

Oil Spill Risk in the Chukchi Sea Outer Continental Shelf

The 75-percent figure: What does it mean?



BOEM manages the responsible exploration and development of offshore energy and marine mineral resources on the U.S. Outer Continental Shelf (OCS). The bureau supports energy independence, environmental protection and economic development through responsible management of these offshore resources based on the best available science. All offshore exploration has potential benefits and potential risks. Our goal is to maximize benefits and minimize risks – to people, wildlife and to the environment.

In February 2015 the Bureau of Ocean Energy Management published a Supplemental Environmental Impact Statement examining the potential environmental impact of oil and gas development in the Chukchi Sea, off the northwest coast of Alaska (see: www.boem.gov/ak193).

Following its publication, one figure in particular has attracted attention in the media and from stakeholders: The estimate that future development brings with it a 75-percent chance of one or more spills of more than 1,000 barrels of oil.

What follows is a short FAQ designed to clearly explain what this 75-percent figure means -- and doesn't mean.

Frequently Asked Questions

Q: Is it accurate to say that “If Shell’s Chukchi Sea Exploration Plan is approved, there is a 75-percent chance of a large oil spill?”

A: No. First, the 75-percent chance figure does not apply to plans of any particular operator; it applies to a hypothetical long-term exploration and production scenario created by BOEM analysts (see below) over the full life of all leases issued in the Chukchi Sea. Second, Shell has to this point proposed only an exploration program. Even in BOEM’s hypothetical scenario, the data suggest that a large spill in the exploration phase is very unlikely. In the exploration phase, wells are drilled to discover the location of oil or natural gas. In the production phase, wells are drilled to extract the oil or gas from beneath the seabed.

Q: How can BOEM analyze environmental impacts without knowing more specifics about the development in question -- how many wells, operating for what length of time, etc.?

A: To analyze potential effects of development, BOEM must first create a hypothetical scenario and model. The scenario involves eight production platforms with more than 500 wells producing 4.3 billion barrels of oil over the course of 77 years. BOEM then examines the potential environmental impacts associated with this scenario. BOEM estimates the likelihood of a spill by first looking at oil spill data from other portions of the Outer Continental Shelf. We then consider how factors unique to the Arctic (harsh weather, climate, and the length of the drilling season, for example) may additionally affect spill rates.

Q: In the hypothetical scenario created by BOEM, what do the models suggest about the likelihood of a spill?

A: The historical data suggested that, in the hypothetical scenario we used, there would be -- over the course of more than three quarters of a century of oil and gas activities -- a 75-percent chance of one or more spills of more than 1,000 barrels of oil.

Q: What do the data say is the most likely number of such spills?

The data suggest that, in this hypothetical scenario, the most likely number of such spills is one. However, in examining the likely environmental impacts of development -- which, as you remember, is our original question -- we assumed two such spills, just to make sure we weren't inadvertently understating the likely environmental impacts. This is in keeping with the Administration's cautious approach in the Arctic.

Q: And how large would such spills be?

A: To estimate the likely size of these spills, we again looked at the historical data for "large" oil spills (that is, spills of more than 1,000 barrels). This data indicated median spill sizes of 5,100 barrels (from a production platform) and 1,700 barrels (from a production pipeline).

Q: Can you put that into historical perspective?

A: The impact of any spill should not be minimized. Our analysts report that impacts from such spills can be significant depending on timing and location of such spills. However, the spills modeled by BOEM are very unlikely to be the catastrophic historical events one might think of when we think of oil spills. For historical perspective, the 1989 Exxon Valdez spill is estimated to have been from 257,000 to 750,000 barrels; the 2010 Deepwater Horizon spill is thought to have been 3.19 million barrels.

To learn more about oil spill risk analysis conducted by BOEM, see the latest BOEM Ocean Science Journal at [this link](#).

For information about recently proposed Arctic regulatory standards, [visit this link](#).

For more information: www.BOEM.gov