

Incident A

Cruise Ship Grounding Search and Rescue (SAR)



Coastal Response Research Center

Incident A

- Cruise Ship = M/VA
- Passengers: 250 mostly older (>65 years old); some with mobility issues
- Crew: 140, mostly not from North America, majority are service staff, few native English speakers



Incident A

- Ship: 150 m LWL, 19 m beam, 5 m draft
- Hull: Non-ice hardened
- Age: 1984



Incident A

- Location: Between Bathurst Inlet and Coronation Gulf
- Time: Mid-September
- Grounding: No chance of moving off (going into ?? Tides)
- Flooding makes vessel unstable
- All must abandon ship to life rafts/boats



Incident A

- Weather: Cold with storms approaching
- Medical: Some passengers and crew injured in grounding (broken bones and concussions); many passengers need their regular daily medications



Incident A

- Response: SAR, Salvage, Towing
- Special Needs: Temporary accommodations needed
- Medical Care: Need urgent care for some injuries due to shock
- Transport to nearest community for transport to major city with medical care and transportation



Incident A

- Rescue: Nearby cruise ship is major source of rescue (?? 24-72 hour)
- Poor weather hinders their approach towards area



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Incident A

- Environmental Concern:
 - 210 m³ IFO 180
 - Other diesel fuel, lube oil, hazardous chemicals with dry ?? Refrigerant
 - Ship likely to breakup within 48 hours if not salvaged



Incident B Devon Island

Bulk Ore Carrier B
Trapped in Ice Parry Channel
Cape Liddon, Devon Island



Incident B

- Vessel: Bulk Ore Carrier
- Crew: 25, Foreign Born, Officers from Ukraine, crew Filipino
- Flag: Convenience (significant doubts about RP)
- Cargo: lead zinc



Incident B

- Course: Beaufort Sea to Baffin Bay via Parry Channel and Barrow Strait
- Nearest Land: Cape Liddon, Devon Island
- Time: November/December
- Conditions: Trapped in Ice, Rudder and/or propeller shaft damaged by ice



Incident B

- Environmental Concerns
 - ~2,000 m³ (12,500 bbls) heavy fuel on board
 - Hull undamaged, but at risk
 - Devon Island = Canadian Important Bird Area #NUO59 and Migrating Bird Terrestrial Habitat (Black Guillemot, Northern Fulmer)



Incident B

- Response Issues
 - 1 week only for ice breaker to rescue
 - Need ice strengthened salvage tugs for tow
 - Possible need to over winter (with or without crew)
 - Ice may clog water intakes
 - Cargo may need unloading to assess damage or make repairs
 - May need high viscosity pumps, if fuel preheating fails



Incident C

Drill Rig Fire

Beaufort Sea

Near US - Canadian Border



Incident C

- Production platform (concrete, bottom founded)
- Location: Mackenzie Bay
- Water depths 70 meters
- Time: Mid-May
- Conditions: Broken ice
- Operator error and faulty equipment



Incident C

- Oil vented through flue vent, catches fires
- Most oil discharged overboard
- Some oil drips down boom and ignites deck from fan
- Volume spill ~ 100bbls (~16 m³)



Incident C

- Response
 - SAR: Burn and trauma victims
 - Firefighting: equipment and personnel
 - Salvage of platform
 - Small spill response
 - Evacuation of crew and victims
 - U.S. Canadian Joint Contingency Plan
 - Emergency communications and protocols



Incident D

Large Oil Spill

Beaufort Sea



Coastal Response Research Center

Incident D

- Vessels: Tanker D collides with research vessel F
- Conditions: heavy icy/sleet, near-zero visibility, ice-free water
- Locations: West of Prince Patrick Island
- Time: March



Incident D

- Tanker D damaged and release 4,000 m³ (25,000 bbls) crude oil from multiple tanks
- Tanker must be towed to Port-of-Refuge to avoid sinking



Incident D

- Research Vessel E - Flag state M (non-Arctic)
- Research Vessel sinks: sister vessels present
- Confirm as to # of persons/vessels involved in SAR



Incident D

- Response:
 - Involve nations and vessels in logistics, etc
 - Issue of environmental effects caused by spill on vessel and natural resources in Canada and U.S.
 - *In-situ* burn option



For All Incidents

- Data Needs for ERMA
- Communication Issues
- Access to Response Resources / Personnel
- Human Dimensions
- Media Coverage
- Weather / Ice Information
- Natural Resource Impacts / Habitats



Breakout Group Questions

- If this incident happened today, how would we respond?
- How could Arctic ERMA be used in the response to this scenario to improve the response?
- What data are needed for the response?
- Are these data in Arctic ERMA already?
- If not, where do these data currently reside?
- What data sets do not yet exist, but are needed?
- What are the output requirements and/or functionalities of these data?
- Are there any access restrictions to these data sets?
- Prioritize these data needs
- What tools are needed in ERMA?



Address the Following for Each Scenario (as applicable)

- Infrastructure, Commercial, & Industrial Uses of Data
- Human Dimensions (Social/Cultural/Subsistence/Recreational Uses)
- Physical and Chemical Parameters of the Environment (e.g., weather, ice, contaminants)
- Biological: Marine Mammals and Birds
- Biological: Fish and Invertebrates
- Response and Logistics (e.g., equipment, gear, human resources (personnel), photos)
- Habitat Info (land, shoreline, bathymetry)
- Navigation and Communication

