



SENT VIA EMAIL

Nicole Hayes
Project Coordinator
Bureau of Land Management, Alaska State Office
222 West 7th Avenue, Stop #13
ANCHORAGE ALASKA 99513

MAR 12 2019

Dear Ms. Hayes:

Government of the Northwest Territories comments on the Draft Environmental Impact Statement for the Coastal Plain Oil and Gas Leasing Program [DOI-BLM-AK-0000-2018-0002-EIS]

In response to the Department of the Interior's Bureau of Land Management (BLM) request for public comment on the draft Environmental Impact Statement (EIS) for the Coastal Plain Oil and Gas Leasing Program, Alaska [DOI-BLM-AK-0000-2018-0002-EIS], please find attached the Government of the Northwest Territories' (GNWT) submission. We are providing this letter and attached recommendations to be considered by the BLM in the drafting of the final EIS and Record of Decision. The GNWT believes that several issues addressed by the BLM in the draft EIS merit further consideration in the final EIS; the GNWT provides details for this in its submission. The GNWT also believes that a supplemental EIS is required to fully address several concerns in the present draft EIS.

The GNWT promotes and supports a balanced and sustainable approach to development that protects key natural resources and the people who depend on them. The GNWT has a mandate to manage and conserve wildlife, and protect and provide for the health and well-being of the people of the Northwest Territories. As well, the GNWT is party to the International Porcupine Caribou Agreement and the Canadian Porcupine Caribou Management Agreement, and as such has duties to work towards the stewardship and conservation of the Porcupine herd and protection of subsistence harvest by Gwich'in and Inuvialuit in the NWT.

Regarding wildlife, the GNWT has focused the review of the draft EIS on the Porcupine Caribou Herd (PCH) and polar bears from the Southern Beaufort Sea subpopulation. The GNWT has also submitted recommendations that relate to the potential impacts of this proposed development on NWT residents.

From the GNWT perspective opening the Arctic National Wildlife Refuge (ANWR) to oil and gas development is a decision that requires careful consideration to reduce potential impacts to shared resources.

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As mentioned in our June 07, 2018 scoping submission, the GNWT has an interest in the Coastal Plains Oil and Gas Leasing Program because much of the wildlife that inhabits ANWR is shared with Canada, specifically the Yukon and the Northwest Territories (NWT). Canada and the United States have a long history of collaborative management and conservation of these shared resources through a number of treaty and agreements that include:

- *Convention for the Protection of Migratory Birds in the United States and Canada* (1916);
- *1973 Agreement on the Conservation of Polar Bears* signed by all five range states;
- *Agreement between the Government of Canada and the Government of the United States on the Conservation of the Porcupine Caribou Herd* signed in 1987 (IPCA);
- Participation as technical advisors in the *Inuvialuit-Inupiat Polar Bear Management Agreement in the Southern Beaufort Sea* first signed in 1988.

The GNWT believes a supplemental draft EIS is required to address several of the GNWT's concerns. The draft EIS did not consider issues, information, or alternatives which, if considered, suggest significant environmental impacts are possible. A supplemental EIS is needed for a full consideration of issues, additional information, and alternatives to better mitigate the significant environmental impacts of the proposal. The GNWT was unable to determine with certainty, based on the analysis and data provided, what the range and significance of environmental impacts of the proposal and the effectiveness of proposed mitigations might be.

The GNWT believes that those issues not considered by the draft EIS merit a draft supplemental EIS and comment period. This would enable the GNWT and other interested parties a meaningful opportunity to provide comments based on a complete understanding of these issues that affect their citizens and interests.

If the BLM does not develop a supplemental EIS, the GNWT strongly believes that outstanding concerns must be addressed in the forthcoming final EIS to provide a fulsome analysis to support environmentally sound decision-making. Several of these key areas of concerns, which are detailed more fully in the attachment, are outlined below.

Concerns regarding the Porcupine Caribou Herds

The GNWT notes that the BLM has not conducted an analysis to determine if and how the project fulfills the *1987 Agreement between the United States of America and the Government of Canada on the Conservation of the Porcupine Caribou Herd*. One of the key objectives of this agreement is to conserve the Porcupine Caribou Herd and its habitat

through international co-operation and co-ordination. The GNWT also believes further analysis is required to determine potential impacts to the Porcupine caribou herd. Detailed comments are provided in the attached table.

Concerns regarding the inadequate assessment of the proposed leasing program on Indigenous people in the NWT

The draft EIS mentions Canada and the Canadian users that depend on the herd, however, the draft EIS as submitted does not include the importance of the PCH to Indigenous peoples in Canada, including those defined as native users in the IPCA. The GNWT requests that specific consideration be given to the International Porcupine Caribou Agreement (IPCA) and the Alaska National Interest Lands Conservation Act in light of the fact that no consultations occurred with potentially affected communities in Canada. The IPCA states, under the section on International Responsibility, "The parties will consult promptly to consider appropriate action in the event of: 1. Significant damage to the Porcupine Caribou Herd or its habitat for which there is responsibility, if any, under international law; or 2. Significant disruption of migration or other important behavior patterns of the Porcupine Caribou Herd that would significantly lessen the ability of users of Porcupine Caribou to use the Herd. The GNWT's key concerns on this topic are:

- There were no consultations with potentially affected communities in Canada. The IPCA states, under the section on International Responsibility, "The parties will consult promptly to consider appropriate action in the event of:
1. Significant damage to the Porcupine Caribou Herd or its habitat for which there is responsibility, if any, under international law; or 2. Significant disruption of migration or other important behavior patterns of the Porcupine Caribou Herd that would significantly lessen the ability of users of Porcupine Caribou to use the Herd."
- The PCMB Harvest Management Plan 2010 and the process to protect the herd from the impacts of overharvest during periods of decline was not considered.
- How a reduction in the health of the PCH will impact the health and well-being of the Indigenous peoples of the Northwest Territories who rely on the PCH as a principle source of nutrition, and the harvesting of which is a key component of local socio-cultural systems.

Concerns regarding uncertainty

The GNWT is of the opinion that additional evidence should be provided to address remaining uncertainties around the proposed mitigations. Specifically:

- There is limited evidence supporting the conclusion that the mitigations proposed are effective.
- The potential impacts of climate change on the PCH and the CAH are not well described in the EIS.
- There is a lack of quantitative analysis of the CAH data to look at zone of influence of development and potential distribution changes to the herd. These changes may impact users of the herd, as well as the herd itself.

These uncertainties could be partially addressed with more details provided in mitigation and monitoring plans which should form part of the requested supplemental draft EIS. The mitigation and monitoring plans should:

- Be designed for the entire duration of the project from pre-construction to reclamation.
- Provide information for effective mitigations and adaptive management.
- Be inclusive of all parties with a management authority; parties should have the ability to review the plans prior to their approval.

The GNWT's detailed comments highlight questions on the information presented in the draft EIS, the adequacy of the methods used provide new information, present new alternatives and provide recommendations.

In closing, the GNWT would like to thank the BLM for considering our comments. Development in ANWR, on the calving and post-calving range of the PCH, poses significant risks for one of the last healthy large-migratory caribou herds in the world. It is the GNWT's position that leasing within the Coastal Plains lands, as outlined in the draft EIS will have a negative impact on the PCH and the people who depend on it.

While we recognize the importance of both caribou conservation and economic development for northerners, current experience and evidence provided in the draft EIS does not provide confidence that these risks can be effectively mitigated if development proceeds in ANWR.

The GNWT stresses the need for a supplemental draft EIS to address the outstanding concerns highlighted above and provided in detail in our technical submission. The GNWT believes a supplemental draft EIS is required in order to consider and accommodate the GNWT's concerns and recommendations. Most notably, the GNWT's cumulative concerns and recommendations represent a significant and substantial change to the draft EIS and its conclusions. The GNWT has also proposed a new alternative that should be evaluated, which also constitutes a substantial and significant change to the draft EIS. As such, the GNWT does not believe that our concerns and

recommendations can be incorporated into the final EIS at this time and a supplemental draft EIS is required.

The GNWT will continue to monitor the Coastal Plain Oil and Gas Leasing Program as it progresses through the assessment process.

If you have any questions, please contact Melissa Pink, Manager, Project Assessment Branch, Department of Lands at melissa.pink@gov.nt.ca or 867-767-9183 ext. 24023 or Darren Campbell, Project Assessment Analyst, at Darren.campbell@gov.nt.ca or 867-767-9183 ext. 24024.

