A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
The marine impoundment system is designed for a 1-minute spill, not a 10-minute spill. To consider cascading damage, the Project has provided analysis as requested with RFI-568-ENG-037 (Accession No. 20190524-5193(33592105) and 20190524-5193(33592108)).	AGDC respectfully suggests the text in 4.18.5.5 be modified to reflect the modeling that was performed for RFI-568-ENG-037 (Accession No. 20190524-5193(33592105), filed on 5/24/2019. The analysis considered the potential overflow into the water, and the resulting vapor generation. The vapor dispersion cloud for this EIR remained within the exclusion zone clouds previously determined for the project. Therefore, no additional or new hazards were found based on this analysis.	Review/incorporate the information noted by AGDC. In particular, consider revising section 4.18.5.5, as follows: "~~Specifically,~~ AGDC ~~did not~~ provided details on the spill volumes considered for the 10-minute scenario, which ~~may not have~~ included consideration of the de-inventory volume from the piping system upstream of the ESD valve at the dock up to the ESD or manual isolation valves onshore~~, and subsequently did not demonstrate the marine impoundment system design, including the dock area, would actually contain the spill volumes considered without cascading damage~~.The analysis considered the potential overflow into the water, and the resulting vapor generation. The vapor dispersion cloud remained within the exclusion zone previously determined for the project. Therefore, no additional or new hazards were found based on this analysis." A1-144
This information was provided in response for RFI-568-ENG-041 filed on 5/24/2019 (Accession No. 20190524-5193(33592109)). The response filed on 5/24/19 (Accession No. is 20190524-5193(33592109) for RRF-568-ENG-041) demonstrated that leaks up to full rupture would be hydraulically captured by the tank curbing. Further, the response discussed mitigation measures of jetting releases and concrete tank design elements prevented damage in those spill scenarios	AGDC respectfully suggests modification of section 4.18.5.5 to reflect the engineering data request response filed on 5/24/2019 (RFI-568-ENG-041, Accession No. 20190524-5193(33592109)).	Review/incorporate the information provided by AGDC. In particular, consider revising to reflect recent inputs, such as: "~~However, it is not clear whether the spill curbing system on the tank top would be designed to capture all significant jetting releases up to the full rupture of piping on the tank top.~~AGDC has provided an analysis that indicated the spill curbing system on the tank top would be designed to capture all significant jetting releases up to the full rupture of piping on the tank top." A1-145
Per footnote 160, the assumed spacing of the VSMs should be clarified so it can be compared to other spacings being provided in the DEIS.	AGDC respectfully requests the VSM spacing assumption for section 4.9.2.2, Page 4-1110, Footnote 160, be provided to allow comparison to other projects.	Review/incorporate the information noted by AGDC. In particular, consider adding the VSM spacing assumption for section 4.9.2.2, Page 4-1110, Footnote 160, to allow comparison to other projects. A1-146
AGDC has tabulated the projects in Appendix W and has identified a different number of projects. A copy of the tabulation is provided as an attachment.	AGDC respectfully requests modification of numbers in section 4.19.3, Page 4-1115 as shown in revised text and supported by the attached summary tables showing each project, the project category, and location.	Review/incorporate the information noted by AGDC. In particular, consider modifying section 4.19.3, Page 4-1115, as shown below and supported by the attached tables showing each project, the project category and location: "Transportation projects include new road, highway, and bridge construction; ongoing road maintenance projects; and airport and rail projects. ~~Eight~~ Five transportation projects are in the Cook Inlet vicinity, while three are in A1-147

A1-144 Section 4.18.5.5 of the draft EIS included consideration of the modeling provided with AGDC's response to question 37, filed on May 24, 2019, which did not fully evaluate the consequences of a 10 minute spill occurring upstream of the first ESD valve on the dock plus de-inventory of the marine transfer line up to the onshore ESD valve. After publication of the draft EIS, AGDC's response to question 3, filed on December 12, 2019, and response to question 4, filed on December 23, 2019, addressed this issue by indicating that the trestle area between the berths would allow containment of a full 10-minute release and de-inventory, and the first-nearest onshore ESD valve would be included in the automatic 1-minute shutdowns triggered by dock area hazard detectors. Section 4.18.5.5 of the final EIS has been updated accordingly.

A1-145 AGDC's response to question 41, filed on May 24, 2019, is related to the sizing and design of hazardous liquid spill containment on the LNG tank tops and should demonstrate that all release sizes up to a full rupture of the largest single pipe would be contained, unless it can be demonstrated that providing containment would not reduce the consequences. The response did not clarify collection mechanisms for the full range of release sizes, or an evaluation of the consequences of not containing the full range of releases. The response also recognizes that some spills may jet and land outside of the spill collection curb. Therefore, we included a recommendation in the EIS for the tank top spill collection design to meet the above criteria.

A1-146 Comment noted.

A1-147 Section 4.19.3 of the final EIS has been updated to address this comment.

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
		interior Alaska. Only three such projects, including the Kenai Spur Highway Relocation Project, lie entirely or partially within the same HUC12 watersheds crossed by the Alaska LNG Project. The remaining ~~five~~ two projects were included in this analysis to account for potential cumulative impacts on groundwater, wildlife, visual resources, transportation, socioeconomics, subsistence, air quality, and/or public health and safety in accordance with the geographic scopes for these resources as defined in table 4.19.1-1." File Name: 146_Appendix W Project Tabulation	A1-147
While the use of HUC codes provides an established boundary to determine if a project falls within or outside of the geographic scope of a resource, it also significantly expands the area of influence for resources such as soils, surface waters, vegetation, wildlife, fisheries and aquatic resources, special status species, and land use/recreation and special interest areas. The potential severity of any impacts within a specific HUC code would be expected to rapidly diminish beyond the project footprint for these resources with adherence to AGDC's proposed erosion and sediment control measures (e.g., Applicant's Wetland and Waterbody Crossing Procedures [Applicant's Procedures]; Applicant's Procedures; Applicant's Upland Erosion Control, Revegetation, and Maintenance Plan [Applicant's Plan]; Stormwater Pollution Prevention Plan [SWPPP]), as well as selected construction techniques and mitigation plans (e.g., Spill Prevention, Control, and Countermeasure [SPCC] Plan; HDD Inadvertent Release Contingency Plan; Noxious and Invasive Plant and Animal Control Plan; Gravel Sourcing Plan and Reclamation Measures; Blasting Plan; and Unanticipated Contamination Discovery Plan). Effectively, these Best Management Practices (BMPs) are expected to minimize the potential for cumulative effects and minimize the spatial extent of any impact migration beyond the Project footprint. The DEIS in Section 4.19.4 acknowledges this expectation. As stated in 4.19.4 (which conflicts with how cumulative impacts were portrayed in Table 4.19.1-1: "The Alaska LNG Project would affect geology, soils, water resources, vegetation, wetlands, wildlife, cultural resources, visual resources, air quality, noise, and some land uses. We conclude that most of the Project-related impacts would be contained within or adjacent to the temporary construction right-of-way and ATWS, which would reduce the Project's contribution to cumulative effects."	AGDC respectfully requests modification of Table 4.19.1-1 to include a description that the geographic scope of HUC12 for soils, surface waters, vegetation, wildlife, fisheries and aquatic resources, special status species, and land use/recreation and special interest areas is highly conservative in nature for these resources. While the use of HUC codes provides an established boundary for defining whether a project falls within or outside of the geographic scope of a resource, it also significantly expands the area of influence for resources such as soils, surface waters, vegetation, wildlife, fisheries and aquatic resources, special status species, and land use/recreation and special interest areas. The potential severity of any impacts within a specific HUC code would be expected to rapidly dimension beyond the project footprint for these resources with adherence to AGDC's proposed erosion and sediment control measures (e.g., Applicant's Wetland and Waterbody Crossing Procedures [Applicant's Procedures]; Applicant's Procedures; Applicant's Upland Erosion Control, Revegetation, and Maintenance Plan [Applicant's Plan]; Stormwater Pollution Prevention Plan [SWPPP]), as well as selected construction techniques and mitigation plans (e.g., Spill Prevention, Control, and Countermeasure [SPCC] Plan; HDD Inadvertent Release Contingency Plan; Noxious and Invasive Plant and Animal Control Plan; Gravel Sourcing Plan and Reclamation Measures; Blasting Plan; and Unanticipated Contamination Discovery Plan). Effectively, these Best Management Practices (BMPs) should both minimize the	Review/incorporate the information noted by AGDC. In particular, consider inserting a footnote to Table 4.19.1-1 to indicate: "The use of HUC12 watershed areas to identify projects with the potential for cumulative effects is highly conservative. Potential effects would primarily be limited to only the immediate portion of the HUC12 watershed area within which the Project is located (see Section 4.19.4). In addition, due to Alaska LNG's commitment to BMPs and Project-specific plans, the likelihood of cumulative impacts with projects more distant but within the HUC12 watershed area is significantly reduced with adherence to these BMPs."	A1-148

A1-148 See the response to comment A1-1.

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
	potential for cumulative effects as well as the spatial extent of any impact migration beyond the Project footprint. The DEIS in Section 4.19.4 acknowledges this. As stated in 4.19.4 (which conflicts with how cumulative impacts were portrayed in Table 4.19.1-1): "The Alaska LNG Project would affect geology, soils, water resources, vegetation, wetlands, wildlife, cultural resources, visual resources, air quality, noise, and some land uses. We conclude that most of the Project-related impacts would be contained within or adjacent to the temporary construction right-of-way and ATWS, which would reduce the Project's contribution to cumulative effects."		A1-148
This statement is not correct nor consistent with gas interconnections description in Section 2.1.4.2, which is not correct nor consistent with the gas interconnections description in Section 2.1.4.2. The incorrect statement implies AGDC has established binding commercial agreements in-place, which we do not have.	AGDC respectfully requests modification of section 4.19.2 in first paragraph on Page 4-1114 to clarify the current status of commercial agreements.	Review/incorporate the information noted by AGDC. In particular, consider modifying section 4.19.2, first paragraph on Page 4-1114 to: "...locations for the following three interconnections based on the execution of binding gas delivery commercial agreements with end-use customers."	A1-149
The length of the third pipeline should be an 8 and not a 3. This is consistent with Appendix W and the current project description AGDC has for the project.	AGDC respectfully suggests modification of section 4.19.2.2, Page 4-1110, to indicate the length of the third pipeline is 8 miles rather than 3.	Review/incorporate the information noted by AGDC. In particular, consider correcting text in 4.19.2.2, Page 4-1110 to: "PBU MGS Project would also include construction of four new byproduct pipelines measuring 25, 3, ~~3~~8, and 8 miles in length (diameter to be determined) to send GTP byproduct to existing well pads for reinjection into the field."	A1-150
The project totals provided are incorrect based on the projects listed in Appendix W.	AGDC respectfully requests modification of section 4.19.3, Page 4-1115 to fix slight discrepancies in numbers of projects as listed in Appendix W.	Review/incorporate the information noted by AGDC. In particular, consider modifying section 4.19.3, Page 4-1115 to correct slight discrepancies in numbers of projects as follows: "Including the non-jurisdictional facilities, ~~17~~16 energy infrastructure projects are located or proposed to be located on the North Slope, 7 are in the interior part of the state, and 9 are in the Cook Inlet vicinity. Of these ~~33~~ 32 projects, ~~10~~ 16 lie entirely or partially within HUC12 watersheds crossed by the Alaska LNG Project. The remaining ~~23~~ 16 projects were included in this analysis to account for potential cumulative impacts on groundwater, wildlife, visual resources, transportation, socioeconomics,	A1-151

A1-149 Section 4.19.2.5 of the final EIS has been updated to address this comment.

