Testimony of Lois N. Epstein, P.E.
Engineer and Arctic Program Director
The Wilderness Society
Anchorage, Alaska
lois_epstein@tws.org

Before the Committee on Energy and Natural Resources
U.S. Senate

Hearing on New Developments in Upstream Oil and Gas Technologies

May 10, 2011

Good morning and thank you for inviting me to testify today. My name is Lois Epstein and I am an Alaska-licensed engineer and the Arctic Program Director for The Wilderness Society. The Wilderness Society, or TWS, is a national public interest conservation organization with over 500,000 members and supporters. TWS' mission is to protect wilderness and inspire Americans to care for our wild places. My background in oil and gas issues includes membership from 1995-2007 on the U.S. Department of Transportation's Technical Hazardous Liquid Pipeline Safety Standards Committee which oversees oil pipeline regulatory and other agency activities, appointment to the Bureau of Ocean Energy Management, Regulation and Enforcement's (BOEMRE's) newly-formed Ocean Energy Safety Committee, testifying before Congress on numerous occasions, and analyzing in detail the environmental performance of Alaska's Cook Inlet oil and gas infrastructure. I have worked on oil and gas environmental and safety issues for over 25 years for three private consultants and for national and regional conservation organizations in both DC and Anchorage.

The purpose of this hearing is to discuss new developments in upstream oil and gas technologies, and I will provide an Alaskan perspective. I will discuss several key issues:

1. Ensuring that upstream oil and gas operations do not result in spills and pollution,
2. Keeping the Trans-Alaska Pipeline System, or TAPS, operating, and
3. Realistically assessing the impacts of directional drilling.

Last, I will present The Wilderness Society's position on oil drilling in the Arctic National Wildlife Refuge.

Ensuring Upstream Operations Do Not Result in Spills and Pollution

Both onshore and offshore, oil and gas wells and their associated pipelines have a troubling spill record and a highly inadequate oversight framework which needs to be addressed by Congress and the Obama Administration. Just last week, the Administration and BP agreed to a proposed civil settlement for 2006 pipeline spills of $25 million plus a set of required safety measures on BP's federally-unregulated North Slope pipelines which are all upstream of transmission lines.[1] Under the requirements of the settlement, BP's federally-unregulated oil field pipelines, i.e., three-phase flowlines (gas, crude, produced water mixture), produced water lines, and well lines, now will be subject to integrity management requirements largely similar to those that must be met by transmission pipelines in 49 CFR 195. While this settlement certainly is a welcome step for BP's lines and an important precedent, Congress in its pipeline safety act reauthorization and the U.S. Department of Transportation need to move forward expeditiously on requiring such measures for lines operated by other companies in Alaska and the Lower 48.

BP's March 2006 spill of over 200,000 gallons was the largest crude oil spill to occur in the North Slope oil fields and it brought national attention to the chronic problem of such spills. Another pipeline spill in August 2006 resulted in shutdown of BP's production in Prudhoe Bay and brought to light major concerns about systemic neglect of key infrastructure. Lack of adequate preventive maintenance was not a new issue, however, as corrosion problems in

[1] Proposed settlement posted at http://media.adn.com/smedia/2011/05/03/10/29-1%20consent%20decree.112830.source.prod_affiliate.7.pdf (downloaded May 8, 2011).

Prudhoe Bay's and other oil field pipelines have been raised previously by regulators and others, including as early as 1999 by the Alaska Department of Environmental Conservation.[2]

As additional evidence of the problems with upstream infrastructure, the State of Alaska completed a report[3] in November 2010 which reviewed a set of over 6,000 North Slope spills from 1995-2009. This report showed that there were 44 loss-of-integrity spills/year[4] with 4.8 of those greater than 1,000 gallons/year.[5] Of the 640 spills included in the report, a significant proportion, 39%, were from federally-unregulated pipelines.[6]

In 2009, TWS issued its own report on North Slope spills entitled *Broken Promises*,[7] which I have with me here today. *Broken Promises* should be used in conjunction with the state's spill report. The TWS report shows a spill frequency on the North Slope of 450 spills/year during 1996-2008, with the difference being that the state included only "production-related" spills in its analysis and excluded North Slope toxic chemical (e.g., antifreeze) and refined product (e.g., diesel) spills - many of which are related to oil development - as well as spills indirectly related to oil production infrastructure, such as those from drilling or workover operations and from vehicles.