Sincerely,



Minister Louis Sebert
Department of Lands



Minister Robert C. McLeod
Department of Environment and Natural
Resources

c. Honourable Robert R. McLeod, Premier

Mr. Gary Bohnet, Principal Secretary

Honourable Catherine McKenna, Minister
Environment & Climate Change Canada

Honourable Pauline Frost, Minister
Yukon Environment

Mr. Mike Aumond, Secretary to Cabinet/Deputy Minister
Executive and Indigenous Affairs

Mr. Joe Dragon, Deputy Minister
Environment and Natural Resources

Mr. Willard Hagen, Deputy Minister
Lands

Ms. Bobbie Jo Greenland-Morgan, Grand Chief
Gwich'in Tribal Council

Mr. Jozef Carnogursky, Chair
Gwich'in Renewable Resources Board

Mr. Patrick Gruben, Chair
Inuvialuit Game Council

Mr. Duane Smith, Chair
Inuvialuit Regional Corporation

Mr. Dana Tizya-Tramm, Chief
Vuntut Gwitchin First Nation

Ms. Roberta Joseph, Chief
Tr'ondëk Hwëch'in First Nation

Mr. Simon Mervyn, Chief
First Nation of Na-Cho Nyak Dun

Mr. Joe Tetlich, Chair
Porcupine Caribou Management Board

CHAPTER I. INTRODUCTION I-I							
ID #	Sec	Sub Sec	Ref	Title	Comment(s)	Recommendation	Pg.
1	1			General Comment	<p>The Government of the Northwest Territories (GNWT) has several concerns and recommendations stemming from what the GNWT sees as an absence of significant information in the draft EIS. This missing information appears to raise further questions about environmental effects or imply potential for significant environmental impacts outside of those considered in the draft EIS and its conclusions.</p> <p>Additionally, the GNWT notes that the draft EIS considered some issues at a cursory and/or exclusively qualitative level when these issues and any significant environmental impacts they could cause are amenable to a full analysis based on quantitative data. The GNWT was in many respects simply not able to properly assess some of the BLM EIS claims owing to a lack of data or analysis. Finally, the GNWT has also proposed a new alternative outside the range of those currently considered in the EIS.</p>	<p>The GNWT recommends a draft supplemental EIS be issued for comment, addressing the following concerns, significant information, and alternatives as discussed in detail in the comments below:</p> <ul style="list-style-type: none"> • Full consideration of the alternative of leasing only 800,000 acres of land with additional restrictions; • Assessment of the likely significant environmental impacts of the project when forward-looking/projected data based on commonly accepted models of climate change’s impacts on the Coastal Plain’s weather and environment have been used consistently throughout; • Reconsideration of the potential significant impacts on caribou in light of the studies and other information cited and provided by the GNWT; and • Detailed consideration of the effects of the program on Canadian cultural and subsistence users of caribou and polar bears. <p>The GNWT believes that the other issues raised in these comments speak to information and environmental concerns already addressed in meaningful detail in the draft EIS so may be addressed through changes incorporated into the final EIS. Should the Bureau of Land Management (BLM) not agree that the issues cited above merit a full supplemental EIS the GNWT strongly feels that they merit more thorough consideration in the final EIS.</p> <p>The Sensitive Habitats Report (PBTC 1993) released by the International Porcupine Caribou Board (IPCB) recognized the calving and post-calving periods (1 June to 30 June) as the most sensitive periods based on a series of criteria. Caribou are highly vulnerable in the days immediately prior to calving and during calving and the post-calving period, and</p>	

						<p>disturbance impacts associated with industrial activities typically disrupt caribou calving behavior and negatively impact calf production, cow-calf bonding as well as increase potential for calf and cow mortality. While the EIS does state the importance of the calving and post-calving habitat for the PCH, the GNWT believes the EIS needs additional evidence to quantify risks to caribou. Areas of additional review/analysis on this topic should include:</p> <ul style="list-style-type: none"> • Conducting a quantitative analysis of PCH use of the area using all the collar data that includes the objective of Lease Stipulation 9 to “minimize the hindrance or alternation of caribou movements in coastal insect relief areas” – this implies only coastal areas are used in that period; implication of the formation of large aggregations and their response to disturbance. • Consideration of the report, jointly commissioned by the Yukon Government, the Government of Canada (Canadian Wildlife Service) and the GNWT that conducted a quantitative analysis of PCH movements to determine potential impacts to the herd (Russell and Gunn, 2019) in the BLM’s assessment of potential impacts. • Provide a comprehensive review of temporal and spatial development on the Alaska North Slope for consideration in the cumulative impacts assessment. • Provide quantitative evidence for effectiveness of mitigations in the range of the central Arctic caribou herd (CAH) from over 40 years of development. • Provide a more in-depth consideration of the differences between the CAH and the PCH and how the potential impacts of development could differ between the herds. • Re-examination of the definition of what is included in the 2000 acre surface disturbance limit on the footprint. 	
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2	1	1.5		Scoping and Issues	The draft EIS does not describe how issues identified during scoping regarding impacts to Canadian Indigenous peoples cultural, subsistence, and social relationships with the Porcupine Caribou herd were considered and addressed in the draft EIS.	The GNWT recommends that BLM describe how the issues and potential impacts identified during scoping have been analyzed, what determinations have been made as a result of this analysis, and how this has been included in the draft EIS and alternatives.	I-2
3	1	1.7	1.7.1	Lead and Cooperating Agencies	The draft EIS does not describe how it has met the requirement under section. 1005 of ANILCA “to consult with the appropriate agencies of the Government of Canada,” occurred during scoping, what issues – including potential impacts – were identified, and what measures will be taken to mitigate any potential impacts to Canadian Indigenous peoples.	The GNWT recommends that the BLM describe how it has met the requirements under section. 1005 of the Alaska National Interest Lands Conservation Act (ANILCA), specifically, if and how BLM has consulted with the Gwich’in Tribal Council, the Inuvialuit Regional Corporation, the Inuvialuit Game Council and the GNWT, and how they have incorporated this information in their analysis in the draft EIS.	I-4
4	1	1.8		Requirement for Future Analysis	While future Environmental Impact Statements will consider specific development proposals and their effects, this EIS is the BLM’s one opportunity to take a global look at the leasing program and the development of the oilfields within it. This is especially concerning since the extent of the program in terms of area, number of acres to be leased, and how many surface acres can be occupied are a combined total of all future projects to be developed in the area.	The GNWT recommends the BLM consider in detail the total direct and indirect impacts of a full development of the program area as the Tax Cuts and Jobs Act of 2017 contemplates.	I-5

5	1	1.9		<p>International Agreements, Laws, Regulations, and Permits</p>	<p>The International Porcupine Caribou Board (IPCB) was established through the 1987 <i>Agreement Between the Government of Canada and the Government of the United States of America on the Conservation of the Porcupine Caribou Herd</i>¹ (the Agreement). The mandate of the IPCB includes the communication of information about the herd and providing recommendations to agencies responsible for managing the herd.</p> <p>The GNWT has a role in supporting Canada in the implementation of the agreement, as the GNWT is represented on the Porcupine Caribou Management Board (PCMB) and the Chair of the PCMB is a member of the IPCB.</p> <p>Section 1.9 of the draft EIS is one of the few places where the IPCB is mentioned. Appendix D references the main objectives of the Agreement but does not elaborate on how the Alternatives in the draft EIS relate to the Agreement. The draft EIS does not explain how the IPCB will be engaged under the Agreement.</p> <p>As well, the draft EIS does not properly or fully analyze the significant potential impacts of the leasing program on caribou and via an effects pathway, to the users of the Porcupine Caribou herd in Canada.</p> <p>BLM has not conducted an analysis to determine if and how the project fulfills the <i>1987 Agreement</i></p>	<p>The GNWT recommends the BLM clarify how the conclusions in the draft EIS meet the following clauses of the Agreement Between the Government of Canada and the Government of the United States of America on the Conservation of the Porcupine Caribou Herd:</p> <p>2 (a) To conserve the Porcupine Caribou Herd and its habitat through international co-operation and co-ordination so that the risk of irreversible damage or long-term adverse effects as a result of use of caribou or their habitat is minimized.</p> <p>2 (b) To ensure opportunities for customary and traditional uses of the Porcupine Caribou Herd by signatories of the Agreement.</p> <p>2 (c) To enable users of Porcupine Caribou to participate in the international coordination of the conservation of the Porcupine Caribou Herd and its habitat.</p> <p>2 (d) To encourage co-operation and communication among governments, users of Porcupine Caribou and others to achieve these objectives.</p> <p>3 (b) The Parties will ensure that the Porcupine Caribou Herd, its habitat and the interests of users of Porcupine Caribou are given effective consideration in evaluating proposed activities within the range of the Herd.</p> <p>3 (e) Activities requiring a Party's approval having a potential significant impact on the conservation or use of the Porcupine Caribou Herd or its habitat may require mitigation.</p> <p>3 (f). The Parties should avoid or minimize activities that would significantly disrupt migration or other important behavior</p>	I-5
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¹ 1987 [Agreement Between the Government of Canada and the Government of the United States of America on the Conservation of the Porcupine Caribou Herd](#)

					<p><i>between the United States of America and the Government of Canada on the Conservation of the Porcupine Caribou Herd.</i></p> <p>In section 3.12.2 of the EIS Final Scoping Report (p. 3-31) commentators noted “that BLM should recognize tribal treaties, agreements, and other constructive arrangements concluded with states or their successors.” BLM has not demonstrated that it has done so. While negative impacts to subsistence harvesters has been discussed on 3-190 and in section 3.4.11, the EIS does not analyze these negative social and health/nutritional consequences via direct and indirect impacts will be experienced by harvesters in the Northwest Territories who rely substantially on the Porcupine Caribou for to meet their health and nutritional needs, maintain social and cultural systems, and pass on traditional knowledge and land use practices to new generations.</p> <p>The BLM has not demonstrated how the Agreement has been considered in the assessed project alternatives.</p>	<p>patterns of the Porcupine Caribou Herd or that would otherwise lessen the ability of users of Porcupine Caribou to use the Herd.</p> <p>3 (g).When evaluating the environmental consequences of a proposed activity, the Parties will consider and analyze potential impacts, including cumulative impacts, to the Porcupine Caribou Herd, its habitat and affected users of Porcupine Caribou.</p> <p>The BLM’s EIS analysis does not sufficiently assess the impacts this project will have on the health and well-being of the Gwich’in and Inuvialuit peoples of the Northwest Territories. The GNWT recommends the EIS assess if and how the development impacts the international treaty and the Native user communities that are included under this treaty.</p> <p>The GNWT recommends the EIS include an analysis of what potential direct and indirect impacts changes to the Porcupine Caribou herd will have on the health and well-being of the people of the Northwest Territories who have customarily and traditionally harvested Porcupine Caribou to meet their nutritional, cultural and other essential needs. Furthermore, consideration should be given to food insecurity as a result of the project alongside potential for ecosystem condition changes from the project and climate change that will impact the Porcupine Caribou herd.</p>	
6	1	1.9	1.9.1	Tax Cuts and Jobs Act of 2017	<p>The BLM has interpreted provisions of Public Law (PL) 115-97 to develop a position on the activities that will be included in the calculation of a maximum surface development of 2,000 acres. As stated in the draft EIS, “Under this interpretation the reclaimed acreage of Federal land formerly containing production and support facilities would no longer count towards the 2,000-acre limit.”</p> <p>The draft EIS does not provide a definition of</p>	<p>The GNWT recommends the BLM provide a definition of “reclaimed” that is consistent with the majority of the purposes for which the Arctic National Wildlife Refuge was established under section 303 of the Alaska National Interest Lands Conservation Act of 1980 (ANILCA). The definition of reclaimed should consider the return to functional habitat and the return of the land to a pre-disturbance state, consistent with ROP 35.</p> <p>The GNWT recommends federal land formerly containing production and support facilities should continue to count towards the 2,000 acre limit of</p>	I-6