A1-150 Section 4.19.2.2 of the final EIS has been updated to address this comment.

A1-151 Section 4.19.3 of the final EIS has been updated to address this comment.

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
		subsistence, air quality, and/or public health and safety in accordance with the geographic scopes for these resources as defined in table 4.19.1-1."	A1-151
Per the project name on Figure 4.19.3-1, the Armstrong-Repsol project name has been changed to the Nanushuk Project elsewhere.	AGDC respectfully requests modification of the Armstrong-Repsol project name on Figure 4.19.3-1 to the Nanushuk Project.	Review/incorporate the information noted by AGDC. In particular, consider modifying the Armstrong-Repsol project name on Figure 4.19.3-1 to the Nanushuk Project.	A1-152
Figure 4.19.3-2 includes the Anchorage Staging / Laydown Areas, Blue Crest Energy, and Global Geophysical Services projects which are not included in Appendix W.	AGDC respectfully requests removal of the Anchorage Staging / Laydown Areas, Blue Crest Energy, and Global Geophysical Services projects from Figure 4.19.3-2.	Review/incorporate the information noted by AGDC. In particular, consider removing the Anchorage Staging / Laydown Areas, Blue Crest Energy, and Global Geophysical Services projects from Figure 4.19.3-2.	A1-153
Per the project names on Figure 4.19.3-2, the Tesoro Kenai Refinery project name has been changed to the Andeavor Kenai Refinery elsewhere.	AGDC respectfully requests updating of the Tesoro Kenai Refinery project name on Figure 4.19.3-2 to the Andeavor Kenai Refinery.	Review/incorporate the information noted by AGDC. In particular, consider updating of the Tesoro Kenai Refinery project name on Figure 4.19.3-2 to the Andeavor Kenai Refinery.	A1-154
Figure 4.19.3-1 includes the Pebble Project Mine which is not included in Appendix W.	AGDC respectfully requests removal of the Pebble Mine Project from Figure 4.19.3-1 or inclusion of that project in Appendix W.	Review/incorporate the information noted by AGDC. In particular, consider removing the Pebble Mine Project from Figure 4.19.3-1 or including it in Appendix W.	A1-155
No laterals are currently proposed for the interconnect sites and the locations of any such facilities are not yet known; therefore, the extent of impacts cannot be fully assessed. Further, any future pipeline projects would be required to adhere to similar BMPs as the Alaska LNG Project. Similar to what is described for the Alaska LNG Project, most impacts would be limited to the area of direct disturbance due to the implementation of various mitigation measures (e.g., the installation of erosion and sediment controls).	AGDC respectfully requests modification of section 4.19.4.2, Page 4-1120, to recognize that laterals have not been proposed for interconnect sites, and that BMPs would mitigate potential cumulative impact.	Review/incorporate the information noted by AGDC. In particular, consider modifying DEIS text in Section 4.19.4.2, Page 4-1120, to provide a more accurate perspective on potential for cumulative impact, such as: "Some of the energy projects identified in appendix W-1, such as the PTU Expansion and PBU MGS Projects and future laterals or distribution facilities associated with the in-state gas interconnections, would require the expansion of existing facilities or construction of new infrastructure, including well pads, access roads, or pipelines. Impacts from construction and operation of natural gas gathering and other pipelines and associated facilities would be similar to those expected from natural gas transmission lines, but on a smaller scale due to the smaller diameter and shorter length of the pipe and smaller size of aboveground appurtenances. Several large diameter pipelines could also be constructed within the same timeframe or shortly after the Alaska LNG Project construction, such as future laterals associated with the in-state gas interconnections, resulting in similar environmental impacts, including permafrost degradation due to soil disturbance or heat transfer from pipelines. The portions of these	A1-156

A1-152 Figure 4.19.3-3 has been updated to address this comment.

A1-153 Figure 4.19.3-2 has been updated to address this comment.

A1-154 Figure 4.19.3-2 has been updated to address this comment.

A1-155 Figure 4.19.3-1 has been updated to address this comment.

A1-156 See the response to comment A1-1.

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
		projects within the same HUC12 watersheds as the Alaska LNG Project could combine to result in cumulative impacts on soils and sediments, including impacts on permafrost. However, it is expected that any future pipeline projects would be required to adhere to similar BMPs as Alaska LNG. Similar to what is described for the Alaska LNG, most impacts would be limited to the area of direct disturbance with implementation of these BMPs (e.g., the installation of erosion and sediment controls), mitigating some of the cumulative impacts on soils and sediments, including permafrost. The new pipelines for the PBU MGS Projects would be installed above grade on VSMs, which would mitigate some of the cumulative impacts on permafrost."	A1-156
As noted in the DEIS, remedial restoration work is already under way to correct the issues that have been identified with the two fiber optic projects. Per permitting requirements, the responsible entities will be required to continue remedial efforts until the area is restored. Given the time lag between when the Alaska LNG Project will start construction in the vicinity of these areas and the other projects restoration efforts underway, the potential for these areas to potentially contribute to significant cumulative impacts is reduced.	Modify DEIS text in Section 4.19.4.2, Page 4-1120/21 to recognize remedial restoration work is already under way to correct the issues that have been identified with the two fiber optic projects referenced. Given the time lag between when the Alaska LNG Project will start construction in the vicinity of these areas and the other projects' restoration efforts underway, the potential for these areas to contribute to significant cumulative impacts is reduced.	Review/incorporate the information noted by AGDC. In particular, consider modifying DEIS text in Section 4.19.4.2, Page 4-1120/21 to address separation in time between the Alaska LNG project and the recent fiber optic cable projects, along with expectations for remediation of the impact of the fiber optic cable projects, with language such as: "Two fiber optic projects, the Quintillion Terrestrial and the GCI Alaska United fiber optic projects, were installed adjacent to the Dalton Highway in 2017. Since these projects were built, about 20 segments of their rights-of-way on the North Slope ranging in length from 20 to 500 feet have experienced permafrost thawing, resulting in settlement and ponding in these locations. Remedial restoration work is in progress in these areas to avoid impacts on highway stability and erosion into adjacent wetlands and waterbodies. The Alaska LNG Project's Mainline Pipeline parallels the Dalton Highway corridor for its first 400 miles, with varying distances of separation between the highway and proposed pipeline. The magnitude of cumulative impacts on soils in this area, particularly with respect to permafrost degradation, would be dependent on the success of the fiber optic projects' remedial restoration work currently under way. Based on permitting requirements, the entities responsible for the fiber optic projects will be required to continue remedial efforts until the	A1-157

A1-157 See the response to comment A1-1 and the updates to sections 4.2.5.2 and 4.19.4.2.

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
		area is restored. Given the time lag between when the Alaska LNG would start construction in the vicinity of these areas and the other projects' restoration work, the potential for significant cumulative impacts is reduced. Further, AGDC reviewed the fiber optic cable projects with ADOT&PF to discuss construction techniques, mitigation practices, and rehabilitation plans. Lessons learned from those projects have been incorporated into the Alaska LNG Project design, execution plans, and post-construction revegetation plans to reduce the potential for significant cumulative impacts."	A1-157
Although other projects could result in permafrost degradation, at this time, as described in Section 3.7.1 of the DEIS, the specified cumulative impacts from other projects is speculative, related to unspecified pipeline laterals and unsuccessful remediation. Therefore, the designation here that there would be significant cumulative impacts is not warranted. Further, AGDC will be developing a Pipeline Operation and Maintenance Plan that specifies the applicable Project facilities and details to monitor, mitigate, and manage potential permafrost degradation and resulting impacts, including soil liquefaction and other forms of mass wasting. Further, the Alaska LNG has incorporated lessons learned from the fiber optic line projects as well as agency input to prevent large-scale permafrost impacts.	AGDC respectfully requests modification to the DEIS text in Section 4.19.4.2, Page 4-1121 to recognize remedial restoration of the fiber optic cable route constructed by another entity will likely be well underway and/or completed before construction of the Alaska LNG project.	Review/incorporate the information noted by AGDC. In particular, consider modifying section 4.19.4.2 as follows: "Based on the above discussion, we conclude that cumulative effects on soils and sediments due to permafrost degradation are likely for the following reasons: 1) permafrost thawing is an ongoing problem in locations within the same HUC12 watersheds as the Alaska LNG Project (e.g., along the Dalton Highway associated with the fiber optic line projects); 2) thawing of permafrost would occur due to the Alaska LNG Project; and 3) permafrost thawing could occur due to other projects within the same HUC12 watersheds, such as highway maintenance projects or construction of new laterals for the in-state gas interconnections. The success of remediation of impacts on permafrost along the fiber optic line projects is unknown at this time. However, based on permitting requirements, the entities responsible for those projects will be required to continue remedial efforts until the area is restored. Given the time lag between start of construction for the Alaska LNG project in the vicinity of the fiber optic cable areas and the fact that remedial restoration has already begun, the potential for these areas to contribute significantly to cumulative impacts is reduced. Because permafrost thaw and the creation of thermokarst can spread laterally beyond the footprint of a project, and impacts on permafrost would affect hydrology and vegetation, AGDC would be developing a Pipeline Operation and Maintenance Plan that specifies the applicable Project facilities and	A1-158

A1-158 See the response to comment A1-1 and the updates to sections 4.2.5.2 and 4.19.4.2.

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
		details on monitoring, mitigating, and managing potential permafrost degradation and resulting impacts, including soil liquefaction and other forms of mass wasting. These factors would in combination reduce the potential for significant cumulative impacts on permafrost as a result of the Project. Further, AGDC reviewed the fiber optic cable projects with ADOT&PF to discuss construction techniques, mitigation practices, and rehabilitation plans. Lessons learned from those projects have been incorporated into the Alaska LNG Project design, execution plans, and post-construction revegetation plans to further reduce the potential for significant cumulative impacts. The probability of significant cumulative impacts to permafrost is low based on these factors. ~~the Project, together with other actions, would result in significant cumulative impacts on permafrost.~~ Minor cumulative impacts due to erosion, sedimentation, or compaction, would be anticipated."	A1-158
The statistics presented in this paragraph of section 4.19.4.3, Page 4-1121, are inconsistent with Appendix H and updated information provided in RFI-561-FERC-073-1 (Accession No. 20181119-5181). In summary, the number of public water systems within 500 feet listed in Appendix H is 12 instead of 28. Wells within 150 feet is what is included in Appendix H, with the number being 125. In addition to Appendix H, the number of wells in proximity to the Kenai Spur Highway was provided in response to RFI-561-FERC-073-1 (Accession No. 20181119-5181). This included 1 public water system within 500 feet and 32 private water wells within 150 feet. The location of the new water pipeline associated with the Kenai Municipal Water System Upgrades is not known at this time and is not included. Note that the conclusion of this section would remain the same even if these statistics are updated.	AGDC respectfully requests modification of section 4.19.4.3, Page 4-1121, to be consistent with Appendix H. Note that the conclusion of this section would remain the same even if these statistics are updated.	Review/incorporate the information noted by AGDC. In particular, consider modifying 4.19.4.3, Page 4-1121, to be consistent with Appendix H, as follows: "The proposed Alaska LNG Project and associated non-jurisdictional facilities would cross ~~28~~ 13 public water systems and be within ~~500~~ 150 feet of ~~235~~ 157 known private water wells and one identified spring."	A1-159
As noted, restoration work is already under way to correct the issues identified on the fiber optic cable projects. Per permitting requirements, the responsible entities will be required to continue remedial efforts until the area is restored. Given the time lag between when the Alaska LNG Project will start construction in the vicinity of these areas, and the fact that restoration has already begun, the potential for these areas to contribute to significant cumulative impacts is reduced.	AGDC respectfully requests the FERC to consider modifying the DEIS text in Section 4.19.4.3, Page 4-1125 to reflect the fiber optic cable remedial work underway.	Review/incorporate the information noted by AGDC. In particular, consider modifying section 4.19.4.3, Page 4-1125, to better define effects of the fiber optic cable project remedial actions already underway relative to timing of the Alaska LNG Project. For example, text could read: "As discussed in the previous section on soils and sediments, recent permafrost thawing on numerous segments of two fiber optic projects adjacent to the Dalton Highway have the	A1-160

A1-159 Section 4.19.4.3 of the final EIS has been updated to address this comment.

