APPENDIX H

The Role of Ice Services in Emergency Response - Environment

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Background

Oil and gas exploration and development is happening at a record pace all around the Arctic basin. Every Arctic state is involved in offshore oil and gas to one degree or another. There is also a tremendous increase in marine transportation in the Arctic, not only spurred by oil and gas activities but also from mineral development, tourism and the exploitation of shorter transportation routes. While drilling operations attract the most public attention and certainly have the potential for the largest environmental disasters, pollution from a shipping accident has been cited as a more likely cause of an environmental emergency, perhaps smaller in scope but devastating to the Arctic environment nonetheless.

The increasing risk of a spill associated with oil & gas development and marine transportation in the Arctic has been recognized by the Arctic Council and the International Maritime Organization. The “Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic”, which was signed in May 2013 and will come into force following ratification by the signatories, commits each of the Arctic States to maintain a system to respond to oil pollution incidents and to cooperate with each other. The IMO is set to publish its Mandatory Polar Code outlining the design and operational requirements for ships sailing in polar waters next year.

It is well recognized that an oil spill in the Arctic will be much more devastating than in temperate waters. Floating ice will hamper containment and recovery. Cold water will prolong natural dispersion. The remoteness of the Arctic will prevent a rapid response in many cases. Should the oil remain in the water through freeze-up, the ice cover will create an effective barrier to recovery allowing the spill to travel far from its origin over the long winter.

Clearly, an oil spill in ice will require strong and sustained support from the ice services. Where and how fast are the ice and the spill drifting? What routes can response vessels take to reach the scene? Are conditions conducive to a natural dispersion of the spill or will they inhibit it? How much time is available before freeze-up? How will ice conditions change over the life of the response operation?

There is considerable potential for a spill to extend beyond the area of responsibility of any given ice service. Ice services have varying capabilities and capacities and may be more or less able to
provide the kind of information needed for the immediate response and over the duration of a clean-up operation. The best ice information may be available from multiple, foreign services. It would be advantageous if all parties knew in advance what assistance and how much assistance could be available, from where and how to call upon it before an actual emergency arose.

Your Task

Your task in this breakout session is to explore, from as many aspects as time permits, the role of ice services in Environmental Emergency Response:

- What kind of information would be most useful in an environmental emergency in icy waters?
- What would be most beneficial in terms of geographic coverage, spatial resolution and frequency of updates?
- How far into the future can reliable ice forecasts be produced?
- How should a response agency request this support? Who do they contact?
- What assistance can ice services provide to one another? How should this assistance be requested?
- Should ice services be formally obligated to lend assistance in the event of an environmental emergency? If so, to what extent? Should they be compensated and, if so, by whom?
- Is it necessary to formalize this in legally-binding agreements?

As an example, a possible outcome of this session could be a recommendation to develop an agreement among the ice services to provide a common suite of services available upon request in an environmental emergency situation, together with the protocols for how such services get mobilized. This would be shared with response organizations so they would have a better understanding of what to expect by way of ice information no matter where they are responding.

Organization of the Exercise

Three teams have been assigned to discuss this issue. The teams will meet separately for approximately 45 minutes before the lunch break. Following lunch, the three teams meet together for one hour to compare their separate discussions and develop a 15-minute presentation to the plenary. This presentation should briefly outline the nature of the team discussions, the conclusions you came to and any recommendations you have for going forward.

Each team should elect a leader from within its own ranks and, optionally, a rapporteur.

Following the plenary presentation, 30 minutes have been allocated in the agenda for plenary discussion of the issues.
b) Summary of Plenary Discussion and Recommendations

The Arctic is a pristine and fragile environment. Any oil spill would have a major significance. Wildlife in the Arctic has no resistance to man-made toxics. Oil in cold water disperses much more slowly than in warm water and is therefore more persistent in the environment. As the volume of vessel traffic in the Arctic increases, the risk of a marine spill also increases. It should also be noted that, although oil tends to be the major focus of environmental emergency response considerations, there are other toxic substances that must not be forgotten.