Turning to offshore operations, since the BP *Deepwater Horizon* tragedy, it is now well-known that the Minerals Management Service and its successor agency, BOEMRE, need to upgrade regulatory standards and enforcement capabilities for offshore drilling. Since the BP spill, BOEMRE has issued several new drilling safety regulations and is in the process of developing new policies regarding the environmental analyses required for offshore drilling. The conservation community is most concerned with the following currently-inadequate BOEMRE practices: lack of transparency in permitting, the limited nature of its enforcement, the need for real-time electronic monitoring of offshore operations by regulators, the insufficiency of key regulations (e.g., covering blowout preventers), and the problematic implementation of National Environmental Policy Act and oil spill response requirements. Additionally, Congress has not upgraded federal legislation since the spill including in areas widely considered problematic; as examples, current federal law has a low liability cap of $75 million, inadequate financial responsibility requirements, and there are no whistleblower protections for the offshore drilling industry.

Notably, BOEMRE recently released a technical memo[8] showing that a hypothetical blowout in the Chukchi Sea lease sale 193 area could result in a spill of 58-90 million gallons, meaning that

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[2] Charter for the Development of the Alaskan North Slope, December 2, 1999, (BP ARCO Merger Agreement), http://www.dec.state.ak.us/spar/ipp/docs/Charter%20Agreement.pdf.

[3] *North Slope Spills Analysis: Final Report on North Slope Spills Analysis and Expert Panel Recommendations on Mitigation Measures*, Nuka Research & Planning Group, LLC for the Alaska Department of Environmental Conservation, November 2010, 244 pp., http://www.dec.state.ak.us/spar/ipp/ara/documents/101123NSSAReportvSCREEN.pdf.

[4] *Ibid*., p. 21.

[5] *Ibid*., p. 23.

[6] Certain types of spills were not included. See p. 14 of the *North Slope Spills Analysis* report.

[7] *Broken Promises: The Reality of Oil Development in America's Arctic (2nd Edition)*, The Wilderness Society, 2009.

[8] Memorandum on Estimate for Very Large Discharge (VLD) of Oil from an Exploration Well in the Chukchi Sea OCS Planning Area, NW Alaska, March 4, 2011.

there could be a spill of approximately the same scale as that from the BP *Deepwater Horizon* in the Arctic where cleanup would be extraordinarily more difficult. This information sends a strong message that the legislative and regulatory failures which in part led to the BP upstream spill – as discussed in the National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling report[9] - need to be remedied expeditiously.

Keeping TAPS Operating

Alaska's North Slope oil producers and, indeed, all Alaskans have a financial interest in keeping TAPS operating. There are several different ways of ensuring that TAPS continues to operate including technical upgrades to the pipeline such as heaters[10] or liners and/or increases in conventional (including heavy oil) and/or unconventional oil drilling on state lands. I want to emphasize that – despite in-state and DC-based rhetoric – drilling on federal lands or waters is not necessary to ensure that TAPS remains viable for decades to come.

Oil industry's plans to operate TAPS for many decades to come were highlighted recently in the Alaska legislature by Senator Joe Paskvan:

> *There is reliable information that the likely operation of TAPS is at least until 2047. This is likely without any potential contribution to throughput from heavy oil or shale oil or ANWR oil or NPRA oil or OCS oil. Based on the available evidence, Mr. President, I am confident saying that TAPS will continue to operate for decades. There are billions of barrels of conventional crude remaining in Alaska's Central North Slope.*[11]

Over 5 billion barrels in conventional oil reserves remain on Alaska's North Slope according to the Alaska Department of Natural Resources.[12] Additionally, viscous and heavy oil reserves of 30 billion barrels, largely in strata above the existing Prudhoe Bay oil fields, have begun to be produced.[13] At West Sak, viscous oil has been produced for the past few years.

From an Alaskan perspective, drilling on state lands provides far more revenue for the state than from federal lands, including Outer Continental Shelf drilling where the state receives no revenue from leases. Today the oil industry holds roughly 3.9 million acres in active State of

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[9] *DeepWater: The Gulf Oil Disaster and the Future of Offshore Drilling, Report to the President*, National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling, January 2011, see http://www.oilspillcommission.gov/final-report.