A1-160 See the response to comment A1-1 and the updates to sections 4.2.5.2 and 4.19.4.2.

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
		potential to cause erosion into waterbodies. Although specific locations of these segments are not identified, the proximity of the Dalton Highway to the Alaska LNG Project alignment suggests that if such problems occur, they could be within the same HUC12 watersheds traversed by the Project. This means that any such impacts would be cumulative to the Project's freshwater resource impacts, most notably temporary turbidity and sedimentation caused by pipeline construction at stream crossings or by thaw bulb formation. The magnitude of cumulative impacts on freshwater resources in this area would be dependent on the success of the fiber optic projects' remedial restoration work currently under way. Based on permitting requirements, the responsible entities would be expected to continue remedial efforts until the area is restored. Given the time lag between when the Alaska LNG Project would start construction in the vicinity of these areas and that remedial restoration has already begun, the potential for these areas to contribute significantly to cumulative impacts is reduced. Further, AGDC reviewed the fiber optic cable projects with ADOT&PF to discuss construction techniques, mitigation practices, and rehabilitation plans. Lessons learned from those projects have been incorporated into the Alaska LNG Project design, execution plans, and post-construction revegetation plans to reduce the potential for significant cumulative impacts."	A1-160
The COE's Section 404 permitting process will require compensatory mitigation and best management practices for each of the projects impacting wetlands. The COE must review and consider whether a proposed project avoids, minimizes, and/or compensates for impacts on existing aquatic resources, including wetlands. All of the identified projects (PTU Expansion, PBU MGS Expansion, Donlin Gold Mine natural gas pipeline, Ambler Road, and Kenai Water System Upgrades) will be required to develop Wetland Mitigation Plans to address unavoidable impacts on wetlands. Because the Alaska LNG and other projects would be required to compensate for wetland impacts, and the fact that almost half of Alaska is wetland, AGDC respectfully requests the FERC to consider the impacts in the context of the extent of the resource in the process of assessing cumulative impacts.	AGDC respectfully requests the FERC to consider Alaska LNG project impacts in the context of the extent of the resource and with consideration for the mitigation and best management practice requirements. If the context of the extent of the resource is considered, along with compensatory and mitigation practices, the cumulative impact on wetlands from construction and operation of the Alaska LNG Project would not be significant.	Review/incorporate the information noted by AGDC. In particular, consider modifying section 4.19.4.4, Page 4-1128 to recognize Corps of Engineers' compensatory mitigation requirements for this project and other projects in the area. For example, text could include: "Projects that would have quantifiable wetland impacts within the same HUC12 watersheds as the proposed Project include the PTU and PBU Expansion Projects, the Kenai Water System Upgrades, the Ambler Road (Roads to Resources) Project, and the natural gas pipeline component of the Donlin Gold Mine. Adding the other project impacts for which data are available with the Project's impacts on	A1-161

A1-161 See the response to comment A1-1.

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
		wetlands results in an estimated cumulative wetland impact of about 12,080 acres." Implementation of construction BMPs and permitting requirements (e.g., as imposed through the COE's Section 404 permitting process) would minimize some impacts on wetlands during construction and operation of the Alaska LNG Project and other actions, including the PTU Expansion and PBU MSG Projects. For example, winter construction (e.g., the use of ice roads) reduces the impacts on wetlands from North Slope oil and gas activities. Further, projects would be required to mitigate for any permanent impacts such that there would be no net loss of wetland values and functions. Therefore, there would be no significant cumulative impacts due to the permanent loss of wetlands. ~~These measures notwithstanding, the Project and other actions would result in significant cumulative impacts due to the permanent loss of wetlands."~~	A1-161
Per Appendix W, Accumulate Energy has 98,182 acres under lease.	AGDC respectfully requests correction of section 4.19.4.5, Page 4-1129, to be consistent with Appendix W.	Review/incorporate the information noted by AGDC. In particular, consider modifying the acreage under lease in section 4.19.4.5, Page 4-1129, to be consistent with Appendix W, as follows: "The Great Bear Shale Oil Development currently has 500,000 acres of leases available, and the Accumulate Energy Project has ~~9,182~~98,182 acres under lease."	A1-162
Based on the percentage loss in the context of the NS amount of tidal marsh, the impact would not be significant.	AGDC respectfully requests the FERC to consider updating the conclusion in Section 4.19.4.5, Page 4-1129/30 to recognize that the percentage loss in the context of North Slope tidal marsh would not be significant.	Review/incorporate the information noted by AGDC. In particular, consider updating the last sentence in Section 4.19.4.5, Page 4-1129/30 to indicate: "Therefore, the cumulative loss of Arctic tidal marsh would be minor and not significant."	A1-163

A1-162 Section 4.19.4.5 of the final EIS has been updated to address this comment.

A1-163 See the response to comment A1-1.

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
			A1-163
This was not a specific analysis performed by AGDC for all of the projects listed in Appendix W-1. Many of the projects listed do not have a defined footprint. An analysis was provided for the Non-jurisdictional facilities as defined at the time (see RFI-467-RR03-075, Accession No. 20171201-5235) were complete for. A subset of what is in Appendix W-1.	AGDC respectfully requests correction of section 4.19.4.5, Page 4-1131, to indicate the assessment was performed by FERC.	Review/incorporate the information noted by AGDC. In particular, consider modifying section the DEIS text in Section 4.19.4.5, Page 4-1131, as follows: "~~AGDC~~ FERC did not note any documented rare plant species occurrences in or near the other projects listed in appendix W-1."	A1-164
The project list is inconsistent with Appendix W. Four Lakes Warming Research is noted to be within the HUC10 but outside the HUC12 watersheds crossed by the Project. This change does not affect the conclusions.	AGDC respectfully requests modification of the project list in section 4.19.4.6, Page 4-1131, to be consistent with Appendix W. This change does not affect the conclusions.	Review/incorporate the information noted by AGDC. In particular, consider modifying section 4.19.4.6, Page 4-1131, as follows: "For migratory species, potential cumulative effects from ~~three~~ four additional actions—Cook Inlet Oil and Gas Development, Chuitna Coal Mine, ~~and~~ Livengood Gold Project and Four Lakes Warming Research projects—are included in the analysis. These are the only identified projects within the HUC10 but outside the HUC12 watersheds crossed by the Project."	A1-165
The ADF&G acknowledges that the impact of oil infrastructure on the Central Arctic Caribou Herd has been considered; however, it is not thought to be contributing to population decline since the herd grew substantially during peak oil development (Source: ADF&G. Central Arctic Caribou Herd News. Winter 2016-2017, reference attached). Further, AGDC has commented elsewhere on the DEIS sections which discuss potential impacts to the caribou Central Arctic Herd that literature supports the conclusion that elevated pipelines (of 7 feet or higher) have insignificant impacts on caribou movements during summer and winter. The PTTL would be built to that height as well as collocated with the Badami and Point Thomson pipelines for much of the route. Further, all other North Slope projects considered in the cumulative analysis, would be held to the same standard to implement BMPs that would effectively mitigate impacts to caribou. Therefore, impacts to caribou movement would be insignificant.	AGDC respectfully suggests modifying cumulative impacts assessment as noted, consistent with scientific study information provided.	Review/incorporate the information noted by AGDC. In particular, consider revising section 4.19.4.6, Page 4-1133, to be consistent with scientific study information provided, as follows: "Although the PTTL would be installed with a minimum pipeline height of 7 feet, the Project ~~would~~ could have the potential for ~~significant~~ impacts on the Central Arctic Herd due to its construction during ~~sensitive~~ certain periods, permanent impacts on ~~sensitive~~ habitats, and its location at the center of the Central Arctic Herd's range. However, the impact of oil infrastructure on the Central Arctic Caribou Herd is not thought to be contributing to population decline since the herd grew substantially during peak oil development. In addition, other planned oil and gas infrastructure within the Project's geographic scope on the North Slope would be held to the same standard as Alaska LNG to implement BMPs that would effectively mitigate impacts to caribou. Therefore, cumulative impacts on	A1-166

A1-164 Section 4.19.4.5 of the final EIS has been updated to address this comment.

A1-165 Section 4.19.4.6 of the final EIS has been updated to address this comment.

A1-166 See the responses to comments SA2-6 and A1-1.

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
		the Central Arctic Herd would be less than significant."~~Combined with impacts from other existing and planned oil and gas infrastructure within the Project's geographic scope on the North Slope, cumulative impacts on the Central Arctic Herd would be significant, although the duration of such impacts is uncertain.~~" See also attached ADF&G Central Arctic Caribou Herd News. Winter 2016-2017. File Name: 165_ADF&G Central Arctic Caribou Herd News Winter 2016-2017	A1-166
AGDC has agreed to commit to the PTTL being installed with a minimum pipeline height of 7 feet. In addition, siting of the GTP was also done adjacent to the CGF, in the vicinity of existing infrastructure, and within the designated Prudhoe Bay Unit, an area set aside for oil and gas development by authorities.	AGDC respectfully suggests removing the conclusion that cumulative impacts to the Central Arctic Herd of caribou is significant, as that conclusion is not supported by science, nor does it recognize the GTP is in an area of existing infrastructure and the project would be expected to implement standard North Slope BMPs.	Review/incorporate the information noted by AGDC. In particular, consider revising the conclusion in section 4.19.4.6, Page 4-1133, to be consistent with scientific study information provided, and expectations for BMPs, as follows: "Because these measures would reduce impacts, and because the overall footprint of the projects considered here represent such a small percentage of the available similar habitat within each of the affected watersheds, we conclude that the cumulative impact on terrestrial wildlife would be minor~~, with the exception of the Central Arctic Herd of caribou, for which we conclude the cumulative impact would be significant~~."	A1-167

A1-167 See the responses to comments SA2-6 and A1-1.