					<p>“reclaimed” but does provide guidance under Required Operating Procedure (ROP) 35. ROP 35 is proposed to ensure that land is reclaimed to its previous condition and use (all Alternatives). The standard for Alternative D under ROP 35 requires additionally that before final abandonment, land used for oil and gas infrastructure would be restored to ensure eventual restoration of ecosystem function and meet minimal standards to restore general wilderness characteristics.</p> <p>The draft EIS also does not address the success rate of reclamation of land used for oil and gas infrastructure but instead states “Reclamation has not been proven for gravel removal in the arctic environment once operations have ceased” (p.3-57).</p> <p>The amount of surface disturbance in the Coastal Plain of the Arctic National Wildlife Refuge (Coastal Plain) could impact the amount of habitat directly available to wildlife, and also contribute to an indirect loss of habitat in the adjacent zone of influence (ZOI).</p>	<p>surface disturbance until the end objective of requirement/standard of ROP 35 is met. That is, federal land that was used for oil and gas infrastructure will continue to count towards the 2,000 acre limit of surface disturbance until restoration of the ecosystem function (or the more stringent requirement under Alternative D that also includes the meeting the minimal standards to restore general wilderness characteristics).</p>	
7	1	1.9	1.9.1	Tax Cuts and Jobs Act of 2017	<p>The BLM has interpreted provisions of PL 115-97 to develop a position on the activities that will be included in the calculation of a maximum surface development of 2,000 acres. As stated in the draft EIS, “The BLM interprets this limitation to generally refer to acres of land directly occupied by facilities that are primarily used for the purpose of development, production, and transportation of oil and gas in and from the Coastal Plain. In applying that standard...the limitation applies only to those portions of oil and gas facilities that actually touch</p>	<p>The GNWT recommends the BLM include the entire building footprint in the calculation of the acres of surface disturbance that will count towards the 2,000 acres surface disturbance limit, regardless of whether the building is built on raised pilings.</p> <p>The GNWT recommends the BLM provide for review a comprehensive list of activities that will count towards the calculation of a 2,000 acre surface disturbance limit.</p>	1-6

					<p>the land's surface.”</p> <p>The BLM's interpretation of PL 115-97 could result in unintentional loopholes in the calculation of the 2,000 acres of surface disturbance. For example, the total area of a building used in the exploration, development, production or transportation of an oil and gas program would not count towards the 2,000 acres of surface disturbance if it was built on piles or blocking, only the footprint of the piles would be used in the calculation of the 2,000 acres of surface disturbance. This would be problematic, as the ground underneath the building would not be usable habitat for wildlife.</p>		
8	1	1.9	1.9.1	<p>Tax Cuts and Jobs Act of 2017</p>	<p>The draft EIS states “In addition, the BLM interprets “production and support facilities” to exclude gravel mines given that they supply raw materials for construction of oil and gas facilities but are not themselves oil and gas facilities any more than are mills that supply steel for construction of pipelines and other facilities”(p. 1-6).</p> <p>Gravel mines/borrow sources/quarries can have an adverse impact on the landscape and wildlife, both through direct loss of habitat and through an indirect loss in habitat in the adjacent zone of influence.</p> <p>Operating a quarry to locally source gravel fill for other facilities in the area creates a surface disturbance that precludes the area's use by local</p>	<p>The GNWT recommends gravel mines be included in a compressive list of activities that will count towards the calculation of a 2,000 acre surface disturbance limit.</p>	1-6

				<p>plants and animals and would not exist but for the nearby oil production/exploration. Additionally, this work will most probably be conducted by the exploring/producing companies themselves (or their contractors) as a routine part of their construction activities. Given its immediate geographical and causal proximity to oil activities, it seems illogical to distinguish gravel quarries in the manner proposed.</p> <p>Gravel extraction is estimated at over 1.2M cubic yards of gravel under all scenarios (3-50). The GNWT believes this is not a minor surface disturbance and it will have an adverse impact on wildlife. Gravel extraction should count towards the project footprint if the gravel is quarried from within the Arctic National Wildlife Refuge.</p> <p>Whether or not BLM's interpretation of the 2,000 acre surface occupancy limit in the Tax Act is accurate, the EIS fails to account for two key points within the development program in basing all of its alternatives on this expansive interpretation. First, unlike the 800,000 acre program limit, this is a maximum, and not a minimum; this allows an array of options to be considered to mitigate this program's significant impact on the environment of the area. Second, it fails to account for the long-term recovery of reclaimed land. The program is occurring in an area still recognized for its ecological and cultural importance. The relevant provisions of the Tax Act and the leasing program must also be interpreted in light of NEPA's mandate to mitigate significant impacts; an expansion of interpretation of the 2,000 acre surface occupancy limit would greatly expand</p>		
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					the impact of the program. This is particularly true because surface occupancy is the key aspect of the drilling program that causes/drives the program's environmental impacts, especially those on the protected species the land was originally set aside to protect. As a result, it is the aspect of the program that most warrants mitigation and/or design aspects that lessen its impact.		
9	1	1.9	1.9.1	Tax Cuts and Jobs Act of 2017	While the draft EIS acknowledges potential impacts of pipelines on wildlife and provides some mitigations in the lease stipulations (e.g. elevated pipelines separated from roads by 500 feet), the actual pipeline is not included in the calculation of the project footprint. Only including the vertical support member (VSM) in the footprint of the development renders it difficult to determine the overall impact of the pipelines to wildlife of the area.	The GNWT recommends permanent pipelines be included in the calculation of surface disturbance footprint (i.e. count towards the allowable disturbance area). The GNWT also recommends the BLM explain how impacts can be mitigated if an unlimited amount of pipelines can be installed.	I-6
10	1	1.9	1.9.1	Tax Cuts and Jobs Act of 2017	The draft EIS does not describe how the 2,000 acre surface disturbance limit will be enforced, who will enforce it and under what legislation. The certainty that this mitigation of limited surface disturbance will be effective or even established is decreased without details on how it will be enforced.	The GNWT recommends the BLM provide detailed information on the enforcement of the 2,000 acre surface disturbance limit.	I-6
11	1	1.10		ANILCA Section 810 Evaluation	The analysis by Russell and Gunn (2019) ² indicates the proposed oil and gas leasing program has a high risk of impacts to herd abundance, which has the potential to impact NWT communities. The BLM is planning on holding a public subsistence hearing in the potentially affected community of	The GNWT recommends that, as part of fulfilling the obligations in the Agreement, public subsistence hearings should be held at a minimum in the Canadian communities of Fort McPherson and Aklavik and Tsiigehtchic. The BLM should ensure that the Hunters and Trappers Committees, Renewable Resource Councils and public are notified of such meetings.	I-7

² [Russel, D. and Gunn, A; Vulnerability analysis of the Porcupine Caribou Herd to potential development of the 1002 lands in the Arctic National Wildlife Refuge, Alaska. Submitted to: Environment Yukon, Environment and Climate Change Canada, and NWT Environment and Natural Resources. February 3, 2019.](#)

					<p>Kaktovik because the “preliminary evaluation finds that the cumulative case, when taken in conjunction with Alternatives B, C, D1, and D2 may significantly restrict subsistence uses and needs for the community of Kaktovik.”</p> <p>Porcupine caribou are a highly valued traditional, cultural and subsistence resource for NWT communities in the Gwich’in Settlement Area and Inuvialuit Settlement Region of the NWT. The main users of the herd in the NWT include Inuvialuit and Gwich’in people from Aklavik, Inuvik, Fort McPherson and Tsiigehtchic.</p>		
CHAPTER 2. ALTERNATIVES					2-1		
12	2	2.2		General	<p>In its analysis of alternatives, the BLM only considers the option of having in total more than 2,000 acres of surface occupation over the lifetime of the project, although other less impactful options are available to it and would do much to inform the assessment of the potential environmental impacts of this project if considered. Unlike the 800,000 acre minimum mandate for leasing, the 2,000-acre limit is a maximum, not a minimum, allowing the BLM to consider options in which only 2,000 acres or fewer than 2,000 acres are occupied in total over the lifetime of the project.</p>	<p>Given that the impacts on the wildlife protected by the ANWR resulting from the destruction of surface habitat is the primary significant environmental impact from this proposal to mitigate, surface occupancy seems like the key aspect of this project to minimize as a means of mitigating this most significant impact. Therefore, the GNWT recommends options that do this should be considered within the EIS.</p> <p>Further, to the extent that the EIS (e.g. at s. 1.9.1) asserts that allowing less than a rolling 2,000 acres of surface occupancy renders the program not economically viable, it offers no evidence in support of this assertion. The GNWT recommends the EIS explore options in which different, necessarily lesser, amounts of land are occupied in total under the program and must also provide quantitative data on the differences in impacts among the different options.</p>	
13	2	2.2	2.2.5	Lease Stipulations and Required Operating Procedures	<p>A BLM officer may grant a waiver, exception, or modification of a stipulation through the permitting process but it is not clear what criteria will be used to determine when a waiver, exception or modification is appropriate or how the lessee and/or regulator will monitor their development to determine if the waiver,</p>	<p>The GNWT recommends the BLM include in the EIS an analysis of BLM rationale to waive lease stipulations and an evaluation of impact and effectiveness.</p> <p>The GNWT recommends the BLM develop a policy for exceptions and modifications to lease stipulations.</p>	2-3

