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Briefing for UNESCO World Heritage Center
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Re: Threats to the Natural System of Wrangel Island Reserve World Heritage Site from Oil and Gas Exploration in the U.S. Chukchi Sea

Shell Oil has purchased leases from the U.S. government in the Alaskan Outer Continental Shelf, where it plans to explore for oil in the summer of 2015. The U.S. government is currently in the process of deciding whether or not to approve the various permits that Shell will need to go forward with its exploration plans. In the course of these regulatory processes, information has come to light about the potential negative impacts of oil exploration on Wrangel Island and other areas of natural and cultural importance in the Arctic Ocean.

Of primary concern is the possibility of a large or very large oil spill during exploration, development or production at the lease sites in the Chukchi Sea. The U.S. government estimates the probability of a large (>1000 bbl) oil spill to be 75% over the lifetime of the leases. Both Shell and the U.S. government discount the probability of a very large oil spill (VLOS), arising from a catastrophic well blowout or other accident. However, as we learned from the Deepwater Horizon disaster in the Gulf of Mexico and other oil spills around the world, offshore oil drilling is an inherently risky endeavor, and the harsh conditions of the Arctic amplify these risks in ways that are difficult to quantify and manage.

New research has indicated that Arctic conditions will make it impossible to clean up an oil spill once it occurs.[1] Water currents, wind and ice movements can transport spilled oil over large distances, even crossing international boundaries, thereby creating substantial risk for areas far from the drill sites.

Shell's Oil Spill Modeling

Shell has not made public most of the oil spill modeling they commissioned (performed by ASA and using the OILMAP model). However, they do include one visualization of their oil spill data as part of their 2012 Oil Spill Response Plan (OSRP) for the Chukchi Sea.[2] The figure shows the extent of a worst case discharge (WCD) oil plume after 30 days. According to Shell's scenario, the oil will head due west from the drill site directly toward Wrangel Island UNESCO World Heritage Site (not shown on Shell's map). After 30 days the hypothetical spill will have just entered the buffer zone of the site. Greenpeace has provided a map comparing Shell's oil spill data with the location of Wrangel Island and the size of the buffer zone (see attachment).

This 30-day scenario may be highly relevant, should an accident occur. In the Exploration Plan submitted to the U.S. government, Shell states that a relief well stopping a blowout would need a minimum of 31 days to be completed, assuming the original drill rig was unharmed and able to drill the relief well. In the case that the original rig was not able to function, a relief well drilled by the

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[1] Nuka Research and Planning Group, LLC. 2014. *Estimating an Oil Spill Response Gap for the U.S. Arctic Ocean*. September 10. Seldovia, AK. http://www.nukaresearch.com/files/140910_Arctic_RGA_Report_FNL.pdf

[2] Shell Gulf of Mexico, Inc. 2012. *Chukchi Sea Regional Exploration Program Oil Spill Response Plan (OSRP)*. May. Anchorage, AK. Figure C-1, p. C-3. http://www.bsee.gov/uploadedFiles/BSEE/OSRP/Chukchi%20OSRP%20-%20February%202012.pdf

backup rig could take 34 days, or even up to 38 days if the backup was located in Dutch Harbor, Alaska.[3] These estimates indicate that there is a real possibility that a well blowout could not be controlled before oil reached Wrangel Island, even in a best-case scenario. It is also possible that hazardous ice and extreme weather conditions could convert an end-of-season blowout into a much more serious problem, with the specter of an uncontrolled well gushing oil for months under the ice until the following spring.

Despite this threat to Wrangel Island, Shell's OSRP document does not mention Wrangel or UNESCO. The document does not discuss international or transboundary issues except for one brief reference to a large Tier III spill that would require mobilization of "additional national or international resources not specified in this OSRP."[4]

U.S. Government Oil Spill Modeling

The U.S. Bureau of Ocean Energy Management (BOEM) also conducted its own oil spill modeling, and provided estimates of the probability of oil reaching various geographical regions. The full analysis can be found in Appendix A of the Final Environmental Impact Statement (FEIS) for Lease Sale 193.[5] We summarize some of the relevant findings below:

- BOEM identifies several Environmental Resource Areas (ERAs), Land Segments (LS) and Grouped Land Segments (GLS) associated with Wrangel Island for this analysis. Map A-2a, Map A-3a and Map A-4c in the FEIS show the definitions of these areas.[6]
    - ERA #11 -- Wrangel Island 12 nmi & Offshore (July-November)
    - ERA #46 -- Wrangel Island 12 nmi Buffer 2 (December-May)
    - The shoreline of Wrangel Island is divided into 12 segments, denoted Land Segments (LS) #1-12.
    - Grouped Land Segments are also reported, including:
        - GLS #133, Mys Blossom (combined results from LS #1-12)
        - GLS #134, Bukhta Somnitel'naya (LS 10-11)
        - GLS #174, Russia Chukchi Coast Marine Mammals (LS 1-39)
        - GLS #175, Russia Chukchi Coast (LS 1-39)

- BOEM calculates annual and seasonal **conditional probabilities** (i.e. assuming a spill has occurred) for oil to reach the Wrangel Island ERAs and GLSs. The probabilities are calculated at 3, 10, 30, 60, 180 and 360 days, and from 12 different launch areas (6 platforms and 6 pipeline segments). The launch areas most relevant to Shell's current leases are LA11 and

[3] Shell Gulf of Mexico, Inc. 2014. *Draft Revised Outer Continental Shelf Lease Exploration Plan Chukchi Sea Alaska*. August. Anchorage, AK. p. 2-5. http://www.boem.gov/shell-chukchi/
[4] Shell OSRP 2012, p. 2-21.
[5] U.S Bureau of Ocean Energy Management (BOEM). 2015. *Final Second Supplemental Environmental Impact Statement (FEIS)*. Appendix A. http://www.boem.gov/ak193/
[6] BOEM FEIS 2015, Map A-2a, p. A-60.

pipeline P09, although there may be future oil and gas exploration in other launch areas. These conditional probabilities are summarized in Tables A.2-1 through A.2-72.