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
Three operating facilities are referenced but only two operating facilities are listed. Add the Andeavor Kenai Refinery to this sentence, which makes the third existing facility in this area.	AGDC respectfully requests addition of the Andeavor Kenai Refinery to section 4.19.4.9, Page 4-1144 to name the third existing facility in this area.	Review/incorporate the information noted by AGDC. In particular, consider modifying section 4.19.4.9, Page 4-1144, as follows: "Simultaneous construction of some geographically grouped projects, such as the proposed Liquefaction Facilities and projects at Agrium, Andeavor Kenai Refinery, and the Kenai LNG Plant, could result in delays due to availability of construction personnel; however, no major expansions associated with these three operating facilities have been identified."	A1-168
The 473 acres in section 4.19.4.9, Page 4-1144, only includes the forested land that will be converted for the LNG Plant. As identified in Table 4.9.1-1, the Liquefaction Facility would result in the conversion of 893 acres (473 acres of forested land, 159 acres of open land, 1 acre of open water, and 260 acres of residential land).	AGDC respectfully requests modification of section 4.19.4.9, Page 4-1144 to correct the acreage numbers for the LNG facility.	Review/incorporate the information noted by AGDC. In particular, consider modifying Section 4.19.4.9, Page 4-1144 to correct the acreage numbers for the Liquefaction Facility. As shown in Table 4.9.1-1, that facility would result in the conversion of 893 acres (473 acres of forested land, 159 acres of open land, 1 acre of open water, and 260 acres of residential land).	A1-169
As noted in Section 4.9.4.2 of the DEIS, the North Slope SUA includes all state lands in the Umiat Meridian (essentially, the area north of 68 degrees latitude). That is approximately 93,875 square miles (60,080,000 acres). This information can be included to provide context for the level of impact.	AGDC respectfully requests additional information be placed in 4.19.4.9, Page 4-1145 to give context for the described impact. As noted in section 4.9.4.2, the North Slope SUA includes all state lands in the Umiat Meridian (essentially, the area north of 68 degrees latitude). We suggest including this information to provide context for the level of impact since specific project impact acreages are provided.	Review/incorporate the information noted by AGDC. In particular, consider modifying Section 4.19.4.9, Page 4-1145 to indicate: "Cumulative impacts on the North Slope SUA, which encompasses all state lands in the Umiat Meridian (essentially all land north of 68 degrees latitude), from the proposed Project and these two non-jurisdictional facilities are estimated at 5,625 acres, of which 5,533 acres (97 percent) is for the proposed Project, representing <0.01 percent of the North Slope SUA. The impacts from the proposed Project and the non-jurisdictional facilities represent an insignificant amount of land in the North Slope SUA."	A1-170
No conclusion is drawn for this potential cumulative impact. Based on the mapping provided in Appendix W, these projects are located 80 pipeline miles north of the Denali Visitor Center, outside of the geographic scope of visual resources. In addition, as described in the DEIS, future expansion of the Usibelli Coal Mine is not currently proposed and the company has not exported coal outside the state since 2016. Although Governor Bill Walker announced in February 2018 that China might have an interest in importing coal from Alaska, no firm commitments which could lead to expansion of the mine site are in place. Similarly, the Eva Creek Wind Project Expansion and Maintenance Project is listed in Appendix W, as having been completed in 2013 with operations	AGDC respectfully requests modification of section 4.19.4.10, Page 4-1146 to provide context for the projects identified as having potential visual impacts.	Review/incorporate the information noted by AGDC. In particular, consider revising Section 4.19.4.10, Page 4-1146 text to expand on the description, such as: "Projects that would combine with the Alaska LNG Project to contribute to cumulative visual impacts are identified in appendix W-1. The magnitude of cumulative impacts would generally be highest for projects closest to the Alaska LNG Project and sensitive visual resource areas, as defined in section 4.10.1. In particular,	A1-171

A1-168 Section 4.19.4.9 of the final EIS has been updated to address this comment.

A1-169 Section 4.19.4.9 of the final EIS has been updated to address this comment.

A1-170 See the response to comment A1-1.

A1-171 See the response to comment A1-1.

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
and maintenance ongoing. Therefore, the current assessment of the Alaska LNG Project's KOPs already accounts for these past actions. Any future cumulative impacts of these projects due to expansion would be speculative.		projects near the DNPP, such as the Usibelli Coal Mine and Eva Creek Wind Projects, could contribute to cumulative visual impacts. However, based on the distance away and current status of these projects, cumulative visual impacts to the DNPP would not be expected."	A1-171
AGDC has proposed mitigation to account for the additional demand at the ports. See section 4.12.2.3 of the DEIS.	AGDC respectfully requests modification of section 4.19.4.12, Page 4-1149, to incorporate AGDC's proposed mitigation to account for additional demands at ports.	Review/incorporate the information noted by AGDC. In particular, consider modifying section 4.19.4.12, Page 4-1149 to: "Many of the current or reasonably foreseeable actions are either in open-water or shoreline locations, or would require use of the same ports and waterways affected by construction of the Alaska LNG Project. The proposed Project construction would use much of the available capacity of the Ports of Alaska (Anchorage) and Seward (see section 4.12). To the degree that any of the reasonably foreseeable actions would also use these ports, demand for port facilities could exceed capacity, resulting in cumulative impacts. The potential for significant cumulative impacts would be reduced as AGDC states that if capacity limitations emerge, it would shift containerized deliveries from the Port of Anchorage to the Port of Seward. In addition, shipping companies serving the Port of Whittier could have the ability to add capacity."	A1-172
AGDC has proposed mitigation to account for the additional railroad demand. However, that isn't mentioned here.	AGDC respectfully requests modification of section 4.19.4.12, Page 4-1149, to incorporate AGDC's proposed mitigation to account for the additional railroad demand.	Review/incorporate the information noted by AGDC. In particular, consider modifying section DEIS text in Section 4.19.4.12, Page 4-1149 to read: "As discussed in section 4.12, railway demand for construction of the Alaska LNG Project would already exceed the number of rail cars available to the Alaska Railroad from Years 1 to 6. Any additional demand from other projects would encounter similar limitations. Cumulative impacts on railroads during periods of construction could limit the availability of commercial railroad service to other users. The potential for significant cumulative impacts would be reduced as AGDC states that it would implement long-lead contracting, procurement, and cooperation with the ARRC to mitigate for its demand, and that a 2-year notice would be sufficient to allow the ARRC to procure the	A1-173

A1-172 Section 4.19.4.12 of the final EIS has been updated to address this comment.

A1-173 Section 4.19.4.12 of the final EIS has been updated to address this comment.

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
		additional rail cars needed to support construction." "The PTTL could affect the movement of the Central Arctic Herd to important insect relief areas along the coast, which could affect hunter access from the coast. The potential for significant impacts on caribou movement would be mitigated with AGDC's installation of the PTTL with a minimum pipeline height of 7 feet. Literature supports the conclusion that elevated pipelines (of 7 feet or higher) have insignificant impacts on caribou movements." "The GTP and associated gravel roads and pads, a material site, a reservoir, and pipelines represent a permanent loss of ~~sensitive~~ caribou habitat. Overall, the cumulative impacts could increase the area considered to be undesirable by subsistence users, and require subsistence users to travel farther to harvest subsistence foods at a greater cost in terms of time, fuel, wear and tear on equipment, and harvester's lost wages and increased safety risks. However, siting of the GTP facilities within the vicinity of existing North Slope infrastructure reduces the potential for cumulative impacts on previously undisturbed areas. In addition, the GTP would be within the designated Prudhoe Bay Unit, an area set aside for oil and gas development by authorities, and in an area of limited harvest activity." See also attached ADF&G Central Arctic Caribou Herd News. Winter 2016-2017. File Name: 165_ADF&G Central Arctic Caribou Herd News Winter 2016-2017	A1-173
Literature supports the conclusion that elevated pipelines (of 7 feet or higher) have insignificant impacts on caribou movements. AGDC has agreed to commit to the PTTL being installed with a minimum pipeline height of 7 feet. In addition, the PTTL would be collocated with the existing Badami and Point Thomson pipelines for much of the route. Further, all other North Slope projects considered in the cumulative analysis would be held to the same standard to implement BMPs that would effectively mitigate impacts to caribou. Therefore, impacts to caribou movement would be expected to be insignificant and a reduction in the availability of caribou during operation is not anticipated. Further, the GTP would be adjacent to the CGF and in the vicinity of existing infrastructure along Prudhoe Bay, as noted in the analysis in RFI-466-RR05-035 (Accession No. 20171201-5211). From a scientific perspective, the ADF&G acknowledges that the impact of oil infrastructure on the Central Arctic Caribou Herd has also been considered, but is not thought to be contributing to population decline since the herd grew substantially during peak oil development. In addition, ADF&G notes that resident hunters mostly hunt off of the Dalton Highway (Source: ADF&G. Central Arctic Caribou Herd News. Winter 2016-2017, attached).	AGDC respectfully suggests adding to section 4.19.4.14, Page 4-1151 to recognize that the potential for significant impacts on caribou movement would be reduced with AGDC's installation of the PTTL with a minimum pipeline height of 7 feet. Literature supports the conclusion that elevated pipelines (of 7 feet or higher) have insignificant impacts on caribou movements. In addition, it is important to recognize siting of the GTP is adjacent to the CGF and in the vicinity of existing infrastructure along Prudhoe Bay. Further, the impact of oil infrastructure on the Central Arctic Caribou Herd has been considered, but is not thought to be contributing to population decline since the herd grew substantially during peak oil development (Source: ADF&G. Central Arctic Caribou Herd News. Winter 2016-2017).	Review/incorporate the information noted by AGDC. In particular, consider adding the following information to section 4.19.4.14, Page 4-1151 in two locations, to recognize the PTTL is elevated and the GTP is near existing developed infrastructure as follows:	A1-174
Based on the mapping provided in Appendix W, there are no other projects which have been identified within the vicinity of the Minto Flats area to create potential cumulative impacts in terms of access to the area.	AGDC respectfully requests modification of section 4.19.4.14, Page 4-1152, to not the lack of other projects in the area relative to potential for cumulative impacts.	Review/incorporate the information noted by AGDC. In particular, consider revising section 4.19.4.14, Page 4-1152 to indicate: New access roads, from the Project or other projects, have the potential to provide easier	A1-175

A1-174 See the responses to comments SA2-6 and A1-1.

A1-175 Section 4.19.4.14 of the final EIS has been updated to address this comment.

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
		access to subsistence resources for local harvesters, but if opened to outsiders, they could result in increased competition and pressures on wildlife populations. Outsider access to Minto Flats would result in harvest competition in a previously undeveloped area. AGDC would restrict or impede access to key subsistence use areas near Minto Flats which would minimize impacts. In addition, no other projects have been identified in the general area which would create access and potential cumulative impacts. Therefore, the Alaska LNG Project~~, in combination with other applicable projects,~~ would result in moderate, albeit permanent cumulative impacts.	A1-175
Siting of the GTP adjacent to the CGF and in the vicinity of existing infrastructure along Prudhoe Bay should be acknowledged as well as the analysis in RFI-466-RR05-035 (Accession No. 20171201-5211). In addition, the ADF&G acknowledges that the impact of oil infrastructure on the Central Arctic Caribou Herd has also been considered, but is not thought to be contributing to population decline since the herd grew substantially during peak oil development (Source: ADF&G. Central Arctic Caribou Herd News. Winter 2016-2017, attached).	AGDC respectfully suggests adding to section 4.19.4.14, Page 4-1151 to recognize North Slope projects considered in the cumulative analysis would be held to the same BMP requirements and cumulative impacts would not be expected.	Review/incorporate the information noted by AGDC. In particular, consider modifying and adding the following information to section 4.19.4.14, Page 4-1151 to recognize North Slope projects considered in the cumulative analysis would be held to the same BMP requirements and cumulative impacts would not be expected: "~~While d~~Direct habitat loss from cumulative oil and gas development near the Project would affect only a small proportion of the total area used by caribou, Long term displacement is unlikely in the caribou herd, with the possible exception of calving. Displacement from calving areas is also equivocal (Noel et. A. 2004, 2006). ~~, functional habitat loss could result from long-term displacement of caribou from the vicinity of the applicable projects listed in Appendix W-1 and could encompass a much larger area resulting in reduced availability of caribou.~~ AGDC would implement mitigation measures, including consultation with the potentially affected subsistence communities, to prevent conflicts with subsistence hunting. Cumulative effects of the Alaska LNG Project in combination with other projects on the North Slope could disrupt or delay the distribution of caribou on the North Slope and could negatively affect subsistence harvests of caribou by the Nuiqsut, Kaktovik, Utqiaġvik, and Anaktuvuk Pass village residents. However, all other North Slope projects considered in the cumulative analysis, would be held to the same standard to implement BMPs that would	A1-176

A1-176 See the responses to comments SA2-6 and A1-1.