					<p>exception or modification is having an adverse impact on wildlife and involves additional mitigation.</p> <p>The US General Accounting Office has questioned the consistency and rationale of how BLM waives lease stipulations and operating conditions and concluded that <i>“Without sufficiently detailed documentation of inspections and effective use of data from inspections, BLM is unable to fully assess the effectiveness of its best management practices policy to mitigate environmental impacts”</i>. USGAO (2017).³</p> <p>The level of certainty regarding mitigations decreases with the possibility that a waiver, exception, or modification of a stipulation can occur.</p>	<p>The GNWT recommends the rationale supporting each future waiver, exception or modification of a stipulation for a lease in the Coastal Plain be documented and made publicly available.</p> <p>The GNWT recommends the lessees be required to undertake follow up monitoring to determine if the waiver, exception or modification of a stipulation is having an adverse impact on wildlife. If an adverse impact is discovered the BLM should consider reversing the waiver, exception or modification of that stipulation.</p>	
14	2	2.2	Table 2-2 B-8	<p>Table Section: PROTECTIONS THAT APPLY IN SELECT BIOLOGICALLY SENSITIVE AREAS</p> <p>Based on the combination of the following sections from the draft EIS it is clear that the No-Surface-Occupancy (NSO) section on the western most section of the Coastal Plains would need to have pipelines and likely a road through it.</p> <p>This is not clearly identified on the maps in the draft EIS:</p> <p>No-Surface-Occupancy (NSO): An area that is open for mineral leasing but does not allow the construction of surface oil and gas facilities in order to protect other resource values.</p>	<p>The GNWT recommends the BLM clarify in the EIS that, at a minimum, No-Surface-Occupancy (NSO) in the western portion of the Coastal Plain is not possible under any of the described alternatives.</p>	2-6 to 2-15	

³United States Government Accountability Office. 2017. Oil and gas development: <https://www.gao.gov/assets/690/684254.pdf>

Improved collection and use of data could enhance BLM’s ability to assess and mitigate environmental impacts. GAO-17-307, a report to the Ranking Member, Committee on Natural Resources, House of Representatives

					<p>However, “On a case-by case basis, essential pipeline and road crossings would be permitted through setback areas.”</p> <p>“Future oil production would use existing North Slope infrastructure, including the Trans-Alaska Pipeline System (TAPS).”</p>		
15	2	2.2	Table 2-2	Lease Stipulation 5— Coastal Polar Bear Denning River Habitat	<p>Polar bear critical habitat under the Endangered Species Act is defined as 20 miles inland from the coast, all barrier islands with a buffer of 1 mile and the sea ice. Alternative D, the most conservative, the No-Surface-Occupancy (NSO) is only applicable to within 5 miles of the coast and not the 20 miles as defined by the ESA.</p>	<p>The GNWT recommends the BLM ensure the NSO defined for polar bear critical habitat in Alternative D is consistent with that defined in the other alternatives described in the EIS.</p>	2-10
16	2	2.2	Table 2-2	Lease Stipulation 6— Caribou Summer Habitat	<p>For Alternative B and C there is a note that “All lands in the Arctic Refuge Coastal Plain are recognized as habitat of the PCH and CAH and would be managed to ensure unhindered movement of caribou through the area.” The objective for this lease stipulation is to “Minimize disturbance and hindrance of caribou or alteration of caribou movements.” These two statements are contradictory.</p> <p>In order to understand the ability to manage for unhindered movement and meet the objective there is a need for a monitoring program that allows for comparison of movements pre and post development and would evaluate and adapt mitigations as needed. Minimum requirements for such a program should be outlined in the EIS.</p>	<p>The GNWT recommends the BLM modify the objective to be consistent with the note. (i.e. “minimize” not “ensure unhindered movements”).</p> <p>The GNWT recommends the lessee undertake coordinated monitoring activities pre- or post-development to implement an adaptive management program that would revise area-wide mitigations going forward.</p>	2-11
17	2	2.2	Table 2-2	Lease Stipulation 6— Caribou Summer Habitat – Alternative D2	<p>The timing limitation associated with Lease Stipulation 6, Alternative D2 states “If caribou arrive on the calving grounds before May 20, or if they remain in the area past July 20 in significant numbers (greater</p>	<p>The GNWT recommends “major construction activities” and “remain in the area” be clearly defined. Given the importance of the program area to PCH, these terms need to be well defined to provide certainty to operators and regulators on when activities must be suspended.</p>	2-11

					<p>than approximately 10 percent of the estimated calving cow population or 1,000 during insect-relief periods), major construction would be suspended.”</p> <p>It is unclear how close 10% of cows or 1000 caribou would need to be in order to have mitigation remain in place.</p> <p>The effectiveness of this mitigation cannot be assessed until the terms “major construction activities” or “remain in the area” are defined. The enforcement of this mitigation is also made more difficult without a clear definition of those two terms.</p>		
18	2	2.2	Table 2-2	<p>Lease Stipulation 6— Caribou Summer Habitat and Lease Stipulation 7 - Porcupine Caribou Primary Calving Habitat Area (Map 2-2)</p>	<p>Lease stipulation 6 and 7 both require that major construction activities using heavy equipment, but not drilling from existing production pads, would be suspended under various circumstances.</p> <p>The effectiveness of these Lease Stipulations requires baseline information and the integration of monitoring and mitigation that results in adaptive management with respect to caribou mitigations.</p>	<p>The GNWT recommends the BLM provide studies or evidence to demonstrate that suspending major construction activities while still allowing drilling and activities is an effective mitigation measure. If evidence does not clearly support the effectiveness of this mitigation the lease stipulation should be changed to include the suspension of major construction, drilling, and other project activities (maintenance activities, traffic, etc.) from existing production pads.</p> <p>The GNWT recommends the BLM develop a framework that includes a clear list of activities that would be suspended, the triggers for their suspension, and the means of determining that the triggers are being addressed in the event that calving or post-calving caribou enter a conservatively established buffer zone around infrastructure, roads, and work sites.</p> <p>The GNWT recommends the BLM require the operator to monitor PCH responses to a suspension of major construction activities while continuing drilling under Lease Stipulation 7 and adaptively manage their operations should PCH exhibit a negative response to drilling.</p> <p>The GNWT recommends the BLM require a wildlife management and</p>	2-11

						<p>monitoring plan that identifies how they will monitor the PCH and adaptively manage their operations based on the effectiveness of their mitigations.</p> <p>To ensure that the intent of the timing limitation is maintained and a precautionary approach is taken, the GNWT recommends adding the underlined text in italics: <i>“...the resource agencies. <u>The BLM Authorized Officer may only extend, and not decrease, the time limit on the suspension of activities.</u> The intent of this requirement...”</i></p> <p>If this recommended wording is not adopted the criteria to be considered when changing the suspension dates should be provided in this lease stipulation.</p>	
19	2	2.2	Table 2-2	Lease Stipulation 7—Porcupine Caribou Primary Calving Habitat Area (Map 2-2)	<p>Lease Stipulation 7 has the following Requirement/Standard:</p> <p>a. The following ground and air traffic restrictions would apply to permanent oil and gas-related roads in the areas and time periods indicated:</p> <p>i) Within the calving habitat area, from May 20 through June 20, traffic speed should not exceed 15 miles per hour when caribou are within 0.5 mile of the road... The lessee should submit with the development proposal a vehicle use plan that considers these and any other mitigation.</p>	<p>Estimating distances unassisted can be subjective. The GNWT recommends that during the calving period roads within calving habitat be closed and operations suspended. If this recommendation is not accepted the GNWT recommends the vehicle use plan clearly outline how a distance of 0.5 miles is to be estimated or determined by drivers. The impact of darkness or poor weather on the determination of the 0.5 mile limit should also be addressed in the vehicle use plan.</p> <p>The GNWT recommends the vehicle use plan direct the lessee to install additional signage along roads to alert drivers when caribou are in an area. Wildlife should always have the right of way on roads.</p> <p>The GNWT recommends a plan be developed to determine the effectiveness of the mitigations.</p>	2-13
20	2	2.2	Table 2-2	Lease Stipulation 7—Porcupine Caribou Primary Calving	<p>Lease Stipulation 7 has a Requirement/Standard that states “The following ground and air traffic restrictions would apply to permanent oil and gas-related roads in the areas and time periods indicated...” The restrictions that follow are not related to air traffic, with the possible exception of</p>	<p>The GNWT recommends the BLM provide air traffic restrictions for this lease stipulation or link the lease stipulation to ROP 34 – Use of Aircraft for Permitted Activities. Low level flights over calving habitat during calving should be banned.</p>	2-13

