RED MOUNTAIN CONSULTING

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Bureau of Land Management
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To the BLM,

This letter addresses the proposed plan for a seismic survey in the 1002 Area of the Arctic National Wildlife Refuge (ANWR) by the Bureau of Land Management (BLM) and the finding that the proposed seismic survey would have no significant impact, thus not requiring a full Environmental Impact Statement (EIS).

I have over 12 years of experience working as a consulting soil scientist and tundra ecologist in the Arctic, I am currently the Chair of the Science Technical Advisory Panel (STAP) for the North Slope Science Initiative (NSSI), and I hold professional certification in soil science and ecological restoration (Certified Professional Soil Scientist #322282 and Certified Ecological Restoration Practitioner #0190). The majority of my work entails tundra restoration on former oil and gas sites on the North Slope. I have been a subject matter expert and author of several soils and geology-related sections of the Point Thomson EIS. My graduate studies at the University of Alaska Fairbanks, studying under Dr. Chien-Lu Ping and Torre Jorgenson, examined soil properties along the Beaufort Sea coast from Kaktovik to Utqiaġvik.

After reviewing the proposed BLM seismic plan, my expert opinion is that the finding of "no significant impact" is problematic for several reasons. Evidence of impacts from this type of seismic survey have been documented, and it is clear that this type of seismic survey may cause significant and long-lasting impacts. To be consistent with national policy under the 1970 National Environmental Protection Act (NEPA), a comprehensive baseline study and a full EIS should be completed.

The BLM response to the proposed seismic survey by SAExploration Inc. fails to address the justification for a 3D survey, an analysis of various types of equipment that might alternatively be used, the density of the grid spacing, or consideration of terrain, hydrology, or vegetation that may be particularly vulnerable to damage. Nor does it include proposed locations of camps, airstrips, or routes for fuel hauling, a timeline, or specific recommendations for proposed camp moves.

Seismic surveys in the past have left lasting marks on the tundra, altering vegetation, hydrology, and precipitating permafrost thaw. This is especially true for seismic surveys that included camp moves. I observed clear evidence of long-term impacts from seismic surveys while I was conducting tundra rehabilitation for a snow road near the Brooks Range foothills south of Deadhorse this summer (Figure 1). This area has terrain similar to that found in the 1002 Area of ANWR.

Figure 1. Seismic trails left on the tundra two years after completion of survey. Photo taken August 2018.

Tundra travel is inherently problematic. Winter winds often blow the ground free of deep snow, leaving the vegetation susceptible to disturbance. Especially in tussock vegetation, damage is not recoverable for a decade or more. This is in stark evidence five years following tundra travel in too-shallow snow (Figure 2).

Figure 2. A tussock damaged beyond recovery in 2015. Photo taken August 9, 2018.

Where damage to tundra intersects surface water such as streams, ponds, or polygon troughs, changes to surface hydrology can lead to permafrost degradation. Heavy camp moves over thin snow can crush underlying vegetation, resulting in a barely-perceptible change in surface elevation. In areas that are flat or nearly so, water will gather in any spot that is lower than the surroundings.

Water transfers heat from the air and sun into the ground, which in this case is permafrost. This makes the seasonal surface thaw deeper, thawing some of the permanently frozen permafrost. When the permafrost thaws, the ground settles (subsides). This causes more ground to sink, thus gathering more water (Figure 3).

Figure 3. An old snow road. Notice the increased size of the ponds and puddles along the road corridor. Photo taken August 9, 2018.

It can take decades or more for the permafrost to re-freeze, and with the warming climate, damaged permafrost may never re-freeze. Resulting changes in hydrology can spread across the landscape and change the vegetation community (Figure 4).

Figure 4. An old snow road route now ponded and populated by willows, which is noticeably different than the surrounding vegetation. The yellow line parallels the old snow road. Photo taken August 9, 2018.

Following early oil and gas exploration, it was generally understood that tundra is highly susceptible to damage. Each year, tundra rehabilitation practitioners like myself learn from the past to improve conditions for the future. Given my extensive experience in the field, I highly recommend that the BLM complete thorough studies of environmental conditions before permitting seismic activity on the tundra in the 1002 Area of ANWR. In accordance with the tax act, which specifies that the environmental integrity of the 1002 Area be maintained, a full EIS needs to be completed that addresses all of the expected consequences. This should be done using the latest scientific evidence and a full and complete examination for this particular region.

Sincerely,

Lorene Lynn

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