



State of Alaska
Division of Oil and Gas
 Department of Natural Resources



August 15, 2000

**Supplement to Beaufort Sea Areawide Oil and Gas Lease Sale
 Best Interest Finding**

[Decision to Supplement Best Interest Finding](#)

Polar Bears

Oil Spills. Amstrup, (1999) conducted an overlay of polar bear densities and oil spill trajectories to estimate the number of polar bears that may be oiled by a hypothetical 3,600 bbl oil spill from the Northstar development project. Depending on wind conditions, the number of bears affected ranged from 0.4 to 78 during the open water period and from 0.1 to 108 during the broken ice period. The maximum number of bears potentially oiled was large, however oil-spill trajectories affected small numbers of bears far more often than they affected larger numbers of bears. In the open water period 50 percent of the trajectories affected 8 or fewer polar bears. The trend was similar during the broken ice period, although the median number of bears affected was 21 (Amstrup, 1999).

Spilled oil may concentrate in pools on the ice surface and accumulate in leads and openings until the dissipation of ice in the summer. This would increase the probability that polar bears and their principal food, ringed seals, will be directly oiled. Polar bears might then be subject to secondary exposure by consuming the oiled seals (Amstrup, 1999).

The study area was divided into grid cells and the entire cell was counted as oiled even if only a portion of it was touched by the spill. This exaggerated the potential effects on bears. Also, the study assumed that all bears exposed to oil were fatally affected. In real life this probably would not be the case (Amstrup, 1999). MMS estimates the loss of less than 50 polar bears out of a population of 1,300 to 2,500 would require 3 to 5 years to replace, assuming a growth rate of 2.4 percent (MMS, 1998:IV-G-17).

The study was particular to one development, Northstar, and the degree of impact depends on prevailing environmental conditions at the time. Ultimately, the calculation of risks to polar bears from an oil spill at Northstar or anywhere else must incorporate not only the risk once a spill occurs, but the probability of occurrence of a spill. Fortunately, there have been no marine oil spills in the Beaufort Sea in more than 25 years of exploration and development (Amstrup, 1999). There has never been an oil spill from a platform blowout in Alaska. The Northstar pipeline is designed to operate without leaking even if all the potential sources of failure, (ice gouging, strudel scour, settlement) occur at the same time and same location. This is an extraordinary conservative design basis. MMS evaluated the design of the Northstar project and concluded the risk of an oil spill (of 1,000 bbl or greater) was on the order of 1-2 percent. From all approaches reviewed, zero was the most likely number of spills ¹(MMS, 2000).

Technical design of pipelines and other facilities at the plan of operations phase reduce the chances of oil spills. Measures included in this sale, in addition to normal oil spill prevention plan requirements (C-Plans), further avoid, reduce, or minimize oil spill risk to polar bears. Mitigation Measure 7 ensures that pipelines are designed to prevent accidental rupture or discharge from geophysical hazards, like ice scouring. This measure further reduces risk of an oil spill by prohibiting the transport of crude by tanker or any other means from offshore production sites once a subsea pipeline has been installed.

Mitigation Measures

The following are summaries of some applicable mitigation measures and lessee advisories. For the full text of mitigation measures and advisories, see the Sale Notice and Chapter Seven of the Beaufort Sea Areawide Final Finding.

* Pipelines must be designed and constructed to provide adequate protection from water currents, storm and ice scouring, and other geological hazards.

* Oil Spill Prevention and Control -- Lessees are advised they must prepare contingency plans addressing prevention, detection, and cleanup of oil spills. Lining, diking and buffer zones are required to separate oil storage facilities from marine and freshwater supplies.

References

Amstrup, Steven C.

1999 Estimating Potential Effects of Hypothetical Oil Spills on Polar Bears

Anderson, Cheryl

2000 Personal communication from Cheryl Anderson, MMS, to Tom Bucceri, DO&G, regarding the most recent draft oil spill statistics, August.

MMS, (Minerals Management Service, U.S. Department of the Interior)

2000 Northstar Oil Spill Probability White Paper, June 12.

1998 Beaufort Sea Planning Area, Oil and Gas Lease Sale 170, Final EIS, February, MMS 98-0007.

Footnote:

1. Draft statistics for the entire U.S. OCS dated July 2000, show a spill rate of 1.33 per billion bbl transported for pipelines, 0.32 for platforms, 1.20 for tankers worldwide, and 0.98 for North Slope tankers. The spill rate for pipelines shows no significant change; tanker and platform spills are declining (Anderson, 2000).

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