				Habitat Area (Map 2-2)	the suggestion that the lessee limit trips.		
21	2	2.2	Table 2-2	Lease Stipulation 8—Porcupine Caribou Post-Calving Habitat Area	<p>The timing limitation for Alternative C and D states that “Sections of road would be evacuated whenever an attempted crossing by a large number of caribou (approximately 100 or more) appears to be imminent.”</p> <p>It is not clear why the threshold was set at 100 caribou or how the operator would determine that caribou wish to cross the road or that the crossing is imminent. It is also not clear how effective this mitigation will be.</p>	<p>The GNWT recommends the lessee’s vehicle use plan (or other management plan) provide clear direction on how a driver should determine a crossing is imminent.</p> <p>The GNWT recommends the lessee be required to monitor crossing deflection rates and crossing success rates and adaptively manage their operations if it is found that caribou are avoiding crossing the road.</p> <p>The GNWT recommends the BLM provide a rationale on why 100 caribou was chosen as the threshold and provide supporting evidence that this mitigation will be effective, especially for large aggregates of Porcupine caribou (“super groups”).</p>	2-15
22	2	2.2	Table 2-2	Required Operating Procedure 4 (ROP 4)	<p>ROP 4 directs the lessee, operator or contractor to prepare and implement bear-interaction plans. “The plans would include specific measures identified in the current United States Fish and Wildlife Service (USFWS) Polar Bear Mitigation Plan and would be adapted as needed for grizzly bears.”</p>	<p>The GNWT recommends the BLM provide direction on how measures in the USFWS Polar Bear Mitigation Plan should be adapted for grizzly bears.</p>	2-17
23	2	2.2	Table 2-2	Required Operating Procedure 17 (ROP 17)	<p>ROP 17 states that “Construction of a gravel road for permanent oil and gas facilities would be prohibited for exploratory drilling. Use of a previously constructed road or pad may be permitted if it is environmentally preferred.”</p> <p>Permanent oil and gas facilities are defined in the draft EIS as “Production facilities, roads, airstrips, production pads, docks, seawater treatment plants, and other structures associated with oil and gas production, that occupy land for more than one winter season. Material sites and seasonal facilities, such as ice roads, are excluded, even when the pads are designed for use in successive winters.”</p>	<p>The GNWT supports the inclusion of this ROP. However, the GNWT recommends the mitigation could be strengthened by removing reference to “permanent oil and gas facilities.”</p>	2-25

					<p>Allowing the construction of a gravel road to a non-permanent oil and gas facility could result in multiple gravel roads being constructed that have no destination or result in a lessee claiming that a facility will be in use for only one season even if they know differently in order to build a road.</p>		
24	2	2.2	Table 2-2	<p>Required Operating Procedure 23 (ROP 23)</p>	<p>ROP 23 requires that “Pipelines and roads would be designed to allow the free movement of caribou and the safe, unimpeded passage of those participating in subsistence activities....</p> <p>f) Before the construction of permanent facilities is authorized (limited as they may be by restricted surface occupancy areas established in other lease stipulations), the lessee would design and implement and report a study of caribou movement, unless an acceptable study specific to the PCH and CAH has been completed within the last 10 years and approved by the BLM Authorized Officer.”</p> <p>A quantitative analysis like what is required under ROP condition could have been included in the draft EIS using collar data from both the Porcupine caribou herd (PCH) and the Central Arctic herd (CAH). There is a very large amount of collar data that would require accurate temporal infrastructure shapefiles for the CAH at minimum to look at impacts of disturbance.</p> <p>It would be important to ensure all data collected for this study is available for the work i.e., individual companies would be required to provide the data to a main database.</p>	<p>The amount of time that has passed since the last PCH and CAH study should not be the only factor considered when determining if the lessee must design and implement and report a study of caribou movement. The GNWT recommends changes in baseline conditions and recent development in the program area also be considered, as these factors may lead to different results from previous studies. Condition f of ROP 23 should be modified to include the underlined text in italics:</p> <p style="text-align: center;"><i>“...unless an acceptable study specific to the PCH and CAH has been completed within the last 10 years and approved by the BLM Authorized Officer <u>and there has been no change in baseline conditions since the previous study was conducted.</u>”</i></p> <p>The GNWT recommends the BLM consider conducting a quantitative analysis and include it as part of the supplemental EIS. This analysis could look at movement of the CAH near pipelines and roads to determine effectiveness of standard (a) to (c) of the ROP.</p> <p>The GNWT recommends the BLM ensure all data is provided to a main database to evaluate impacts on a regional basis.</p>	2-27

25	2	2.2	Table 2-2	Required Operating Procedure 23 (ROP 23)	<p>ROP 23 requires a vehicle use management plan to be developed by the lessee/operator/contractor. The management plan would minimize or mitigate displacement during calving and would avoid, to the extent feasible, delays to caribou movements and vehicle collisions during the midsummer insect season, with traffic management following industry practices.</p>	<p>The GNWT recommends the vehicle use management plan include an adaptive management component.</p> <p>The GNWT recommends the vehicle management plan avoid delays to caribou movements and vehicle collisions at all times, not just during the midsummer insect season.</p> <p>The GNWT recommends a regional database be made available, so overall impacts can be monitored. The BLM Officer, State of Alaska, relevant wildlife management authorities in Canada including the Government of the Northwest Territories, and the Porcupine Caribou Management Board should have access to monitoring data.</p>	2-27
26	2	2.2	Table 2-2	Required Operating Procedure 24 (ROP 24)	<p>Blasting can have potential impacts on wildlife, as noted on page 3-113 of the draft EIS.</p>	<p>The GNWT recommends appropriate mitigation measures be taken to avoid an adverse impact on wildlife if blasting is required at a quarry/borrow source/gravel mine site. A standard operating procedure for blasting should be required from the lessee and such plan should prevent blasting if caribou are within 2.5 miles and grizzly and polar bears are within a set distance. These distances should be clearly defined and vary temporally depending the sensitivity to disturbance. The Standard Operating Procedure should also detail how the approach of caribou into the buffer zone would be detected.</p>	2-27
27	2	2.2	Table 2-2	Required Operating Procedure 33 (ROP 33)	<p>The objective of ROP 33 is to “Provide information to be used in monitoring and assessing wildlife movements during and after construction.” The information that is required under ROP 33 is related to the location of project infrastructure. It is unclear how information on the infrastructure will be used to assess wildlife movements during and after construction or who would be undertaking the monitoring and assessment of wildlife movements.</p> <p>Information collected under this ROP has value to various management authorities in Canada.</p>	<p>The GNWT recommends the ROP 33 be revised to include details on who will be undertaking monitoring and assessing wildlife movements during and after construction. Information should also be added to ROP 33 to outline how adaptive management will be incorporated into the project design and operations if the assessment shows that wildlife movement is being adversely impacted by the project.</p> <p>The GNWT recommends baseline information on wildlife movements and results from any project monitoring, such as monitoring results from the vehicle use plan, be provided to the BLM Authorized Officer, State of Alaska, relevant wildlife management authorities in Canada and the Porcupine Caribou Management Board.</p>	2-30

28	2	2.2	Table 2-2	Required Operating Procedure 34 (ROP 34)	<p>The timing restriction associated with the number of helicopter landings under Alternative B and C is limited to May 20 through June 20. The timing restrictions are expanded to May 20 to July 20 under Alternative D.</p> <p>The Coastal Plain lands are extremely important in the post-calving insect relief period, in addition to the calving period, and the behavior of large aggregations around infrastructure is unknown (Russell and Gunn 2019). For these reasons the GNWT suggest that the calving and post calving periods from May 20 to July 20 be included in all Alternatives.</p>	The GNWT recommends the Requirement/Standard for Alternative D should be used for all Alternatives.	2-31
29	2	2.2	Table 2-2	Required Operating Procedure 42 (ROP 42)	<p>ROP 42 prohibits the chasing of wildlife with ground vehicles. ROP 42 should be strengthened to include recommendations for distances for yielding the right of way to wildlife on roads. An example for caribou from the Ekati mine in the NWT:</p> <p>Distance of Caribou from the Road Speed Guideline (m = metre; km/h = kilometres per hour):</p> <ul style="list-style-type: none"> • less than 100 m driver to remain stopped • 100 to 200 m driver to proceed at 20 km/h • 200 to 500 m driver to proceed at 40 km/h • 500 m or more driver to proceed at 60 km/h 	The GNWT recommends the Standard in ROP 42 be expanded to yielding the right of way to all wildlife on roads and ground vehicles should remain away from any wildlife, where possible. These distances should be clearly defined.	2-36

