellowknife by the GNWT. In addition, the GNWT maintains a spills data base for all spills in the NWT-Nunavut and makes this database freely available to all of the signatories to the *Spills Working Agreement*.

It is worth noting that the Spills Working Group is widely viewed as a model arrangement in terms of inter-agency cooperation and the realization of common goals and objectives towards environmental protection.

The commenter suggests that – in the absence of specific legislation pertaining to preparedness and response -- the Spills Working Group model could be used as a basis for a central organization to coordinate a preparedness and response regime in the Arctic.

29. What opportunities exist for bilateral, multilateral, or circumpolar cooperation in the Arctic (e.g., Denmark, Alaska, and Arctic Council)? How should this influence Canada's regime?

The commenter cannot provide an informed response to this question. It is best deferred to the Government of Canada, who is primarily responsible for international agreements. The commenter does, however, have concerns with the notion of international agreements only because they may serve to provide a false sense of security. It is far better that Canada be self-sufficient in terms of being able to manage any spill event in the Arctic and to not place reliance on possible assistance from other countries, which in any case may be so distant as to make a quick response impossible or whose own priorities will always supersede those of Canada's.

30. Are there international best practices (ship-source or other) that should be considered when creating a regime in the Arctic?

The commenter is not well-versed with international best practices, but he is aware that Scandinavian countries such as Norway, are at the forefront in spill prevention, response and preparedness as it relates to offshore oil wells and therefore, presumably, they are equally proficient where ship-sources spills are

concerned. Certainly Canada may have lessons to learn from other northern countries such as Norway, however the commenter also suggests that Norway's climatic conditions are very different from that of Canada and in particular, with respect to ice cover. This is not to say that there is no value in examining best practices from other jurisdictions but these must also be examined against the conditions found in the Canadian Arctic.

Research and Development

31. Are there gaps in knowledge on the behaviour, fate and effects of oils and HNS in icy waters?

The commenter is aware that this has been extensively studied by Canadian researchers for decades. It appears, however, that this has only been done on a small scale with a few larger-scale controlled experiments. More research needs to be conducted on the fate, behavior and effects of oil and NHS for large-scale, uncontrolled spills and in real-world conditions.

32. *Are there gaps in knowledge on response techniques to address these spills in icy waters?*

This question has already been answered – albeit obliquely – for question 18. The commenter's concerns are worth repeating here:

> *The difficulty of managing spills under ice cannot be over-emphasized. Methodologies for managing oil spills under ice and in ice-infested waters have been extensively studied, however, to the best of this commenter's knowledge; the hypothetical recovery rates for such methodologies are based on laboratory and/or optimally-controlled field conditions that seldom, if ever, exist in an actual arctic context.*
>
> *Nor is the commenter aware any historic spill event in ice-infested and/or ice-covered waters where the response effort yielded high recovery rates or where the various textbook methodologies for such situations have proven to be effective and efficient. A cursory review of the available literature on this topic, a well as consultations with experts in the field, suggests that oil spill recovery under ice and in ice-infested waters is still an issue that requires considerably more research before proven and effective response and recovery methodologies can be developed; especially for large-scale events.*

33. Who should be responsible for funding and conducting this research?

The Government of Canada should take the lead on conducting further research but should actively engage industry as a partner. The commenter is of the opinion that both sectors have an obligation to further this research: the Government of Canada because of its responsibility to protect the public interest where environmental protection is concerned; because it has the resources to do so; and because it has been and continues to be, a strong advocate for industrial development in the Arctic. Industry has an obligation because they stand to benefit monetarily from natural resource extraction in the Arctic as well as the use of Arctic shipping routes, which in some cases can save ship owners considerable sums of money in terms of being able to transport goods over shorter distances. To be frank, it is resident northerners who are assuming the greatest risks associated with increased industrial development such as oil and HNS spills.

Additional Comments:

During the course of the discussions, an interesting point was brought up regarding the fact that currently, only refined petroleum products are transported in the Canadian Arctic and that once these products are discharged into the environment, there is very little that one can do to recover these products as they are

prone to spreading very quickly across the water, thus making recovery efforts virtually futile. While the commenter agrees in principle, with the logic behind this conclusion, he also wishes to counter with a few salient points:

- Although arctic diesel and other highly-refined petroleum products are not as persistent as crude oils, they do, nonetheless pose a risk to the aquatic environment as they contain toxic constituents. This is especially true for gasoline, the most toxic components of which are soluble in water.
- While there is little that one can do to recover highly-refined petroleum products, the main objective here is to ensure that when a spill does occur, the responsible party is able to act immediately and efficiently to stop the discharge and prevent any further release of contaminants into the environment. This also holds true for response agencies such as the Canadian Coast Guard, who, if they are to be an effective responder, must be on the scene without delay, to provide assistance. The case of the Exxon Valdez spill illustrates the importance of a timely response to a marine spill and how this can make the difference between an accident and an environmental catastrophe.
- While it is true that currently, only refined petroleum products are transiting arctic waters, any examination of tanker safety must not be restricted in its scope to the here and now; it must also take into account, potential future developments such as the possibility of oil well development in the high arctic and with it, crude oil shipments through arctic waters. Furthermore, it is worth noting that OmniTRAX, the current owner of the Hudson Bay Railway and the Port of Churchill facilities, has been investigating the feasibility of shipping Bakken Crude oil through the Port of Churchill to points around the globe.
- Finally, even if one were to restrict oneself to the current situation, the main concern is not so much domestic Canadian vessels which are required to use only refined motive fuel, but foreign-flagged vessels which still burn heavy bunker fuels.

This concludes our comments. If you have any questions or concerns, please do not hesitate to contact the undersigned.

Robert Eno
Director/Chief Environmental Protection Officer
Environmental Protection Division
Department of Environment
Government of Nunavut
Iqaluit, NU X0A 0H0
(867) 975-7729
reno@gov.nu.ca