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
		effectively mitigate impacts to caribou. A reduction in the availability of caribou is not anticipated." See also attached ADF&G Central Arctic Caribou Herd News. Winter 2016-2017. File Name: 165_ADF&G Central Arctic Caribou Herd News Winter 2016-2017	A1-176
Align the conclusions in the cumulative section of the DEIS with technical AGDC comments submitted for section 4.15 with regards to air quality related values, regional ozone, regional secondary formation of PM2.5, overlapping construction, startup, and operations emissions, and air quality conclusions. Furthermore, this section should clarify the results of the maximum flare modeling analysis, which shows that emissions associated with maximum flare events at the GTP and Liquefaction Facilities would not result in exceedances of the NAAQ/AAAQS, nor would the toxic air pollutants generated during maximum flare events result in exceedances of EPA's REL.	AGDC respectfully suggests alignment of the conclusions in the cumulative section of the DEIS (4.19.4.15 (p. 4-1156)) with air impact assessments based on emission modeling consistent with comments on other sections.	Review/incorporate the information noted by AGDC. In particular, consider modifying text as follows: "Assessment of the Alaska LNG Project's impact on ambient air quality requires the modeling of emissions in conjunction with background ambient air quality concentrations, which includes nearby emission sources. Based on our quantitative analysis, the proposed Project combined with other activities within the Project's temporal and geographic scope would not result in a significant impact on local and regional air quality for the majority of the Project's operation (including unplanned flaring events). ~~During the years that simultaneous construction, startup, and operational activities occur at the Liquefaction Facilities, which would likely be Years 7 and 8 of construction, emission levels could result in exceedances of the NAAQS/AAAQS, which could result in a potential significant impact on air quality in the immediate vicinity of the Liquefaction Facilities.~~ Emissions from the aboveground facilities, including the GTP, compressor stations, heater station, and Liquefaction Facilities, ~~could cause exceedances of visibility thresholds and sulfur or nitrogen deposition thresholds~~ exceed FLAG project screening levels for visibility or acidic deposition at some Class I and Class II nationally designated protected areas. However, these impacts would be less than significant. ~~Additionally, certain short-term activities, such as flaring at the GTP and Liquefaction Facilities, have the potential to result in short-term significant effects.~~These results are presented in section 4.15.5."	A1-177
The timing for the PTU Expansion Project in this section is not consistent with what is shown in Table 4.19.4-2 for the PTU Expansion Project. Project construction with drilling would span 6 years.	AGDC respectfully requests modification of section 4.19.4.15 to make the timing for the PTU Expansion Project in this section consistent	Review/incorporate the information noted by AGDC. In particular, consider modifying section 4.19.4.15 to make the timing for the PTU	A1-178

A1-177 Comment noted. See the response to comment A1-133.

A1-178 Section 4.19.4.15 of the final EIS has been updated to address this comment.

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
	with Table 4.19.4-2, which indicates project construction with drilling would span 6 years.	Expansion Project in this section consistent with Table 4.19.4-2: "Based on the current project schedule, construction of the PTU Expansion Project would occur over 26 years, and construction of the PBU MGS Project would occur over 9 years."	A1-178
The "Construction Year" in DEIS Tables 4.19.4-2 and 4.19.4-3 does not correspond with Tables 1, 2, and 4 of Appendix G in RR9. PTU Expansion Project construction starts in Year 3 and ends in Year 8. PBU MGS Project construction starts in Year 2 and ends in Year 10.	AGDC respectfully requests modification of section construction years in Tables 4.19.4-2 and 4.19.4-3 consistent with Appendix G in RR9.	Review/incorporate the information noted by AGDC. In particular, consider modifying Tables 4.19.4-2 and 4.19.4-3, as attached, to be consistent with RR9, Appendix G. File Name: 178_Tables 4.19.4-2 and 4.19.4-3	A1-179
There are inconsistencies between Table 4.19.4-4 and what was submitted in Tables 3 and 5 of Appendix G, RR9. The inconsistencies include the Year column and one SO2 value.	AGDC respectfully requests modification of Table 4.19.4-4 for consistency with submitted values in RR9.	Review/incorporate the information noted by AGDC. In particular, consider updating Table 4.19.4-4, as shown on the attached to match Tables 3 and 5 of Appendix G, RR9. File Name: 179_Table 4.19.4-4	A1-180
There are several discrepancies between Table 4.19.4-5 of the DEIS and Tables 3 and 5 of Appendix G, RR9. All of the values should be negative and the year column is off. In addition, the values listed for Year 11 (Year 12 of Appendix G, RR9) are not correct for CO, PM10, PM2.5, and SO2, they are for the total for PTU and PBU.	AGDC respectfully requests modification of Table 4.19.4-5, as shown on the attached, to be consistent with Tables 3 and 5 of Appendix G of RR 9.	Review/incorporate the information noted by AGDC. In particular, consider updating Table 4.19.4-5, as shown on the attached to match Tables 3 and 5 of Appendix G, RR9. File Name: 180_Table 4.19.4-5	A1-181
Based on the information in Section 4.16.4.3 of the DEIS, although noise could be significant, it will still be in compliance with FERC noise criterion based on estimated levels.	AGDC respectfully requests modification of section 4.19.4.16, Page 4-1158, to recognize project noise levels are expected to be in conformance with FERC noise limits.	Review/incorporate the information noted by AGDC. In particular, consider modifying section 4.19.4.16, Page 4-1158, to recognize project noise levels are expected to be in conformance with FERC noise limits as follows: "Actions identified within 1 mile of the Liquefaction Facilities (i.e., the Kenai LNG Plant, Andeavor Kenai Refinery, and Agrium Kenai Nitrogen Operations Facility) are existing facilities that are not expected to generate significant incremental noise. However, at the two NSAs where the Project noise impact by itself could be significant, noise from these existing sources could cumulatively increase the intensity of this impact. Based on estimates, noise generated by operation of the Liquefaction Facilities would comply with our 55 dBA Ldn noise criterion at the nearby NSAs."	A1-182
The temperature increases that are noted with a high or very high level of confidence in the report are for the contiguous United States (see page 185 of the USGCRP, 2018).	AGDC respectfully requests that a footnote be added to the DEIS Section 4.19.4.18, Page 4-1161, to indicate the confidence levels are specific to the contiguous US, and not applicable to Alaska.	Review/incorporate the information noted by AGDC. In particular, consider adding a footnote to DEIS Section 4.19.4.18, Page 4-1161 to indicate:	A1-183

A1-179 Tables 4.14.4-2 and 4.14.4-3 of the final EIS have been updated based on the current construction schedule and emissions provided in AGDC's revised construction emission calculations filed on September 18, 2019 (Accession No. 20190918-5098).

A1-180 Table 4.14.4-4 of the final EIS has been updated based on AGDC's revised construction emission calculations filed on September 18, 2019 (Accession No. 20190918-5098).

A1-181 Table 4.14.4-5 of the final EIS has been updated based on AGDC's revised construction emission calculations filed on September 18, 2019 (Accession No. 20190918-5098).

A1-182 See the response to comment A1-1.

A1-183 The projected temperature increases were derived from the USGCRP Fourth National Climate Assessment Chapter 26, which is specific to the state of Alaska.

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
		"These confidence levels are specific to the contiguous US." The footnote should be appended to the sentence that reads "USGCRP's Fourth Assessment Report notes the following projections of climate change impacts in the Project region with a high or very high level of confidence (USGCRP, 2018)."	A1-183
The DEIS text in 5.1, page 5-1 (3rd paragraph) notes AGDC is required to get all federal permits and authorizations. AGDC is also required to applicable state permits and approvals, as noted elsewhere in the DEIS text.	AGDC respectfully requests a change from 'federal' in this sentence to 'federal and state' to be consistent with other parts of the DEIS and to recognize applicability of state legal requirements to the Project.	Review/incorporate the information noted by AGDC. In particular, consider modifying section 5.1, p. 5-1, as follows: "In addition, AGDC is required to obtain all applicable federal and state permits and authorizations required to construct and operate the Project."	A1-184
The Alaska LNG Project will fully meet applicable requirements of 49 CFR Part 192, including adequate protective design of the concrete-coated pipeline beneath Cook Inlet to meet PHMSA and other applicable requirements. Please note that PHMSA has indicated it does not comment on designs that meet requirements of 49 CFR Part 192, nor does it provide concurrence to designs, so an expectation that they do so should probably be removed from the DEIS. In addition, please note that AGDC responded to the request for information on the Cook Inlet Crossing as documented in RFI-561-FERC-034-2 (Accession No.20190524-5248).	AGDC respectfully requests clarifications and updates to section 5.1.3.3, p. 5-11 to take into account PHMSA's approach to projects and to include information provided by AGDC on the Cook Inlet Crossing.	PHMSA does not comment on designs that meet requirements of 49 CFR Part 192, nor does it provide concurrence to designs in the manner that FERC has requested; therefore, we request deletion of the statement: "...but PHMSA has not confirmed that the concrete coating and other design factors proposed by AGDC have been adequately demonstrated to be protective." In addition, we request replacement of the second paragraph of that section with recognition that AGDC provided a comprehensive data request response to PHMSA and FERC on the Cook Inlet Crossing on May 24, 2019, which is documented in RFI-561-FERC-034-2 (Accession No. 20190524-5248).	A1-185

A1-184 Section 5.1 of the final EIS has been updated to address this comment.

A1-185 See the updates to section 5.1.3.3 of the final EIS.

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
Air quality is listed as both having impacts that would be unlikely or minor (first paragraph) and significant (second paragraph). Based on the assessment provided in Section 4.19.4.15 of the DEIS, air quality should be removed from the second paragraph. AGDC has commented on the conclusion of cumulative impacts being "significant" for permafrost, wetlands, forest, and caribou (Central Artic Herds). In addition, AGDC has highlighted additional supporting mitigation measures and information for consideration. The second paragraph should be revised appropriately if AGDC's comments are accepted. The cumulative impacts should be minor to moderate for permafrost, forest, and caribou with the mitigation proposed. Further, there should be no cumulative impacts to wetlands based on the requirements for compensatory mitigation.	AGDC respectfully requests modification of the DEIS text in Section 5.1.19, Page 5-43, to be more consistent with other portions of the DEIS and to take mitigation expectations into account.	Review/incorporate the information noted by AGDC. In particular, consider modifying Section 5.1.19, Page 5-43, to be more consistent with other portions of the DEIS and to take mitigation expectations into account: "We concluded that cumulative impacts would be unlikely or minor for most resources, including geology; soils; surface and marine waters; most vegetation types; terrestrial wildlife; aquatic species; threatened, endangered, and special status species; land use, recreation, and SUAs; socioeconomics; transportation; cultural resources; air quality; noise; and public health and safety. The Project would result in long-term to permanent impacts on permafrost, wetlands, forest, and caribou (Central Artic Herds), and other projects in the study area would similarly affect these resources. However, we found that significant cumulative impacts for permafrost, forest, and caribou (Central Artic Herds) would be unlikely. In addition, due to compensatory mitigation plan requirements, cumulative impacts to wetlands would not be significant. ~~Because the Project would result in substantial long-term to permanent impacts on permafrost, wetlands, forest, caribou (Central Artic Herds), and air quality, and other projects in the study area would similarly affect these resources, we found that cumulative impacts would or could be significant.~~"	A1-186
In sections 4.18.9 and section 5.2, staff recommendation 109, FERC is recommending AGDC file a Cost-Sharing Plan identifying the mechanisms for funding all Project-specific security/emergency management costs that would be imposed on state and local agencies. However, AGDC notes that Alaska has a Payment in Lieu of Taxes (PILT) program that provides a process for reimbursing governments for certain expenses to help offset losses in property taxes. Therefore AGDC respectfully requests that FERC add the following redline language to staff recommendation 109 to indicate the additional requirement for cost sharing with local ERP entities at the GTP and Liquefaction facilities would be rationalized to PILT payments the Alaska LNG Project would separately negotiate with local governments.	AGDC respectfully suggests adding to section 5.2 (SR 109, p. 5-66) and 4.18.9, p. 4-1073 to indicate that the condition could be satisfied with overall PILT payments, and to note that the quarterly reporting requirement would begin following the project Final Investment Decision (FID).	Review/incorporate the information noted by AGDC. In particular, consider revising FERC Recommended Mitigation No. 109, as follows: "**Prior to initial site preparation,** AGDC shall file a Cost-Sharing Plan identifying the mechanisms for funding all Project-specific security/ emergency management costs that would be imposed on state and local agencies. This comprehensive plan shall include funding mechanisms for the capital costs associated with any necessary security/emergency management equipment and personnel base. This condition can be satisfied with overall PILT payments. AGDC shall notify FERC staff of all	A1-187

A1-186 See the response to comment A1-1.