30	2	2.3		<p>Alternatives Considered But Eliminated From Detailed Analysis</p>	<p>The draft EIS did not present all viable and reasonable alternatives for analysis and consideration. An EIS is supposed to evaluate possible alternates to a project. Section 6.6.3 of the NEPA handbook lists the reasons why an alternative option can be eliminated from a detailed analysis. Those reasons are:</p> <ul style="list-style-type: none"> • It is ineffective (it would not respond to the purpose and need). • It is technically or economically infeasible. • It is inconsistent with the basic policy objectives for the management of the area (such as, not in conformance with the LUP). • Its implementation is remote or speculative. • It is substantially similar in design to an alternative that is analyzed. • It would have substantially similar effects to an alternative that is analyzed. • <p>Under PL 115-97 a minimum of 800,000 acres must be put forward for lease sales in two separate sales of 400,000 acres.</p> <p>The BLM states in section 2.3 of the draft EIS that an alternative that would make only 800,000 acres available for lease sales would also be similar in concept to Alternatives D1 and D2 (which consider leasing approximately 1,037,200 acres). Based on this the BLM eliminated the alternative where only 800,000 acres would be made available for leasing from detailed analysis. The GNWT believes the option to make only 800,000 acres of land available for lease sales is not substantially similar in design to other Alternatives and does not meet any of the other criteria for exclusion</p>	<p>The GNWT recommends a supplemental EIS to include an Alternative based on section 20001(c) of PL 115-97, and that consists of the following:</p> <ul style="list-style-type: none"> • One lease sale in 2021 of 400,000 acres of land that has the highest potential for the discovery of hydrocarbons. If the entire 400,000 acres of land is not leased during the first sale the unleased land quantum will not be put up for sale again or added to the 400,000 acres that is required for lease sale in 2024 (i.e., the second sale will not be 400,000 acres plus the unleased land amount from the first sale). • A second lease sale in 2024 of 400,000 acres of land that has the highest potential for the discovery of hydrocarbons. • There will be only two lease sales. This is different from the draft EIS Alternatives that contemplate more than two lease sales, as described in Section 1.8 of the draft EIS. • Provide certainty on which 400,000 acres of land will be put up for lease. • Seismic activity would only occur in the blocks of land being considered for leasing. • Consider conservative ROP and lease stipulations, similar to those presented in Alternative D. <p>The GNWT also requests that BLM to supply data and/or rationale as to why it considered the 800,000-acre option not to be economically viable, or to alter its conclusion if it is unable to provide such data. The GNWT also recommends that the BLM eliminate its three categories of HCP land and focus on its analysis on a set volume of best HCP land (e.g. best 800,000 acres or another number).</p> <p>The 800,000-acre option should consider all additional factors recommended herein and elsewhere establishing a true minimum impact alternative for this proposal.</p>	2-39
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				<p>from detailed analysis. The BLM also stated that the actual potential development area would be much less than 800,000 acres with the 2,000-acre limitation on surface disturbance and that was a factor in not evaluating the 800,000 acres option. This is irrelevant, as PL 115-97 does not state that the total potential development area must be 800,000 acres.</p> <p>Also, the Tax Act only mandates the lease of the 800,000 acres with the best hydrocarbon potential - it does not mandate the proposed categories (which are not defined in the EIS) of hydrocarbon potential land, nor does it mandate the lease of all lands within a certain category. The alternative analyzed in the EIS with the smallest proposed acreage to lease is roughly 200,000 acres or approximately 25%, higher than this minimum. To the extent that the EIS claims that a lease of 800,000 acres of the highest hydrocarbon potential land is not economically viable, it offers no data or analysis justifying this conclusion.</p> <p>There is no stated project purpose, identified need or legal requirement to lease more than the 800,000 acres required by PL 115-97.</p> <p>The most conservative interpretation of section 20001 of PL 115-97 should be put forward as a possible alternative because it is feasible, meets the requirements set out in PL 115-97, is substantially different in design to Alternative A-D, would lead to a different outcome than the other Alternatives and does not meet any of the criteria listed above for exclusion of analysis. An alternative that considers only 800,000 acres for lease would be consistent with the</p>		
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				<p>conservation needs (generally) of species covered by international agreements.</p> <p>Given NEPA's mandate at s. 102(C)(ii) to speak to any adverse impact which cannot be avoided, the analysis offered in this EIS does not make it clear what the actual minimum, truly unavoidable impact of this program is because the alternatives it offers do not consider the range of factors and mitigations as detailed in these comments or the minimum leasing scenario mandated by the Tax Act. This would also not seem to be precluded by the "purpose and need" of the EIS as articulated within this EIS. Such analysis and minimum impact should be contained within the EIS.</p>		
CHAPTER 3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES 3-1						
31	3	3.2	3.2.1	<p>The BLM's discussion and use of climate change in its analysis/assessment of the leasing program is contradictory throughout the EIS, despite the EIS initially stating that it will only rely on historical data rather than forward-looking projections for analyzing the interactions between the environment and this project even though the project is projected to last for up to 70 years. The EIS expressly states that it will not consider forward-looking projections of local weather, ocean levels, etc. based on current, widely-accepted projections based on climate change. As the vast bulk of research and analysis regarding climate change suggests that historical weather and other patterns will be altered in the immediate future, historical data cannot predict a future project's and the climate's impacts on each other and so is irrelevant; relying on this data exclusively is incapable of accurately predicting these impacts. Also, as the arctic and coastal regions are predicted to be especially</p>	<p>The GNWT recommends climate change be considered in determining how key aspects of the environment, like ocean levels, rain fall, wind patterns, and other aspects of the environment; therefore, climate change must be addressed and discussed throughout the EIS in a consistent manner to determine what the likely impacts on/interactions between the environment and the project will be during its future life. The EIS should consider data on climate change regarding the prospective changes to the environment in which the project will take place and how this will affect its projected environmental impacts.</p>	3-2

					<p>likely to experience significant impacts from climate change, this analysis ignores prospective changes to the area in which the project will take place without offering an accurate, convincing justification for doing so.</p> <p>Additionally, the EIS later cites likely prospective changes based on climate change to suggest, among other things, that the project may have a positive impact on caribou forage by decreasing the duration of snow cover. Dismissing climate change to ignore its potential negative interactions with the project, but later citing it to support allegedly positive aspects of the program is directly contradictory.</p>		
32	3	3.3	3.3.1	Vegetation and Wetland	<p>When describing the potential impacts on vegetation and wetlands “The anchor development footprint was buffered by 328 feet (comprising another 6,607 acres) to account for the area of indirect effects on vegetation and wetlands.”</p> <p>There was no reference provided in the draft EIS on what this buffer, or zone of influence, of 328 feet was based on.</p>	<p>The GNWT recommends the BLM provide a rationale on how a buffer of 328 feet around the anchor development was established.</p>	<p>3-65</p> <p>3-71</p>
33	3	3.3	3.3.4	Terrestrial Mammals	<p>Porcupine caribou are a highly valued traditional, cultural and subsistence resource for Northwest Territories’ (NWT) communities in the Gwich’in Settlement Area and Inuvialuit Settlement Region of the NWT. The draft EIS does not acknowledge the extent that the proposed oil and gas activities in the Coastal Plain can have on Canadian harvesters of the PCH. For example, the statement in the draft EIS “Caribou are the most abundant large mammals in the program area and are an important subsistence resource for Iñupiaq and Gwich’in hunters. They also</p>	<p>The GNWT recommends the BLM review and include information about the importance of the herd to Canada in their analysis of the impact of potential future oil and gas activity in the Coastal Plain, in order to fulfill obligations to the Agreement between the Government of Canada and the Government of the United States of America on the Conservation of the Porcupine Caribou Herd.</p>	<p>3-103</p>

					<p>are important for harvest by other hunters who do not live in the refuge and for non-consumptive uses, such as tourism and wildlife viewing” undermines the importance of the herd to Indigenous People in Canada.</p> <p>The draft EIS does not address how the Alternatives in the draft EIS comply with the Agreement Between the Government of Canada and the Government of the United States of America on the Conservation of the Porcupine Caribou Herd.</p>		
34	3	3.3	3.3.4	Terrestrial Mammals	<p>The statements in the draft EIS about climate impacts on caribou are from various herds around the world. Analysis by Russell and Gunn (2019) indicates the mechanisms that drive body condition and herd growth are different for different herds. This needs to be considered in the impact analysis.</p>	<p>The GNWT recommends the BLM incorporate information presented from Russell and Gunn (2019) in their analysis of impacts of potential future oil and gas activity in the Coastal Plain on the Porcupine caribou herd (PCH). These results should be considered when developing program mitigation and monitoring.</p>	3-104
35	3	3.3	3.3.4	Terrestrial Mammals	<p>When describing the PCH’s use of the program area the draft EIS stated “During the post-calving season (last week of June and first week of July), most locations of PCH caribou were in the program area, and PCH caribou moved west toward the program area, even if they calved outside of it (Griffith et al. 2002).”⁴There is more data available since this 2002 publication that looks at recent PCH movements. Russell and Gunn 2019 look at that data.</p>	<p>The GNWT recommends the BLM re-evaluate potential impacts to caribou from any potential future oil and gas activity using quantitative analysis, including recent data such as Russell and Gunn (2019). These results should be considered in development of lease stipulations related to the Porcupine caribou herd (PCH).</p>	3-107
36	3	3.3	3.3.4	Terrestrial Mammals	<p>When describing the CAH’s use of the program area the draft EIS stated “Females in the CAH calve in two areas west of the Arctic Refuge: one south and southwest of the Kuparuk oilfield, between the Colville and Kuparuk Rivers, and the other between</p>	<p>The GNWT recommends the BLM re-evaluate the data available on the CAH to provide evidence of effectiveness of mitigations suggested in the draft EIS. This should include a quantitative analysis of all the CAH caribou collar data in respect to infrastructure and disturbance on the landscape.</p>	3-107

⁴ Griffith, D. B., D. C. Douglas, N. E. Walsh, D. D. Young, T. R. McCabe, D. E. Russell, R. G. White, R. D. Cameron, and K. R. Whitten. 2002. Section 3: “The Porcupine Caribou Herd.” Pp. 8–37. In: D. C. Douglas, P. E. Reynolds, and E. B. Rhode, editors. Arctic Refuge Coastal Plain Terrestrial Wildlife Research Summaries. US Geological Survey, Biological Resources Division, Biological Science Report USGS/BRD/BSR-2002-0001

					<p>the Sagavanirktok and Canning Rivers in an area with little development”. It is unclear in the draft EIS if the two areas of calving were separated prior to the development of the Kuparuk oilfield.</p> <p>Cameron et al. (2005)⁵ reported decreased parturition rates in west side where development is compared to east side with no development (64.3 ± 5 versus 82.5 ± 5.3). This does not seem to be mentioned in the draft EIS even though the report was cited to support other statements made in the draft EIS.</p>		
37	3	3.3	3.3.4	<p>Terrestrial Mammals</p> <p>The BLM acknowledged that “Because climate change could involve both adverse and beneficial effects on caribou, it is not possible to predict the impacts on the PCH and CAH; however, climate change could affect caribou demographics as well as habitat use and introduce additional uncertainty into projections of impacts due to development.”</p> <p>This statement indicates increased uncertainties over the cumulative impacts of development in the light of climate change. This warrants increased precaution and monitoring.</p> <p>Statements on page 3-110 of the draft EIS discuss the possible changes in caribou calving. These statements agree with predictions from Russell and Gunn (2019) of increased dependence on the Coastal Plain with warmer springs and subsequently more years when the PCH can reach their preferred habitat in the</p>	<p>The GNWT recommends the BLM conduct a cumulative effects assessment of the risks to the Porcupine and Central Arctic caribou herds that includes climate change scenarios. This work should consider the analysis in Russel and Gunn (2019).</p>	3-109	