[10] Which could, according to TAPS owners, ensure TAPS viability using current proven reserves through 2042 (BP Pipelines (Alaska) Inc., et al. v. State of Alaska, et al., Case No. 3AN-06-8446 Cl, Superior Court for the State of Alaska, October 26, 2010 p. 129).

[11] *A Math Problem and Alaska's Production Tax System*, Senator Joe Paskvan, Alaska Legislature, Senate Floor Session, Special Orders, May 3, 2011. Also listen at http://gavelalaska.org/media/?media_id=SFLS110503A&type=audio; see also Comments on Judge Gleason's Decision: BP Pipelines, et al. v. State of Alaska, et al. *op. cit.*, Alaska Legislature Senator Joe Paskvan, April 27, 2011, 4 pp.

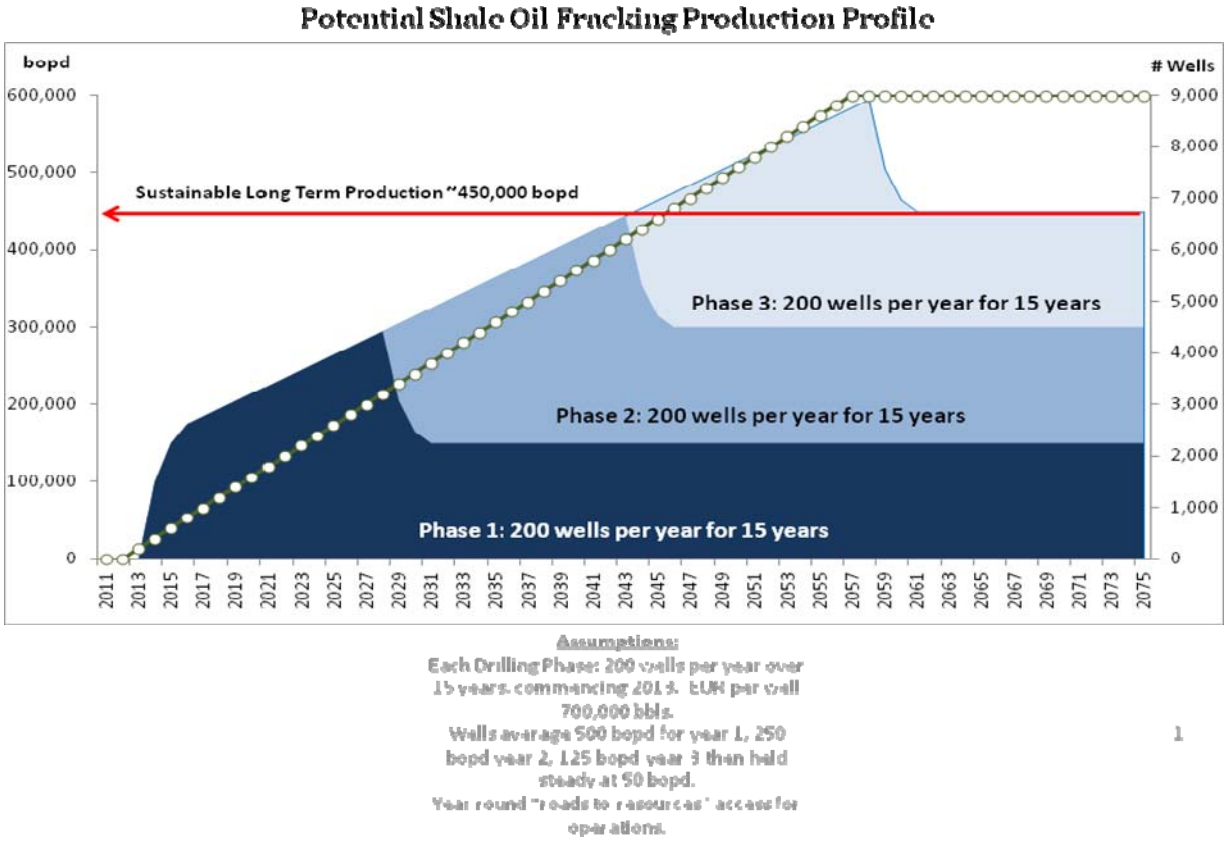
[12] *2009 Annual Report Updated*, Alaska Department of Natural Resources, May 2010, p.8, see http://www.dog.dnr.state.ak.us/oil/products/publications/annual/2009_annual_report/updated_2009_annual_report/Annual%20Report%202009%20Updated%205-18-10.pdf.