- After 30 days, a summer oil spill would have a 2-8% chance of reaching ERA #11 (depending on the launch site), rising to 12% for some launch sites after 360 days.[7]

- After 30 days, a winter oil spill would have a 0-9% chance of reaching ERA #46 (depending on the launch site), rising to 15% for some launch sites after 360 days.[8]

- After 30 days, a summer oil spill was found to have a 1-5% chance of reaching the shores of Wrangel Island (GLS #133 Mys Blossom = LS #1-12), depending on the launch site and rising to 8% from some launch sites after 360 days.[9]

- BOEM also calculates **combined probabilities over the assumed lifetime of the leases**, which take into account the prior chance of a large oil spill occurring in the first place. These combined probabilities are summarized in Tables A.2-73 through A.2-75.

  - The combined probability of an oil spill reaching ERA #11 is 3% after 30 days, rising to 6% after 360 days.[10]

  - The combined probability of an oil spill reaching ERA #46 is 2% after 30 days, rising to 6% after 360 days.

  - The combined probability of an oil spill reaching GLS #133 is 1% after 30 days, rising to 4% after 360 days.[11]

These results, while different in some respects from the limited public information provided by Shell, also support the claim that Wrangel Island would be threatened by an oil spill originating at Shell's lease sites in the Chukchi Sea.

Impacts of an Oil Spill on Wrangel Island wildlife

BOEM's Final Environmental Impact Statement provides more information about the likely impacts to wildlife, especially polar bears, in the event of an oil spill in the Chukchi Sea. Section 4.3.7 of the FEIS describes the effects of oil and gas exploration, development and production on marine

[7] BOEM FEIS 2015, Table A.2-27, p. A-88.
[8] BOEM FEIS 2015, Table A.2-51, p. A-101.
[9] BOEM FEIS 2015, Table A.2-39, p. A-96.
[10] BOEM FEIS 2015, Table A.2-73, p. A-111.
[11] BOEM FEIS 2015, Table A.2-75, p. A-113.

mammals. The FEIS includes a discussion of the vulnerability of polar bears to oil spills, noting the importance of Wrangel Island habitat:

> "Large aggregations of polar bears may be vulnerable to a spill along the arctic coasts or on Wrangel or Herald islands in late summer and fall, when they congregate in these areas to feed on walrus and whale carcasses. [...] A summer spill could impact polar bears coming ashore due to sea-ice retreat or in preparation for denning later in the fall/winter season. The areas in the Chukchi Sea that would be particularly important include Wrangel Island, Herald Island, and Ostrov Kolyuchin (Kolyuchin Spit), areas where polar bears come ashore to feed on walrus carcasses and to den."[12]

A later section (4.5.7) specifically addresses the impact of a VLOS on marine mammals, including polar bears.

> "Wrangel Island also has large numbers of bears from the CBS stock. Were oil to contact one of these aggregations of bears, it would likely result in mortalities and constitute a significant impact to the SBS or CBS stock of polar bears. [...] The majority of the CBS stock is believed to den and come ashore on the Russian side of the Chukchi Sea, particularly at Wrangel Island. The majority of the SBS stock of polar bears come ashore and den further eastward in the Beaufort Sea. However, there is a large area of overlap between the CBS stock and the SBS stock out on the sea ice in the northeastern portion of the Chukchi Sea. Both stocks are believed to be in decline. If a VLOS were to occur, it could result in the loss of large numbers of polar bears. This would have a significant impact on the SBS and/or CBS stocks of polar bears. Contact with oil on the U.S. side of the Chukchi Sea would be most likely to occur along the U.S. Chukchi Sea coastline or the U.S. Chukchi Sea barrier islands. In the event of a VLOS, key habitats to protect for polar bears would include the barrier islands and shoreline, and Wrangel Island."[13]

The FEIS also mentions Wrangel Island in the context of the Ushakovskoe community harvest,[14] and the ongoing exploration activities by Rosneft and ExxonMobil.[15]

Requirements of the UNESCO convention

The United States is a member state of UNESCO, and it is therefore bound by Article 6.3, which states, "Each State Party to this Convention undertakes not to take any deliberate measures which might damage directly or indirectly the cultural and natural heritage referred to in Articles 1 and 2 situated on the territory of other States Parties to this Convention."[16]

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[12] BOEM FEIS 2015, p. 298-9.
[13] BOEM FEIS 2015, p. 569-570.
[14] BOEM FEIS 2015, p. 392.
[15] BOEM FEIS 2015, p. 629.
[16] UNESCO. 1972. *Convention Concerning the Protection of the World Cultural and Natural Heritage*. http://whc.unesco.org/en/conventiontext/