A1-187 See the response to comment A1-1.

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
		planning meetings in advance and shall report progress on the development of its Cost Sharing Plan at 3-month intervals following Final Investment Decision. (section 4.18.9)"	A1-187
The requirement for the number of EIs per spread to be determined by the Director of the Office of Energy Projects adds potential risk and cost uncertainty to the Project, is unprecedented, and does not appear warranted considering that AGDC will, in fact, exceed the FERX minimum requirements. In addition, this Staff Recommendation differs from the language in section 2.4.1 that describes the requirements for EIs and indicates the implementation plan submitted for FERC approval is the way AGDC is to identify specifics regarding the EI program. As noted in section 2.4.1 of the DEIS, AGDC proposed to include at least one EI per spread in accordance with the minimum requirements set by the FERC in their Upland Erosion Control, Revegetation, and Maintenance Plan for interstate natural gas pipeline projects. That program has been further developed in the attached EI Program Overview, demonstrating AGDC's commitment to implementing a strong EI program.	AGDC respectfully requests FERC take into consideration the attached additional information on AGDC's planned EI program and the expectation for the EI program to be included in the implementation plan as described in section 2.4.1. The planned program provides coverage and expertise needed to ensure EI duties are fully addressed.	AGDC recommends staff recommendation #8 be revised as follows, taking into consideration the attached commitments for the EI program: AGDC shall employ a team of EIs per construction spread ~~(the number per spread to be determined by the Director of the OEP)~~. The EIs shall be: a. responsible for monitoring and ensuring compliance with all mitigation measures required by the Order and other grants, permits, certificates, or other authorizing documents; b. responsible for evaluating the construction contractor's implementation of the environmental mitigation measures required in the contract (see condition 7 above) and any other authorizing document; c. empowered to order correction of acts that violate the environmental conditions of the Order and any other authorizing document; d. a full-time position, separate from all other activity inspectors; e. responsible for documenting compliance with the environmental conditions of the Order, as well as any environmental conditions/permit requirements imposed by other federal, state, or local agencies; and f. responsible for maintaining status reports. File Name: 187_EI Program Overview	A1-188
This recommended mitigation would be improved and more consistently implemented with additional definitions related to legal requirements for the phrase "problems of a significant magnitude".	AGDC respectfully suggests staff recommendation #9 would be improved and more consistently implemented by defining the scope for the phrase "problems of a significant magnitude" in the recommendation that "Problems of a significant magnitude shall be reported to FERC within 24 hours." It is not clear to AGDC if the 24-hour reporting requirement is intended to be linked to existing legal definitions and thresholds such as any releases over Reportable Quantity levels that must be reported to the National Response Center (NRC), or if this recommendation is	Regarding Staff Recommendation #9: To ensure reporting requirements are clearly defined, and to ensure the FERC compliance monitor hears about the right issues, please consider linking the 24-hour reporting requirement to existing legal definitions and thresholds and clarifying the reports need to be to the compliance monitor rather than part of the standard reporting. For example, the language could be modified to say: "~~Problems of a significant magnitude shall be reported to FERC within 24 hours.~~Any releases	A1-189

A1-188 See the response to comment A1-1.

A1-189 Comment noted.

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
	attempting to address other concerns during construction activities. AGDC can appreciate that the FERC wants to know as soon as possible if a problem of a significant magnitude occurs. If this is expected to be addressed in the context of the otherwise "standard" status reporting recommendation in this Recommended Mitigation, AGDC recommends that, in addition to clarifying the definition, the FERC consider modifying the requirement to clarify that problems of a significant magnitude will be reported "to the FERC compliance monitor" within 24 hours.	over Reportable Quantity levels that must be reported to the National Response Center (NRC) must also be reported to the FERC compliance monitor within 24 hours."	A1-189
In sections 4.2.4 and 5.2, staff recommendation 26, FERC is recommending AGDC use fines in granular fill for the surface course used on all construction workspaces. However, AGDC believes this is not an operationally sound recommendation and has potential for increasing environmental impacts in the form of fugitive dust and increased sediment in runoff without improving potential for revegetation. Fines in granular fill for the surface course will decrease load capacities and increases dust and mud issues. Further, it will not improve potential for revegetation of the areas since much of the fine material would run off or blow away during construction activities. Therefore, AGDC respectfully requests FERC drop this recommendation.	In sections 4.2.4 and 5.2, staff recommendation 26, FERC is recommending AGDC use fines in granular fill for the surface course used on all construction workspaces. However, AGDC believes this is not an operationally sound recommendation and has potential for increasing environmental impacts in the form of fugitive dust and increased sediment in runoff without improving potential for revegetation. Fines in granular fill for the surface course will decrease load capacities and increases dust and mud issues. Further, it will not improve potential for revegetation of the areas since much of the fine material would run off or blow away during construction activities. Therefore, AGDC respectfully requests FERC drop this recommendation.	AGDC respectfully requests deletion of this Staff Recommendation. It is not operationally sound and has potential for increasing environmental impacts in the form of fugitive dust and increased sediment in runoff without improving potential for revegetation.	A1-190
Please consider adding a recognition there are some cases where mats will not be feasible and alternatives such as the planned gravel placement will be required. In particular, in sections 4.2.4 and section 5.2, staff recommendation 25, FERC is recommending AGDC review areas proposed for Mode 4 construction in the summer and confirm that winter construction would not be feasible, and that AGDC use timber/synthetic mats in place of granular fill in wetlands proposed for Mode 4 construction in a number of locations. However, AGDC believes there are some cases where mats will not be feasible and alternatives such as the planned gravel placement will be required. In addition, AGDC believes this recommendation has potential for increased costs, feasibility issues, and potential for schedule execution delays. Example factors that could impact feasibility for use of mats include, but are not limited to: 1. Safe working surface – mats must be applied to level work surface such that heavy equipment can operate. This requires ground surface prep which will impact and jeopardize the surface organic layer. Otherwise matting joints and individual segments	AGDC respectfully requests modification of section 5.2 (SR 25, p. 5-51) and 4.2.4 to allow an assessment of feasibility of timber/synthetic mats based on conditions at the site. Example factors that could impact feasibility include, but are not limited to: 1. Safe working surface – mats must be applied to level work surface such that heavy equipment can operate. This requires ground surface prep which will impact and jeopardize the surface organic layer. Otherwise matting joints and individual segments will be unstable under equipment loads. 2. Permafrost surface layer damage – matting applied in summer season compress into and damage surface layer organics and increase active layer thawing. 3. Area of work - in some cases, the area fitting FERC criteria for this condition is small and does	Review/incorporate the information noted by AGDC. In particular, consider modifying section 5.2 (SR 25, p. 5-51) and 4.2.4 to incorporate a feasibility assessment for use of timber/synthetic mats as follows: "**Prior to construction of the Mainline Facilities,** AGDC shall review areas proposed for Mode 4 construction in the summer and confirm that winter construction would not be feasible in low slope areas (0 to 2 percent). Additionally, AGDC shall review and evaluate the use timber/synthetic mats in place of granular fill in wetlands proposed for Mode 4 construction on slopes of 0 to 2 percent and in uplands proposed for Mode 4 summer construction on slopes of 0 to 2 percent that are underlain by thaw-stable permafrost, and indicate mats will be used or identify reasons	A1-191

A1-190 See the response to comment A1-1 and A1-51.

A1-191 This comment is addressed in section 4.2.4 of the final EIS. See also the response to comment A1-1.

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
will be unstable under equipment loads. 2. Permafrost surface layer damage – matting applied in summer season have potential to compress into and damage surface layer organics and increase active layer thawing. 3. Area of work - in some cases, the areas fitting FERC criteria for this condition are small and do not make a separate construction method feasible from a logistics or cost perspective. Based on these factors, AGDC respectfully requests FERC consider adding the following language to staff recommendation 25 to further analyze the locations where FERC is requesting the changes to winter construction, and where FERC is asking to switch to mats instead of gravel. In particular, AGDC will need to further examine factors such as the mileage, location within spread, and constraints that may prevent changes due to other project needs or conditions (e.g., access, water availability, adjacent topography/ROW mode, execution feasibility) to determine if there are some locations where it will be feasible to switch to mat use and/or where it is not possible.	not make a separate construction method feasible from a logistics or cost perspective.	mat use is not feasible. If any changes result from these analyses. AGDC shall prepare revised alignment sheets and resource impact tables adopting changes to Mode 4 areas reflecting the increase in winter construction segments and the replacement of granular fill with timber/synthetic mats. Prior to construction of the Mainline Facilities, AGDC shall file the revised sheets and resource impact tables with the Secretary for the review and written approval of the Director of the OEP. (section 4.2.4)"	A1-191
AGDC filed an inaccurate depiction of the time period between clearing and construction as 1 to 3 years in RFI-528-FERC-068 (Accession No. 20180427-5256 (32852095)). The correct time frame is as depicted in RFI465-FERC-010 (Accession No. 20180102-5180 (3260545)) of 1 to 1 1/2 years between clearing and construction.	AGDC filed an inaccurate depiction of the time period between clearing and construction as 1 to 3 years in RFI-528-FERC-068 (Accession No. 20180427-5256 (32852095)). The correct time frame is 1 to 1 1/2 years between clearing and construction, as explained in RFI-465-FERC-010 (Accession No. 20180102-5180 (3260545)). AGDC requests removal of this Staff Recommendation, since it has been addressed with AGDC's correction in RFI-465-FERC-010 (Accession No. 20180102-5180 (3260545).	Since it was required prior to the end of the comment period, AGDC filed this response AGDC filed this information to the FERC Docket September 18, 2019 (Accession No. 20190918-5098). AGDC respectfully requests deletion of this Staff Recommendation. It was based on a mistake by AGDC when an inaccurate depiction of the time period between clearing and construction was provided to FERC as 1 to 3 years in RFI-528-FERC-068 (Accession No. 20180427-5256 (32852095)). The correct time frame is 1 to 1 1/2 years between clearing and construction as noted in RFI-465-FERC-010 (Accession No. 20180102-5180 (3260545)). Based on this additional information, AGDC requests removal of this Staff Recommendation, since it has already been addressed with AGDC's correction in RFI-465-FERC-010 (Accession No. 20180102-5180).	A1-192
In sections 4.4.1.2 and 5.2, staff recommendation 39, FERC is recommending that AGDC field-delineate wetland areas immediately prior to planned Mainline Pipeline winter construction segments and identify the field-delineated wetlands with markers in the field and on revised construction alignment sheets. In response, AGDC notes that the recommendation does not provide flexibility for use of electronic markers, which can be more effective than physical markers in some circumstances and cause less environmental impact. Therefore, AGDC is respectfully requesting FERC modify staff recommendation 39 to include the	AGDC respectfully requests modification of section 5.2 (SR 39, p. 5-53) and 4.4.1.2 to allow for use of electronic delineation methods when feasible, as noted in the redline suggestions. In addition, AGDC commits to implement the measures in staff recommendation 39. During the growing season immediately prior to planned winter construction segments of the Mainline Pipeline, AGDC shall delineate	Review/incorporate the information noted by AGDC. In particular, consider modifying section 5.2 (SR 39, p. 5-53) and 4.4.1.2 to allow for use of electronic delineation methods when feasible, as noted below: "39. During the growing season immediately prior to planned winter construction segments of the Mainline Pipeline, AGDC shall ~~field~~ delineate wetland areas. The ~~field~~ delineated	A1-193

A1-192 Sections 4.2.5.2 and 5.2 of the final EIS have been updated to address this comment.