[13] *BP puts test horizontal well into operation in the Ugnu at Milne Point*, Petroleum News, May 1, 2011, see http://www.petroleumnews.com/pnads/40812990.shtml.

Alaska leases on the North Slope. Millions of acres of existing leases on state lands have not yet been developed. Each year, the state holds area-wide lease sales covering 11 million acres between the Canning and Colville Rivers on the North Slope.

I'd like to speak for a moment about the potential for shale oil fracking in Alaska on state lands. Underlying lands close to TAPS infrastructure are three shale oil formations with high potential for unconventional oil production. The geology in this area is similar to North Dakota's prolific Bakken Shale and the South Texas Eagle Ford Shale. Great Bear Petroleum LLC recently leased over 500,000 acres of state land near TAPS south and southwest of Prudhoe Bay to pursue shale oil fracking. This relatively new technique to produce oil from shale rock could result in substantial volumes of additional oil entering TAPS from state, rather than federal, lands. Shale oil production needs to be well-regulated by both the federal and state governments to protect the Arctic's waters and wildlife habitat – lack of adequate state regulation always is a concern in a state seeking to attract oil producers.

The following graphic[14] from Great Bear Petroleum taken from its presentation to the state legislature in 2011 shows projected oil production over 150,000 barrels/day beginning in 2015 with nearly 300,000 barrels/day in 2029 and sustainable long-term production of 450,000 barrels/day beginning in 2044. Note that Phase 1 would include drilling 200 wells per year for 15 years beginning in 2013, a substantial additional economic boost to Alaska.



[14] Title changed for purposes of this testimony.

Importantly, Great Bear Petroleum is not asking the state for any changes in the state's oil tax rates.

Increased conventional oil production on state lands also is possible as the extensive discussion on how to encourage such production during the 2011 state legislative session made clear.

Realistically Assessing Directional Drilling

Oil and gas drilling and production is an inherently complicated and messy business. Even the best and most well-financed operators cannot ensure they will not have oil or other spills because they may encounter unexpected or changing conditions which have not been adequately addressed. Additionally, there is always a tension between reducing operating costs while still maintaining safety and environmental protection.

Directional drilling for oil, which is not a new technology, has impacts that are no different than conventional oil drilling. It requires surface occupancy for drill rigs and well pads as well as runways, roads, pipelines and other transportation and supply infrastructure, albeit at a location near but not immediately above oil and gas reservoirs. Because of its higher cost, directional drilling may or may not be used for exploratory drilling. Additionally, regardless of whether directional or conventional drilling is used, there would be extensive adverse impacts from seismic exploration which does occur directly above the subsurface being explored. In the Arctic, seismic exploration typically involves heavy vehicles driving across the tundra in a grid pattern, compressing sensitive soil and plants. Tundra recovery from seismic activities can take decades.

Those familiar with directional drilling know that for technical reasons directional drilling only has a range of a few miles. As a result, any bill proposing to use directional drilling to access federally-protected areas:

1. Misleads decision-makers by ignoring the need for repeated surface use across extensive areas for seismic exploration, including 3-D surveys and exploratory and delineation drilling,
2. Misleads decision-makers by having them think that an area's full oil development potential could be realized through directional drilling, and
3. Misleads the public by implying that oil drilling in an area will be forever limited to the distance accessible via directional drilling. When oil production proceeds, there will be calls to expand drilling to reach portions of reservoirs not accessible via directional drilling.

The bottom line with directional drilling is that it allows a region to become industrialized and adversely impacted to essentially the same extent as conventional drilling. Wildlife including marine mammals and ungulates using federally-protected areas do not recognize political boundaries. Moreover, wildlife movements are not always predictable from year to year, particularly with the advent of climate change. There's no question that conducting drilling activities immediately adjacent to federally-protected areas like the Arctic National Wildlife Refuge would have harmful ecological impacts.

The Wilderness Society's Position on Oil Drilling in the Arctic National Wildlife Refuge

Opening the Arctic National Wildlife Refuge to oil leasing, exploration, and production unacceptably threatens the Refuge's globally significant wilderness and wildlife values. Oil drilling activities – even with directional drilling as one component – would undermine the Refuge's fundamental purposes: to protect wilderness, wildlife, and subsistence.

Thank you very much for your attention to these important issues. I look forward to answering your questions.