

Arctic ERMA[®] - Canada/International Workshop

BREAKOUT GROUP DISCUSSION SCENARIOS

February 12-13, 2013

Incident A (cruise ship)

The M/V A, with 250 passengers and 140 crew on board, runs aground while exiting a fjord in the Northwest Passage in the Arctic Sound between Bathurst Inlet and Coronation Gulf in mid-September. Progressive flooding makes the ship unstable, and all must abandon ship. Some passengers and crew were injured in the grounding, requiring special medical attention. (Ship length 150m, Beam 19m, Draft 5m)

Primary Objective: Explore data needs associated with mass Search and Rescue (SAR) and salvage in a situation where self-rescue or quick rescue by a maritime "good Sam" is unlikely.

- The response will involve SAR, salvage, and towing. Medical concerns for some passengers, approaching darkness, and less than ideal weather outlook require this be treated as an urgent SAR case.
- The response will have to identify temporary accommodations for the rescued persons, and transportation back to "civilization".
- The response will consider the possibility that other cruise ships may be in a position to assist within certain timeframes. It is likely that other such vessels would be available within 48-72 hours or less, but poor weather might reduce their ability to respond.
- The vessel has on board 210 m³ of IFO 180, as well as smaller amounts of lube oil, diesel fuel, and various hazardous materials associated with refrigeration, dry cleaning, and other ship services. The initial discharge may be relatively minor, but if the ship is not stabilized within 48 hours, heavy seas may destroy the vessel. Therefore, pollution response equipment must be mobilized and staged as a contingency.

Incident B (Devon Island)

The Bulk Ore Carrier B becomes trapped in the ice in the Parry Channel near Cape Liddon on Devon Island while attempting a late season (November/December) crossing of the Arctic from the Beaufort Sea to Baffin Bay enroute to the Barrow Sea. Ice damages the rudder and/or prop shaft, making it unable to maneuver. The vessel's hull is initially undamaged, but at risk (vessel is sub-standard with questionable integrity even in the best of conditions) if forced to winter over. It carries copper ore, approximately 2,000 m³ (12,500 bbls) of heavy fuel oil, and 25 crew members.

Primary Objective: Explore the data needs associated with a potential SAR/pollution incident in the Parry Channel.

- The response has a brief (~1 week) window where rescue/break out by ice breaker is possible.
- Ice strengthened salvage tugs will be needed to tow the vessel to port.
- If forced to winter over, decisions will need to be made regarding whether the crew will stay onboard, or the vessel "temporarily" abandoned. As it is owned by single ship company and under a flag of convenience, there are significant doubts about the responsible party.
- If forced to winter over, decisions must be made to support and supply the ship and crew. What if water intakes needed to run machinery become ice clogged, or vital systems fail?
- *In-situ* cargo unloading might be needed to access and inspect damaged areas of the cargo hold to determine the vessel's watertight integrity and make temporary repairs.
- A high viscosity pumping system may be needed to remove fuel, particularly if the fuel pre-heating system fails.
- Key bird species include the Black Guillemot and the Northern Fulmar. The area of the stranding is near Canadian Important Bird Area NU059 and Migrating Bird Terrestrial Habitat.

Incident C (drill rig)

Due to a combination of operator error and faulty equipment on a Production Platform (concrete, bottom-founded), oil is vented through the flare boom and set on fire. Most oil is discharged into the sea where it is extinguished but some burning oil drips back down along the boom and ignites a fire on deck causing an explosion and injuries. 50-100 bbls are spilled. The platform is located in 70 meters of water in Mackenzie Bay, Beaufort Sea near the US-Canadian boundary north of Alaska during mid-May under broken-ice conditions.

Primary Objective: Explore the data needed in Arctic ERMA associated with fire fighting, evacuation, search and rescue, small oil spill response, and salvage of the platform.

- SAR will include burn and trauma victims.
- This scenario will involve evacuation, fire fighting, small spill response, and salvage of the platform.
- Proposed spill volume is 100 bbls (15,900 L).
- Issues will include:
 - Managing responsible parties for SAR, firefighting and salvage operations
 - Emergency communications capability and protocols
 - Availability and use of fire fighting systems, personnel and equipment
 - Availability of responders and rescue assets
 - Response measures and capabilities for small spills
 - International Cooperation between the U.S. and Canada
 - The industry standard safety systems associated with these platforms and the need for redundant systems, operating restrictions (based on time of year/WX conditions), and oversight
- Canada and the United States have a Joint Contingency Plan that covers spills in this area that can be used as a reference.

Incident D (large spill Beaufort Sea)

In near-zero visibility conditions, the tanker D maneuvers to avoid fishing vessel E in the ice free Beaufort Sea to the west of Prince Patrick Island. The last minute maneuver is not entirely successful, a collision occurs with damage to both vessels. The tanker releases ~ 4,000 m³ (25,000 bbls) of cargo (multiple tanks) ~48 hr into the incident. The tanker should be towed to a Port-of-Refuge to avoid sinking; the F/V sinks.

Primary Objective: Explore data needs associated with a large oil spill in the open waters of the Beaufort Sea.

- The proximate cause of this incident is heavy icing/sleet causing near-zero visibility (March, early spring). Issues should be addressed concerning navigation standards in the Arctic (prevention) as well as complicating assessment and response efforts.
- The fishing vessel will require a SAR effort, and the presence of sister vessels and the no visibility conditions will cause confusion as to how many persons or vessels are involved.
- The fishing vessel will be part of a non-Arctic nation fishing fleet. The role of that Flag State M as a responsible party and stakeholder will be explored.
- The environmental effects caused by the spill will impact commercial fishing and natural resources in Canada and the U.S.
- A spill of this size will include *in-situ* burn as a response tool. Both nations and vessels fishing or in innocent passage will be involved in the logistics, approval, and monitoring.