

Opening the Arctic Seas

ENVISIONING DISASTERS AND FRAMING SOLUTIONS

Arctic Incidents

Incident A

The M/V A, with 1400 passengers on board, runs aground while exiting a fjord on the West Coast of Greenland 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.

Primary Objective: Explore issues 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 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 24 hours or less, but poor weather might reduce their ability to respond.
- The vessel has on board several hundred thousand gallons of intermediate fuel oil, 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.
- The ship is operated by a major cruise line, but under the flag of convenience.



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Incident B

The Bulk Ore Carrier B becomes trapped in the ice while attempting a late season (November/December) crossing of the Arctic en route to the Bering 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 legal and logistic issues associated with a potential SAR/pollution incident in the central Arctic Ocean.

- Vessel is on the high seas at the time of distress, raising questions about what nation(s) has the authority to direct the vessel's owner/operator to take action, or to coordinate rescue and response operations.
- 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, will the crew be forced to 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, who will 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.

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Incident C

A drill ship and three support vessels (two oil spill response and one ice management) are involved in drilling an exploratory well 20 miles offshore and in 50 meters of water on the U.S.-Canada border. A fire in the engine room of the ice management support vessel leads the loss of control and causes the vessel to ram the drill ship rupturing the drill ships ballast tank. In an effort to right the drill ship, the operator vacates fuel wing tanks containing Arctic grade diesel fuel resulting in a spill of 700 barrels. The support vessel fire results in injuries as does the collision, with additional diesel spilled. Operations occur during mid-May under broken-ice conditions.

Primary Objective: Explore the technical challenges associated with fire fighting, evacuation, search and rescue, small oil spill response, and salvage of the platform.

- SAR issues should include burn and trauma victims.
- This scenario will involve evacuation, fire fighting, small spill response, and salvage of the platform.
- Proposed spill volume is 1000 bbls.
- Issues to be addressed include:
 - 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. U.S. and Canadian participants should use this plan as a reference, and participants from other nations could evaluate the value of similar plans for their nations.

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Incident D

In near-zero visibility conditions, the tanker D maneuvers to avoid fishing vessel E near the boundary between Russian and Norway in their disputed region of the Barents. 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) ~48hr into the incident. The tanker should be towed to a Port-of-Refuge to avoid sinking; the F/V sinks or is damaged beyond salvage.

Primary Objective: Explore issues associated with a large (100,000 bbl+) oil spill in the Arctic region.

- 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 both nations' EEZ.
- 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.

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Incident E

The tug F, towing a barge with explosives for a mining operation and other containerized cargo for Arctic communities loses power, is pushed by storms, and grounds on St. Lawrence Island (this is an environmentally sensitive area and haul out region for Steller sea lions and other endangered species.).

Primary Objective: Explore response issues in the Bering Sea near the Bering Strait chokepoint.

- The presence of explosives would significantly complicate the response efforts. The “no smoking” section of the site safety plan will be strictly enforced.
- Tugs in this type of operation carry large volumes of fuel, typically diesel
- The United States and the Russian Federation have a Joint Contingency Plan covering these waters
- As with the container ship NAPOLI (English Channel, January 2007), the response issues associated with hundreds of poorly marked cargo containers, many containing hazardous materials, are complex.
- The Bering Sea is a shallow sea, heavily used by both Great Circle transits between Asia and North America, and by a large international fishing fleet.