A1-193 See the updates to sections 4.4.1.2, 5.1.4, and 5.2 of the final EIS. Electronic marking (e.g., GPS coordinates) may be used to relocate wetland boundaries in subsequent years following field-delineations, but physical markers on the right-of-way are required to identify wetland boundaries as described in the Project Procedures.

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
following redline changes. In addition, AGDC hereby commits to implement the measures in staff recommendation 39 into its Project execution plans. 39. During the growing season immediately prior to planned winter construction segments of the Mainline Pipeline, AGDC shall field-delineate wetland areas or provide for electronic delineation where feasible. The field-delineated boundaries shall be identified with markers in the field, or electronically where feasible, and on revised construction alignment sheets that shall be filed with the Secretary prior to construction through these areas. The results of these field surveys shall be included in the final wetland delineation reports filed with the Secretary. (section 4.4.1.2)	wetland areas. The delineated boundaries shall be identified with markers in the field, or electronically where feasible, and on revised construction alignment sheets that shall be filed with the Secretary prior to construction through these areas. The results of these field surveys shall be included in the final wetland delineation reports filed with the Secretary. (section 4.4.1.2)	boundaries shall be identified with markers in the field, or electronically where feasible, and on revised construction alignment sheets that shall be filed with the Secretary prior to construction through these areas. The results of these field surveys shall be included in the final wetland delineation reports filed with the Secretary."	A1-193
Appendix K-2 of the DEIS is correct and consistent with the Project Winter and Permafrost Construction Plan	AGDC filed this information to the FERC Docket September 18, 2019 (Accession No. 20190918-5098). AGDC has reviewed the mode designations presented in Appendix K-2 of the DEIS and confirms it is correct and consistent with the Project Winter and Permafrost Construction Plan.	AGDC has reviewed the mode designations presented in Appendix K-2 of the DEIS and confirms it is correct and consistent with the Project Winter and Permafrost Construction Plan.	A1-194
In sections 4.6.3.2 and section 5.2, staff recommendation 50, FERC is recommending AGDC file revised shutdown distances for all underwater noise generating activities and shutdown zones for a number of harassment zones or a commitment to conduct sound source verification efforts. However, AGDC notes that marine mammal shutdown and harassment zones will be covered by the NMFS and USFWS in anticipated incidental take approvals and those approvals would evaluate potential project noise impacts and dictate shutdown distances. In addition, AGDC believes FERC's specific recommendations are premature and could potentially conflict with requirements that would be dictated by the NMFS and USFWS marine mammal rules, permits, and approvals. Therefore, AGDC respectfully requests the FERC modify staff recommendation 50 as indicated by redline edit suggestions.	AGDC respectfully requests modification of section 5.2 (SR 50, p. 5-54) and 4.6.3.2 to refer to and be consistent with NMFS and USFWS requirements.	Review/incorporate the information noted by AGDC. In particular, consider modifying section 5.2 (SR 50, p. 5-54) and 4.6.3.2 to refer to and be consistent with NMFS and USFWS requirements, as noted below: "50. Prior to construction, AGDC shall file with the Secretary, for the review and written approval of the Director of the OEP, revised shutdown distances for all underwater noise generating activities (i.e., pile driving [impact, vibratory, and all pile types], dredging, screeding, anchor handling, Mainline Pipeline shoreline installation, and Marine Terminal MOF removal). For the revised shutdown distances, AGDC will use shutdown distances as dictated in NMFS and USFWS marine mammal rules, permits, and approvals ~~shall establish: a. shutdown zones for Level A harassment for all marine mammals based on the modeled distances in appendix L-1, tables L-1.1-3, L-1.1-4, L-1.1-8, and L-1.1-9 of the EIS (pile driving~~	A1-195

A1-194 Sections 4.4.2 and 5.2 of the final EIS have been updated to address this comment.

A1-195 See the response to comment A1-1.

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
		~~activities shall stop until the animal moves out of the shutdown injury zone);~~ ~~b. shutdown zones for Level B harassment for Cook Inlet beluga whales based on the modeled distances in appendix L-1, tables L-1.1-10 and L-1.1-12 of the EIS (pile driving and dredging activities shall stop until the animal moves out of the shutdown harassment zone); and~~ ~~c. harassment zones for Level B harassment for all marine mammals (except Cook Inlet beluga whales) based on the modeled distances in appendix L-1, tables L-1.1-5, L-1.1-10, L-1.1-11, L-1.1-12, and L-1.1-13 of the EIS (activity noise levels shall be lowered when animals enter these zones, until they leave the area, if possible).~~ ~~Alternatively, AGDC may commit to conducting a Sound Source Verification during construction that would establish appropriate shutdown and harassment zones based on observed underwater noise levels.~~ (section 4.6.3.2)"	A1-195
In sections 4.6.3.2 and section 5.2, staff recommendation 51, FERC is recommending AGDC file a revised PSO deployment plan. AGDC agrees to file the plan, however notes that the additional specific PSO requirements in staff recommendation 51 will be covered by the NMFS and USFWS in anticipated incidental take approvals and those approvals would evaluate potential project impacts and dictate PSO requirements. AGDC believes FERC's specific recommendations are premature and could potentially conflict with requirements that would be dictated by the NMFS and USFWS marine mammal rules, permits, and approvals. Therefore, AGDC respectfully requests the FERC modify staff recommendation 51 as indicated by redline edit suggestions.	AGDC respectfully requests modification of section 5.2 (SR 51, p. 5-55) and 4.6.3.2 to refer to and be consistent with NMFS and USFWS requirements.	Review/incorporate the information noted by AGDC. In particular, consider modifying section 5.2 (SR 51, p. 5-55) and 4.6.3.2 to refer to and be consistent with NMFS and USFWS requirements, as noted below: "51. Prior to construction, AGDC shall file with the Secretary, for the review and written approval of the Director of the OEP, a revised PSO deployment plan consistent with NMFS and USFWS marine mammal rules, permits and approvals. ~~that includes the following:~~ ~~a. for pile driving activities in Cook Inlet and Prudhoe Bay, AGDC shall station at least one PSO at sea near the edge of the shutdown zone (for Level A) and one PSO stationed at sea or on land near the edge of the harassment zone (for Level B); and station at least one PSO on the pile driving barge, or in an adjacent land-based vantage point;~~ ~~b. for anchor handling activities in Cook Inlet, AGDC shall station at least one PSO on the pipelay vessel; and~~ ~~c. for dredging and screeding activities and Mainline Pipeline shoreline installation, AGDC shall station at least one PSO on each dredging and screeding vessel or accompanying vessel.~~ (section 4.6.3.2)"	A1-196

A1-196 See the response to comment A1-1.

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
The process used in the DEIS to evaluate AQRV impacts is not consistent with the accepted process established by Federal Land Managers (FLMs) in the FLAG 2010 guidance document, and subsequently used by AGDC in preparation of RR9. Following the FLAG 2010 process, the science demonstrates that emissions from Project components will not adversely affect AQRV. There is no basis in the record for recommending that AGDC mitigate Project component emissions to reduce the predicted visibility or deposition impacts. See detailed comments attached.	AGDC respectfully suggests that the FLAG initial project screening levels do not represent a pass/fail test for adverse impacts, and instead the impacts need to be evaluated on a case-by-case basis. In comments on the air quality portions of the DEIS, in AGDC comment #128 above, AGDC provides additional explanation of the AQRV impacts and supports a determination that the currently estimated impacts are not adverse. For these reasons, AGDC respectfully requests that FERC remove the Class I and Sensitive Class II Mitigation Plan requirement from sections 4.15.5.3 and section 5.2, staff recommendation 72, and update the impacts assessment discussion in the DEIS as provided in AGDC's comments.	Review/incorporate the information noted by AGDC. In particular, consider removing the Class I and Sensitive Class II Mitigation Plan requirement from sections 4.15.5.3 and section 5.2 (SR 72) and update the impact assessment discussion in the DEIS, as provided in AGDC comments (see attached), consistent with the FLAG 2010 guidance and AGDC responses to requests for information. Details for this response are included in AGDC comment #128 above, and also attached here for reference. File Names: 196_Comment Redline 128b_RFI-466_RR09-007_Public 128c_RFI-466_RR09-008_Public	A1-197
There is currently not a definition for the term 'Problems of significant magnitude…' AGDC will be implementing procedures to communicate the requirement and requests clarity on FERC's expectations for reporting. Similar to AGDC's comments on staff recommendation 9, AGDC believes staff recommendation 204 would be improved and more consistently implemented by defining the scope for the phrase "problems of a significant magnitude" in the recommendation that "Problems of a significant magnitude shall be reported to FERC within 24 hours." It is not clear to AGDC if the 24-hour reporting requirement is intended to be linked to existing legal definitions and thresholds such as any releases over Reportable Quantity levels that must be reported to the National Response Center (NRC), or if this LNG cargo ship unloading or loading activities. AGDC can appreciate that the FERC wants to know as soon as possible if a problem of a significant magnitude occurs during unloading or loading LNG cargo ships. If this needs to be addressed in the context of the otherwise "standard" status reporting recommendation, AGDC recommends that, in addition to clarifying the definition, the FERC consider modifying the requirement to clarify who at FERC would need to be notified within 24 hours.	AGDC respectfully requests FERC provide a definition, or point to a regulatory citation, for the term 'Problems of significant magnitude…' AGDC will be implementing procedures to communicate the requirement and wants to be clear on FERC's expectations for reporting.	Review/incorporate the information noted by AGDC. In particular, consider providing a definition, or pointing to a regulatory citation, for the term 'Problems of significant magnitude' so the notification requirements can be properly implemented.	A1-198

A1-197 See the response to comment CO29-5 and A1-1.

A1-198 Problems of significant magnitude can generally be defined as an event that threatens the public or employee safety, causes significant property damage, or interrupts service. Examples of reportable hazardous fluids-related incidents are provided in Staff Recommendations 163 and 164 of the final EIS, including items (a) through (m) of Staff Recommendation 164. In addition, FERC staff note that there may be other events not listed that may be considered significant that would be reviewed on a case-by-case basis.