The difference between response to an environmental emergency and a Search-and-Rescue operation centres on time – a marathon versus a sprint. Response to an environmental emergency could last weeks to months and the focus must be on sustaining operations. In addition, there may be many more agencies involved such as wildlife, community and human health services requiring more communication and coordination. Clear protocols defining responsibilities are essential.

The type of information needed by responders depends very much on the nature of an oil spill – large vs small quantities of oil, the proximity, drift and nature of sea ice, how much time is available before freeze-up and whether the spill is confined by geography or is free to drift. It will include the whole gamut of what is available including optical, passive microwave and synthetic aperture radar imagery as well as other ice and weather information such as wind and drift trajectories, and ice concentration, thickness and floe size distribution. Highly detailed information would be needed but, in addition to the area of the spill itself, response agencies would also need sea ice and iceberg charts in a broader area to support logistics transport to and from the area. Ice services should not forget to tap into University expertise that may be available.

The frequency of information updates also depends heavily on the nature of the spill. Typically, responders have a plan for a 12-24 hour period and then extend as necessary. Forecasts for a few days into the future are needed for the first emergency response but longer term forecasts providing estimates of the time available before freeze-up may also be needed.

In many cases, Ice Services could just continue with their normal production for the first 12-24 hours while placing greater emphasis on the area of the spill. In the case of a major spill that is longer lived, personnel from an ice service could be seconded to provide direct support to the incident response coordinator. In such situations, help may be required from another ice service to provide backfill to sustain operations.

A request for ice information assistance would come from the environmental response agency. These agencies have been identified. Any difficulty they might have in determining where to go for ice information could be alleviated by having a single ice information contact, such as “1-800-NIC” that could direct them to the best place.
The group has different opinions on whether ice services should be formally obligated to provide assistance. Many ice services are directly connected to an environmental organization and so obligation is implicit. It was generally felt that developing agreements is not something that the IICWG needs to focus on in the short term.

Most countries have a policy of “polluter pays” so ice services providing extraordinary information could expect to be reimbursed. A legally binding agreement is probably not the best way to go, at least initially, although the group was divided on this question with no real conclusion.

Environmental response agencies need to be educated about the capabilities of the ice services so that they know what is possible and can properly incorporate ice information into their response plans. Similarly, ice services should become more familiar with the nature of marine pollution response. For example, what the limitations of ice booms and skimmers are with respect to ice and wave conditions.

Using satellites or aircraft, some ice services can also provide surveillance information about an oil spill directly along with ice information. Surveillance can also be proactive and aimed at deterrence. Advertising the fact that the ice services are collaborating to support environmental emergency response could also have a spin-off deterrent effect. Vessels may be less inclined to dump waste illegally between jurisdictions.

Ice services could do more to prepare for an environmental emergency including research into oil behaviour in ice infested water, dispersion and drift models, and mapping of high-risk zones or zones where ice services may have to work collaboratively. Ice services could also share training to support environmental emergency response.

Useful things that the IICWG could do in the short term

1. Prepare a poster or presentation for the International Oil Conference to educate the oil pollution response agencies about the IICWG and the capabilities of the ice services.
2. Each Ice Service provide two points of contact to the U.S. National Ice Center (and share with everyone else for information). As the only ice service with a 24/7 response capacity, the NIC would maintain these in the duty officer file and post on their splash page. This would serve as a single point of contact for pollution response agencies globally. The duty officer would know how to contact any other Ice Service in an emergency.
3. If they don’t already have them, Ice Services should develop internal procedures, associated with their point of contact so employees know what to do in the event of a call for assistance to a pollution response operation
4. Ice Services develop, share and maintain a list of contact information – people, phone numbers, e-mail addresses, web sites, ftp sites; including login information required to access information
5. Undertake a proactive mapping of the kinds of products and services that the ice community could provide. Identify the capabilities that are available in each ice service.

Useful things that the IICWG could do in the medium term

1. Develop agreements that would facilitate the transfer of operations or personnel from one ice service to another to provide backup capability.
2. Continue to reach out to marine pollution response agencies to educate them on the capabilities of the ice service and to learn more about the limitations of spill response.