⁵ Cameron, R. D., W. T. Smith, R. G. White, and B. Griffith. 2005. “Central Arctic caribou and petroleum development: distributional, nutritional and reproductive implications.” *Arctic* 58: 1–9

					Coastal Plain.		
38	3	3.3	3.3.4	Terrestrial Mammals Table 3-19	Table 3-19 summarizes the type, context and duration of potential effects of oil and gas exploration, construction, and drilling and operations on terrestrial mammals. The duration of the effect is classified as short or long term. There is no definition of short or long term, making it difficult to assess the severity of the effect. For example, the listed potential effects from ice roads and pads are listed as short term but it is unclear if short term refers to one winter (the length of time a particular road would exist) or a period of years in which it is expected ice roads would be used for a particular lease/exploration/oil and gas activity.	The GNWT recommends short and long term be defined, with respect to the potential effects listed on Table 3-19.	1-111
39	3	3.3	3.3.4	Terrestrial Mammals	<p>“Experience in existing northern Alaska oil fields indicates that caribou and other terrestrial mammals may habituate to low-level constant noise and oilfield activities on roads and pads (maternal caribou with young calves, being a notable exception). PCH caribou have had much less exposure to human development and activities than have CAH caribou, however, so they would be expected to have stronger reactions to infrastructure than CAH caribou for some years. Some indication of habituation to infrastructure by PCH caribou during winter has been reported (Johnson and Russell 2014).”</p> <p>There are no citations for any of the statements in the paragraph above except Johnson and Russell and the findings of the paper are not adequately reflected in the statement. The work by Johnson and Russell looked at 27 years of collar data in the winter range of the CAH and estimated a ZOI around the main road of 30 km in early years (1985-1998) and later 18.5 km</p>	<p>The GNWT recommends that the draft EIS be updated with an adequate treatment of the potential impacts to caribou, including zones of influence and cumulative effects.</p> <p>The GNWT recommends the EIS include an outline of what would be required for inclusion in a long-term monitoring plan that will provide evidence for effective mitigation of impacts on caribou.</p>	1-113

					(1999-2012). These large ZOIs are not mentioned anywhere in the draft EIS and are not considered in the discussion on potential impacts of the development.		
40	3	3.3	3.3.4	Terrestrial Mammals	A displacement estimate of 2.49 miles of cows and calves from infrastructure is used throughout the draft EIS. This may be an underestimation of the impacts on the PCH. The ZOI on the Dempster Highway in Canada initially was as large as 30 km at a time when it is generally accepted that caribou are more tolerant to disturbance than cows and calves are during calving. Russell and Gunn (2019) discuss the differences between the CAH and the PCH including the difference in the width of the Coastal Plain.	The GNWT recommends the BLM reconsider the use of 2.49 miles as the ZOI during calving based on information presented in Russell and Gunn (2019).	3-119
41	3	3.3	3.3.4	Terrestrial Mammals	Lease Stipulation 9 for Alternative C does not permit a central processing facility within one mile inland of the coast (or two miles inland under Alternative D). In the central portion of the Coastal Plain, the land is Native conveyed and not part of the area where these lease stipulations apply. The quantitative analysis by Russell and Gunn 2019 shows that the area where the PCH is most likely to come within one mile of the coast is just west of the Native conveyed land, near Collison Point. It is unclear from text in Lease Stipulation 9 and page 3-119 if there technically could be a central processing facility within one mile of the coast on native lands and the cumulative impacts of this.	The GNWT recommends, as part of the cumulative impact assessment, the BLM conduct a quantitative analysis to evaluate the potential effectiveness of Lease Stipulation 9 for the PCH (and CAH) should a central processing facility be constructed on Native conveyed lands.	3-119
42	3	3.3	3.3.4	Terrestrial Mammals	The draft EIS has two paragraphs to describe the cumulative impacts to terrestrial mammals.	The GNWT recommends the BLM conduct a cumulative impacts assessment that includes all threats to the PCH, including activities across the entire range. This assessment could lead to the identification of effects not currently identified in the draft EIS or provide additional details on cumulative effects that are currently inadequately assessed.	3-122

						Appropriate mitigation and monitoring should also be identified.	
43	3	3.3	3.3.5	Marine Mammals	<p>The draft EIS recognizes the recent increased use of the program area for denning bears from the Southern Beaufort Sea subpopulation. The draft EIS also mentions incidental take regulations in the western side of Alaska and a number of required operating procedures (ROPs) specifically aimed to mitigate impacts on polar bears but the evidence of the effectiveness of these mitigations is inadequate.</p> <p>The draft EIS also lacks traditional knowledge on polar bears where it exists, examples include:</p> <ul style="list-style-type: none"> • Joint Secretariat 2015⁶; • Voorhees et al 2014⁷ • Braund et al 2018⁸ <p>The draft EIS fails to adequately recognize the shared nature of this resource with Canadian users and assess the potential impacts of the different alternatives on polar bears and their subsistence use by both Inupiat and Inuvialuit.</p> <p>Data exists to allow the completion of a modeling exercise could be completed to look at the different alternatives and the potential impacts to polar bears and the critical habitat as identified under the US</p>	<p>The GNWT recommends the BLM conduct additional spatial analysis of the impacts of the different alternatives on polar bears and the users of bears.</p>	

⁶ Joint Secretariat. 2015. *Inuvialuit and Nanuq: A Polar Bear Traditional Knowledge Study*. Joint Secretariat, Inuvialuit Settlement Region. 304 pp.

⁷ Voorhees, H., R. Sparks, H.P. Huntington, K.D. Rode. 2014. Traditional Knowledge about Polar Bears (*Ursus maritimus*) in Northwestern Alaska. *Arctic*. Vol. 67, NO. 4 (December 2014), P. 523-536

⁸ Braund, S.R, P.B. Lawrence, E.G. Sears, R.K. Schraer, E.V. Regehr, B. Adams, R.T. Hepa, J.C. George, and A.L. Von Duyke. 2018. Polar Bear TEK: A Pilot Study to Inform Polar Bear Management Models. North Slope Borough Department of Wildlife Management, Research Report NSB.DWM.RR.2018-01. Utqiagvik, Alaska USA

					Endangered Species Act.		
44	3	3.4	3.4.2	Cultural Resources	The draft EIS does not include in their analysis a detailed discussion of the ethnographic cultural resources of the Indigenous Porcupine Caribou herd subsistence users in the Northwest Territories or potential mitigative measures that could be included in Alternatives B, C, and D to lessen the severity of these impacts.	The GNWT recommends the BLM include in their analysis a discussion of the ethnographic cultural resources of the Indigenous PCH subsistence users in the Northwest Territories and the potential impacts (direct, indirect, as well as cumulative) that the project may have on these ethnographic cultural resources. This includes an analysis and discussion of: the traditional use of the PCH; the relation of the health and harvesting of the PCH to spirituality and cosmology; and the importance of harvesting caribou to the identity, traditional skills, Indigenous knowledge, and way of life of the Indigenous peoples of the Northwest Territories. It is recommended that BLM indicate what appropriate mitigations will be applied to ensure that negative direct, indirect, or cumulative impacts as a result of the project and activities associated with the leasing program do not negatively impact NWT Indigenous communities.	3-151
45	3	3.4	3.4.3	Subsistence Uses and Resources	The interest in the Porcupine caribou herd in Canada is downplayed throughout the draft EIS. Additional information is available on both harvest and cultural importance of the herd to the Indigenous peoples in Canada. A few missing references included: <ul style="list-style-type: none"> • Inuvialuit Harvest Study; • Gwich'in Harvest Study; • Gwich'in Words about the Land; • Aklavik Local and Traditional Knowledge about Porcupine Caribou 2009; • Natcher, David, Tobi Maracle, Glenna Titlichi and Norma Kassi, 2017. Maintaining Indigenous Traditions in Border Regions of Northern Canada. <i>In</i> Robert Bone and Robert Anderson (eds.), Indigenous Peoples and Resource Development in Canada. Ontario: Captus Press: 262-280; 	The GNWT recommends the BLM s re-evaluate the impacts to the Gwich'in and Inuvialuit in Canada and incorporate the references suggested by the GNWT. The BLM should consider the impacts to Indigenous peoples of Canada and adequately consult based on Section 303(2) of Alaska National Interest Lands Conservation Act (ANILCA).	3-159

					There are also many academic references that are not included in the draft EIS.		
46	3	3.4	3.4.3	Subsistence Uses and Resources	<p>The draft EIS states that “the NWT Gwich’in people, the Vuntut Gwich’in people, and the Inuvialuit are the primary users of the PCH in terms of number of caribou harvested,” (3-167) and that “most of the PCH harvest occurs in Canada.” The draft EIS further states that “The changing climate within the program area could affect the availability of subsistence resources and user access to harvesting areas,” and that “changes in resource abundance resulting from climate change could contribute to changes in resource availability caused by development in and around the program areas, thus further reducing their availability to subsistence users.” The Draft EIS analysis found that “In the case of the 22 Alaskan caribou study communities and seven Canadian user groups... those with a greater reliance on caribou would be more likely to experience potential indirect impacts related to caribou abundance or availability,” and that “potential impacts, particularly those relating to changes in calving distribution and calf survival are expected to be more intense for the PCH because of their lack of previous exposure to oil field development,” (3-169). The draft EIS determined that Old Crow, Aklavik, and Fort MacPherson are the most likely to experience potential indirect impacts due to their proximity and reliance on the PCH (3-170). It was further determined that “Overall, future development in the program area could have lasting effects on cultural practices, values, and beliefs through its impacts on subsistence. The potential impacts of development could result in reduced harvests, changes in uses of traditional lands, and decreased</p>	<p>The GNWT recommends the BLM give serious consideration to an Alternative with the least intensity of subsistence impacts for Northwest Territories subsistence users.</p> <p>The GNWT recommends the BLM require mitigations to ensure that should impacts occur for Northwest Territories PCH subsistence users, actions are taken to mitigate these impacts in the communities.</p>	3-159

