COMMON MISCONCEPTIONS ABOUT ARCTIC OFFSHORE OIL SPILL RESPONSE

MISCONCEPTION: Ice makes oil spill response easier.

FACT: Depending on the type of ice present and the timing of the spill, sea ice can impede or halt oil spill response for the following reasons:

- Fall slush ice clogs skimmers and reduces the effectiveness of booms for mechanical recovery. At 10 percent ice cover, mechanical recovery is greatly impaired. At 30 percent ice cover, mechanical recovery of oil fails.[i]
- Thin ice (less than several feet thick) cannot support heavy equipment, effectively removing such equipment from the response options. If ice is thin, local hunters often have to clear paths by hand to reach the ice edge for whaling.[ii]
- Oil spilled under ice is extremely difficult to detect and track.[iii]
- In a fall or winter oil spill, oil could remain under the ice for months before a response could be attempted.[iv]

MISCONCEPTION: Openings in the ice, called polynyas, aid spill response by concentrating oil in small areas.

FACT: Oil concentrated in polynyas poses a threat to whales, birds and other wildlife, which concentrate in these openings for breathing, resting and feeding.[v] Polynyas are nearly inaccessible to vessels that lack icebreaking capacity. If you cannot reach the oil, you cannot treat or recover it.

MISCONCEPTION: Burning is a successful spill response strategy for the Arctic.

FACT: Oil must first be detected and accessed, then corralled in sufficient thickness to ignite. Oil in ice has been burned in small-scale experiments[vi] but not in actual Beaufort and Chukchi conditions, which could include ice, fog, darkness and hurricane-force winds. Burning results in a residue that can smother organisms on the seafloor, and cold air and water

temperatures can slow the burn and result in increased residue. Ignition fails when the oil is less than 2 mm thick (5 mm thick in ice) and in winds over 46 mph.[vii]

MISCONCEPTION: Dispersants can be used in the Arctic.

FACT: Dispersants are not an accepted cold-water response option and are not approved for use in Alaska. Detecting and accessing oil in Arctic conditions is challenging. In addition, dispersants are difficult to spray from the air in bad weather and can freeze in the nozzle in cold weather. Little is known about the chemical effects of dispersants in cold water. One role of dispersants is to break oil into smaller pieces that can be broken down further by microbes, but this strategy may be ineffective because of the relative lack of microbes in cold water and the slow rate at which they reproduce in Arctic waters.

MISCONCEPTION: New Arctic spill response equipment has been developed and tested.

FACT: Despite the billions of dollars spent on offshore Arctic leases in recent years, very little new Arctic spill response equipment has been developed. Of the few techniques under development, equipment has not been produced in commercially available and sufficient quantities to respond to an actual oil spill.[viii]

MISCONCEPTION: Drilling in shallow Arctic water is much safer than drilling in deep water.

FACT: Although the infamous Gulf of Mexico blowout took place in deep water, most offshore drilling blowouts have occurred in shallow water. A Minerals Management Service study found that most blowouts occurred during the drilling of wells in water depths of less than 500 feet.[ix]

MISCONCEPTION: New ice-class vessels will make spill response more effective.

FACT: The oil industry does not have enough ice-class vessels to respond to a large spill. Existing ice-class vessels require deep drafts and are not capable of responding to spills in ice in shallow water. In addition, Arctic docks cannot accommodate these vessels.[x] The U.S. Coast Guard has three icebreakers, of which only one is currently operational.[xi] Response to the Deepwater Horizon spill in the Gulf of Mexico involved thousands of vessels.

MISCONCEPTION: Arctic spill response plans exceed standards.

FACT: Standards require that spill-response plans anticipate worst-case conditions, but the industry's plans are based on overly optimistic scenarios. They assume that well pressure will be low, spill response will be quick, and a blowout will occur early enough in the proposed summer drilling season to contain the damage before fall ice sets in.

MISCONCEPTION: So few people live in the Arctic that an oil spill there would not harm anyone.

FACT: The Arctic Ocean has supported the Inupiat people for millennia. Their rich culture is focused on whaling and other marine resources that could be devastated by a catastrophic spill.

Additionally, Arctic marine wildlife tends to concentrate in certain areas for feeding or other purposes, making a spill in the wrong place or at the wrong time especially destructive. Substantial research is needed to responsibly plan drilling to identify and avoid these sensitive areas.

MISCONCEPTION: A proposed pre-constructed containment dome will capture the oil.

FACT: This has never been tested in the Arctic. There is no evidence that such a dome could withstand the ice conditions present in the Arctic Ocean.

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[i] Minerals Management Service. (2009). *A Decade of Achievement*. Arctic Oil Spill Response Research and Development Program. P. 15. www.boemre.gov/tarprojectcategories/PDFs/MMSArcticResearch.pdf.

[ii] Alaska Eskimo Whaling Commission comments. *Bureau of Ocean Energy Management, Regulation and Enforcement* hearing. Anchorage, Alaska. Aug. 26, 2010.

[iii] Brandvik, P.J., *et al.* (2006). *Short state-of-the-art report on oil spills in ice-infested waters.* SINTEF Report. www.pws-osri.org/business/sci_tech/docs/JIP-State-of-the-art%20Final-draft.pdf.

[iv] Oil trapped under multiyear ice could remain in the marine environment for many years. A scenario developed in the mid-1980s for the Chukchi Sea estimated that spilled oil trapped in ice could move as much as 300 to 500 miles (Lewbel, G.S., and B.J. Galloway [1984]. In Polar Research Board [2003]).

[v] Arctic Monitoring and Assessment Program. (2008). *Assessment 2007—Oil and Gas in the Arctic: Effects and Potential Effects.* Arctic Council Report. Oslo, Norway. See also Figure 4-9 in *Oil Spill Prevention and Response in the U.S. Arctic Ocean: Unexamined Risks, Unacceptable Consequences.* Pew Environment Group. November 2010.

[vi] Buist, I., S. Potter and S. Sorstrom. (2010). *Barents Sea field test of herder to thicken oil for in-situ burning in drift ice.* Arctic Marine Oil Spill Program (AMOP). Environment Canada. Pp. 725-742.

[vii] Testing by Environment Canada, cited in "Not So Fast." Harvey Consulting LLC with WWF (2009).

[viii] See, for example, spill tracking equipment, Section 6.2, *Oil Spill Prevention and Response,* Pew.

[ix] Izon, D., E.P. Danenberger and Melinda Mayes. (July/August 2007). "Absence of Fatalities in Blowouts Encouraging in MMS Study of OCS Incidents 1992-2006," Minerals Management Service, *Drilling Contractor.* http://drillingcontractor.org/dcpi/dc-julyaug07/DC_July07_MMSBlowouts.pdf.

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[x] "Not So Fast." (2009). Harvey Consulting LLC with WWF.

[xi] "Engine problems sideline U.S. heavy icebreaker." (July 1, 2010). Associated Press.