					community participation in subsistence harvesting, processing, sharing, and associated rituals and feasts. Because of this, communities could experience a loss of cultural and individual identity associated with subsistence, a loss of traditional knowledge about land, damaged social and kinship ties, and effects on spirituality associated with the degradation of the Alaska coastal plain,” (3-175). Despite the intensity and severity that these potential impacts would have on the Northwest Territories subsistence users, the EIS has not included in the analysis, a determination of potential mitigations to decrease the severity of these impacts in the communities themselves.		
47	3	3.4	3.4.3	Subsistence Uses and Resources	<p>“To the extent that calving grounds are disturbed by oil and gas development, PCH calf survival and herd numbers could be reduced. An overall reduction in the PCH could also affect harvest success among Iñupiaq, the Gwich’in people, and Inuvialuit caribou hunters.”</p> <p>While the draft EIS acknowledges the potential impacts to Canadian users, communities in Canada were not included in the scoping meetings and are not included in the ANILCA section 810 analysis or discussed in Section 1.7.2 or Section 1.10 of the draft EIS. Based on Russell and Gunn (2019) analysis there is a high risk the herd numbers may be reduced, especially given the timing of development will likely occur when the herd is in a decline phase of its cycle.</p>	The GNWT recommends that public subsistence hearings be held at a minimum in Fort McPherson, and Tsiigehtchic and Aklavik. The BLM should ensure that the Hunters and Trappers Committees, Renewable Resource Councils and public are notified of such meetings.	3-173
48	3	3.4	3.4.4	Sociocultural Systems	The draft EIS has included a detailed analysis of the Gwich’in of Alaska and the Inupiat of Alaska’s socio-cultural systems and potential direct, indirect and cumulative impacts that may occur. This analysis has not included a detailed discussion of the Canadian	The GNWT recommends that BLM include in their analysis how the Gwich’in and Inuvialuit subsistence users of the Northwest Territories may be impacted by the program, particularly as it relates to social cohesion and food security (including a potential increase in reliance on store bought food as a result of a decline of the PCH and how this	3-178

					Gwich'in and Inuvialuit socio-cultural systems, particularly given the significance of social and kinship ties, subsistence harvesting, and their deep connection to the PCH. The Gwich'in and Inuvialuit peoples are the principal subsistence harvesters of the PCH and BLMs analysis indicates that they will experience significant negative impacts from the program and no positive impacts (see recommendations 46 and 49).	relates to decreases in income and increases in poverty related to changes in subsistence activities), and detail potential mitigations to lessen these impacts.	
49	3	3.4	3.4.11	Public Health	The BLM analysis does not include a detailed discussion and analysis of how the human health, well-being and nutritional requirements of the NWT PCH subsistence users, specifically the Gwich'in and Inuvialuit, will be impacted by the program, the severity of these impacts, and any mitigative measures of actions that will be taken to address these impacts.	The GNWT recommends the EIS explicitly state and/or require that the Health Impact Assessments "expected to be developed for future development projects that would require additional NEPA analysis," (3-239) include the NWT subsistence users of the PCH, specifically the Gwich'in and Inuvialuit. The GNWT recommends health impacts resulting from changes in diet and nutrition to Northwest Territories peoples be included in the analysis of Alternatives, including an analysis of the severity of these impacts as determined for each Alternative.	3-239

Appendix B. Reasonably Foreseeable Development Scenario for Oil and Gas Resources in the Public Law 115-97 Coastal Plain, Alaska							
50	B.6 Method and Assumptions for Hypothetical Development Scenario Projections		Paragraph 3	The projected peak in production is 20 years after first lease sale. Based on the timelines outlined in Appendix B, the herd has likely declined from historic highs naturally, even without the impacts of development. If activities proceed it will be crucial to plan monitoring for long term and ensure adaptive management occurs.	The GNWT recommends BLM ensure the monitoring plan put in place is long term and designed so impacts on the PCH can be determined over the entire cycle of the herd.		B-7
B.7 Hypothetical Baseline Scenario							
51		B.7.3 Development		The draft EIS does not include evidence to understand the how the changing of the layout of oil development facility (conceptual design figure B-2) would be	The GNWT recommends the BLM provide evidence to understand conceptual design rationale.		B-15

				effective in mitigating impacts to caribou.		
B.8 Coastal Plain Oil and Gas Leasing Program EIS Alternatives Hypothetical Scenarios						
52		B.8.5 Alternative D2	see reference to B.6 ~ Bullet 19 “Gas would be vented or flared only in emergency situations.”	This assumption is not explained in the EIS. In the vicinity of Deadhorse there are a large number of flares visible. It is unclear from the draft EIS what technology has changed that there would not be a need for flaring except in emergency situations or a definition of what “emergency” means.	The GNWT recommends the BLM explain in the EIS what changes in technology that would allow no flaring, and describe what "emergency situations" means.	B-8
Appendix E. ANILCA Section 810 Preliminary Evaluation						
E.2.1 Evaluation and Finding for Alternative A: No Action						
53		E.2.1.1 Evaluation of the Effect of Use, Occupancy, or Disposition on Subsistence Uses and Needs	<i>“The United States (US) Fish and Wildlife Service (USFWS) determined that the preferred alternative selected in the Record of Decision (ROD) for the Arctic Refuge Revised CCP (USFWS 2015) and subsequent cumulative effects would not significantly restrict subsistence use of resources in the program area.”</i>	It is not clear from this statement that the preferred option in the ROD is wilderness designation. This is an omission that becomes important in other aspects of the draft EIS.	The GNWT recommends the BLM clarify - what the preferred option in the CCP ROD was?	E-4
E.2.2 Evaluation and Finding for Alternative B						
54		E.2.2.1 Evaluation of the Effect of Use, Occupancy, or Disposition on	<i>“This could result in reduced calf survival, as areas east of the program area are</i>	E-8 indicates potential impacts to abundance yet Table E-2 does not reflect this. Based on analysis by Russell and Gunn this may need to be reevaluated.	The GNWT recommends the BLM reevaluate table E-2 and subsequent determinations.	E-8

		Subsistence Uses and Needs	<i>characterized by suboptimal forage and, as a result, higher calf mortality and lower pregnancy rates (Russell et al. 1996). These areas also have higher predation rates, which contributes to higher calf mortality (Young et al. 2002)."</i>			
E.2.3 Evaluation and Finding for Alternative C						
55		E.2.4.1 Evaluation of the Effect of Use, Occupancy, or Disposition on Subsistence Uses and Needs	<i>"Direct habitat loss or alteration from future on-the-ground activities would not affect the availability or abundance of caribou for subsistence use."</i>	Based on the quantitative analysis done in the Russell and Gunn (2019) report, this statement may be an over simplification of the effects.	The GNWT recommends the BLM review Appendix E considering the Russell and Gunn (2019) report.	E-13
56		E.4 Subsistence Determinations under the ANILCA Section 810(a)(3)(A), (B), and (C)		Appendix E ANILCA underestimates the potential impacts of development on the PCH. Evidence from the CAH shows displacement of cows from the calving grounds; declines in pregnancy rates. This analysis needs to consider differences between the CAH and the PCH response to climate factors and habitat available for calving.	The GNWT recommends the BLM repeat the analysis in Appendix E using a more quantitative method.	E-20
Appendix F. Approach to the Environmental Analysis						
F.3 Cumulative Impacts						
57		F.3.2 Past, Present, and Reasonably	Oil and Gas Exploration,	Development activities have been happening for a long time and technology	The GNWT recommends the BLM complete a comprehensive review of the oil and gas development on the North Slope and the changes in	F-7

	Foreseeable Future Actions	Development, and Production “Onshore oil development has been a primary agency of industrial change on the North Slope. Oil and gas exploration has occurred on the North Slope since the early 1900s, and oil production started at Prudhoe Bay in 1977.”	was not available to monitor the impacts was not in place. It is hard to find a clear description and shapefiles of the progress of development on the North slope over time and the distribution of caribou during those same periods. The CAH now has two separate calving areas on either side of the development. The descriptions of the reasonably foreseeable activities could include more details about what is already happening (e.g. when did Point Thomson start producing) and maps showing these areas would helpful to understand the spatial and temporal aspects of development on the North Slope in order to evaluate cumulative impacts.	wildlife distribution during that time to inform the cumulative effects assessment. This should include maps showing the temporal aspect of development on the North Slope	
58	F.3.2 Past, Present, and Reasonably Foreseeable Future Actions	SAExploration 3-Dimensional (3D) Seismic Exploration Surveys	SAExploration plans submitted to BLM included information on area, spacing of lines etc., which allowed determination of the miles of lines proposed lines. This project includes >20,000 miles of lines, over 2.4M vibe points and over 600,000 geophone points. The extent of this program is not clear in this description and if not the 900 miles indicated on page B-12. If the entire coastal plain is part of a 3D seismic program millions of dollars will be spent acquiring data in areas that may not be offered for lease. This could create additional pressure to open areas.	The GNWT recommends the BLM update this section with accurate information. The GNWT recommends the BLM not issue permits to conduct 3D seismic until areas offered for lease are determined.	F-8

F.4 Resource Indicators and Assumptions						
59		F.4.15 Terrestrial Mammals	Impacts and Indicators	The indicators used for polar bears should also be applied to grizzly bears. There are additional indicators for displacement of caribou that could be included e.g. changes in movement rates and ZOI around infrastructure including pipelines.	GNWT recommends the BLM include additional indicators.	F-27 to F-29
Appendix M. Subsistence Uses and Resources						
60		Table of Contents		Data from Canada is missing in this analysis. In particular, for the PCH, where it is estimated 85% of the harvest is by Canadian Native users as defined in the PCMA.	The GNWT recommends the BLM include data from Canadian Native users in this analysis.	M-i