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
Supervision' is used in the text, but 'Oversight' is the appropriate expectation for the contract owner.	AGDC respectfully requests changing the language in this requirement from 'supervision' to 'oversight'. Employers have a legal requirement for supervision of their employees. AGDC's role as the contract owner will be oversight of the contractors rather than the supervision required and provided by a direct employer.	Review/incorporate the information noted by AGDC. In particular, consider modifying section 5.2 (SR 208, p. 5-77) and 4.18.9, as follows: "208. Prior to commencement of service, AGDC shall develop procedures for handling off-site contractors including responsibilities, restrictions, and limitations and for ~~supervision~~ oversight of these contractors by AGDC staff. (section 4.18.9)"	A1-199
The current map doesn't show the location of the Mainline MOF. The map has been revised and should be replaced in the map set for the FEIS.	AGDC respectfully suggests updating the Mainline Route Map, Appendix B, Sheet 149, to show the location of the Mainline MOF as attached.	Review/incorporate the information noted by AGDC. In particular, consider replacing the Mainline Route Map in Appendix B, Sheet 149, with the attached updated map to depict the location of the Mainline MOF. File Name: 199_Appendix B_Vol 4_Revised Sheet 149	A1-200
The site acreage for material site 2015-LF6 is 16 acres and not 116 acres as listed in Table C-8.	AGDC respectfully suggests correcting the acreage for material site 2015-LF6 from 116 to 16 acres in Table C-8.	Review/incorporate the information noted by AGDC. In particular, consider correcting the acreage for material site 2015-LF6 from 116 to 16 acres in Table C-8 as shown in the attached portion of the table. File Name: 200_Table C-8	A1-201
The Bonanza West material site should be listed as a Primary site and not an Alternate in Table C-8.	AGDC respectfully suggests changing the Bonanza West material site to a Primary site type in Table C-8.	Review/incorporate the information noted by AGDC. In particular, consider correcting the Bonanza West material site to a Primary site type as shown in the attached portion of Table C-8. File Name: 201_Table C-8_Bonanza West Material Site Correction	A1-202
Material site 35-04-025-3 is existing and not proposed as listed in Table C-8.	AGDC respectfully suggests changing the material site 35-04-025-3 to "existing" in Table C-8.	Review/incorporate the information noted by AGDC. In particular, consider modifying section material site 35-04-025-3 to "existing" in Table C-8 as shown on the attached excerpt of the table. File Name: 202_Appendix C-8	A1-203
Although most are within 1 mile, the MPs in Table C-8 for the material sites are slightly incorrect.	AGDC respectfully suggests slight corrections needed in Table C-8 regarding the MP numbers of the material sites.	Review/incorporate the information noted by AGDC. In particular, consider modifying the MP indications in Table C-8 as shown on the attached. File Name: 203_Table C-8 MP Corrections	A1-204
Site WD-108 is 4.90 acres in size not 0.90 as listed in Table C-7.	AGDC respectfully suggests modifying the size of Site WD-108 in Table C-7 to 4.90 acres.	Review/incorporate the information noted by AGDC. In particular, consider modifying the size of Site WD-108 in Table C-7 from 0.90 to 4.90	A1-205

A1-199 We agree with AGDC's comment and add that we believe "oversight" could be considered as a form or level of "supervision." In response to this recommendation, AGDC can file, for review and approval, their procedures for handling off-site contractors that includes oversight by AGDC staff. Therefore, we maintain this recommendation.

A1-200 Appendix B of the final EIS has been updated to address this comment.

A1-201 Table C-8 of appendix C of the final EIS has been updated to address this comment.

A1-202 Table C-8 of appendix C of the final EIS has been updated to address this comment.

A1-203 Table C-8 of appendix C of the final EIS has been updated to address this comment.

A1-204 Table C-8 of appendix C of the final EIS has been updated to address this comment.

A1-205 Table C-7 of appendix C of the final EIS has been updated to address this comment.

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
		acres as shown in the attached portion of the table. File Name: 204_Table C-7	A1-205
Minor discrepancies were found with the Mile Posts, distances/directions, and existing facility designations listed in Table C-6 for several facilities.	AGDC respectfully suggests modifying Table C-6 to address minor discrepancies found in the Mile Posts, distances/directions, and existing facility designations as indicated in the attachment.	Review/incorporate the information noted by AGDC. In particular, consider modifying the Mile Posts, distances/directions, and existing facility designations in Table C-6 as indicated in the attachment. File Name: 205_Table C-6	A1-206
Minor modifications to the Mile Posting listed in Table C-3 would make it consistent with AGDC's current Mile Post assessment.	AGDC respectfully suggests minor modifications to the Mile Posting listed in Table C-3 to make it consistent with AGDC's current Mile Post assessment.	Review/incorporate the information noted by AGDC. In particular, consider modifying the Mile Posting listed in Table C-3 to make it consistent with AGDC's current Mile Post assessment, as shown on the attached. File Name: 206_ATWS Mile Post Corrections for Table C-3	A1-207
The distances to Level A threshold sound levels for pile driving in Cook Inlet do not match NMFS Proposed Rule for Project ITRs. The subject tables should be revised to reflect the NMFS published Proposed Rule for the Project ITRs in Cook Inlet.	AGDC respectfully suggests modifying Table L-1.1-9 to be consistent with the current NMFS proposed rule for Project ITRs.	Review/incorporate the information noted by AGDC. In particular, consider revising Table L-1.1-9 to be consistent with the current NMFS Proposed Rule for Project ITRs, as shown on the attached redline. File Name: 207_Table L-1.1-9	A1-208
The sound levels for pile driving in Cook Inlet do not match NMFS Proposed Rule for Project ITRs. The subject tables should be revised to reflect the NMFS published Proposed Rule for the Project ITRs in Cook Inlet.	AGDC respectfully suggests modifying Table L-1.1-7 to be consistent with the NMFS Proposed Rule for Project ITRs.	Review/incorporate the information noted by AGDC. In particular, consider revising Table L-1.1-7 to be consistent with the current NMFS Proposed Rule for Project ITRs, as shown on the attached redline. File Name: 208_Table L-1.1-7	A1-209
The numbers and sizes of piles in Table L-1.1-6 for Cook Inlet do not match NMFS Proposed Rule for Project ITRs. The subject table should be revised to reflect the NMFS published Proposed Rule for the Project ITRs in Cook Inlet.	AGDC respectfully suggests modifying Table L-1.1-6 to be consistent with the current NMFS Proposed Rule for Project ITRs.	Review/incorporate the information noted by AGDC. In particular, consider revising Table L-1.1-6 to be consistent with the current NMFS Proposed Rule for Project ITRs, as shown on the attached redline. File Name: 104_Table 4.7.2-2 and Table L-1.1-6	A1-210
Areas ensonified to Level B for West Dock work do not match AGDC IHA application to NMFS, which has been reviewed and accepted for processing by NMFS. The subject table should be revised to reflect the current Project IHA application for West Dock.	AGDC respectfully requests modification of Table L-1.1-5 to be consistent with the current AGDC IHA application to NMFS, and align the DEIS with the IHA.	Review/incorporate the information noted by AGDC. In particular, consider the attached modifications to Table L-1.1-5. File Name: 210_Table L-1.1-5	A1-211

A1-206 Table C-6 of appendix C of the final EIS has been updated to address this comment.

A1-207 Table C-3 of appendix C of the final EIS has been updated to address this comment.

A1-208 Appendix L (Wildlife and Fish Noise Calculated Results) has been updated to include information in NMFS's Proposed Rule based on AGDC's response to question 37 of our EIR dated November 22, 2019 (Accession No. 20191203-5031).

A1-209 Appendix L (Wildlife and Fish Noise Calculated Results) has been updated to include information in NMFS's Proposed Rule based on AGDC's response to question 37 of our EIR dated November 22, 2019 (Accession No. 20191203-5031).

A1-210 Appendix L (Wildlife and Fish Noise Calculated Results) has been updated to include information in NMFS's Proposed Rule based on AGDC's response to question 37 of our EIR dated November 22, 2019 (Accession No. 20191203-5031).

A1-211 Appendix L (Wildlife and Fish Noise Calculated Results) has been updated to match the information from AGDC's Prudhoe Bay IHA application provided as part of this comment.

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
Areas ensonified to Level A for West Dock work do not match AGDC IHA application to NMFS, which has been reviewed and accepted for processing by NMFS. The subject table should be revised to reflect the current Project IHA application for West Dock.	AGDC respectfully requests modification of Table L-1.1-4 to be consistent with the current AGDC IHA application to NMFS, and align the DEIS with the IHA.	Review/incorporate the information noted by AGDC. In particular, consider the attached modifications to Table L-1.1-4. File Name: 211_Table L-1.1-4	A1-212
Distances to Level A threshold sounds are not aligned with AGDC IHA application. They should be aligned as piles/sources changed.	AGDC respectfully requests modification of Table L-1.1-3 to be consistent with the current AGDC IHA application to NMFS, and align the DEIS with the IHA.	Review/incorporate the information noted by AGDC. In particular, consider the attached modifications to Table L-1.1-3. File Name: 212_Table L-1.1-3	A1-213
The source levels used to calculate the distances to noise impact thresholds for fish do not match source levels in the NMFS Proposed Rule and AGDC IHA application. For consistency, Table L-1.2-2 should be revised to reflect the source levels in NMFS published Proposed Rule for the Project ITRs in Cook Inlet and the current Project IHA application for West Dock, as those were developed in conjunction with NMFS as the most appropriate source levels. The suggested edits to Table L-1.2-2 are attached.	AGDC respectfully suggests modification of Table L-1.2-2 to be consistent with the current NMFS proposed rule for Project ITRs and the current Project IHA application for West Dock.	Review/incorporate the information noted by AGDC. In particular, consider modifying the attached suggested revisions to Table L-1.2-2 to make the numbers consistent with the NMFS Proposed Rule for the project and the current IHA application for West Dock. File Name: 213_Table L-1.2-2	A1-214
Pile sizes and numbers do not match current AGDC application to NMFS, changes needed to align tables in DEIS with IHA.	AGDC respectfully requests modification of Table L-1.1-2 to be consistent with the current AGDC application to NMFS and the IHA application.	Review/incorporate the information noted by AGDC. In particular, consider the attached modifications to Table L-1.1-2. File Name: 214_Table L-1.1-2	A1-215
The data provided for Construction/Gas Treatment Facilities / Breach Bridge Barges in the vessel table (Table L-2-1) should revised based on information provided March 13, 2018 in RFI-528_FERC-013 (Accession No. 20180330-5172(32778800)). The number of trips for these vessels should be reduced to 2 in Year -2 and 2 in Year 4. These vessels would remain at West Dock for the other years.	AGDC respectfully requests modification of Table L-2-1 to be consistent with vessel trip numbers provided March 13, 2018 in RFI-528_FERC-013 (Accession No. 20180330-5172(32778800)). The number of trips for these vessels should be reduced to 2 in Year -2 and 2 in Year 4. These vessels would remain at West Dock for the other years.	Review/incorporate the information noted by AGDC. In particular, consider the attached modifications to Table L-2-1. File Name: 215_Table L-2-1	A1-216
Three of the crossing types for the Sagavanirktok-West Anabranch and Prospect Creek need to be changed from Bridge/Culvert to Ice bridge.	AGDC respectfully suggests corrections to bridge type and construction season in Table 4.1-2.	Review/incorporate the information noted by AGDC. In particular, consider correcting three bridge types and construction seasons in Table 4.1-2 as shown on the attached. File Name: 216_Table 4.1-2	A1-217

A1-212 Appendix L (Wildlife and Fish Noise Calculated Results) has been updated to match the information from AGDC's Prudhoe Bay IHA application provided as part of this comment.

A1-213 Appendix L (Wildlife and Fish Noise Calculated Results) has been updated to match the information from AGDC's Prudhoe Bay IHA application provided as part of this comment.

A1-214 Appendix L (Wildlife and Fish Noise Calculated Results) has been updated to match the information from AGDC's Prudhoe Bay IHA application provided as part of this comment. Because the proposed rule has been prepared by NMFS, not AGDC, and is not final, we have not used information from the proposed rule.

A1-215 Appendix L (Wildlife and Fish Noise Calculated Results) has been updated to match the information from AGDC's Prudhoe Bay IHA application provided as part of this comment.

A1-216 Appendix L (Wildlife and Fish Noise Calculated Results) has been updated with this information.

A1-217 EFH consultation for the Project is complete (see the updates to table 1.6-1 and section 4.7.4 of the final EIS).

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
The only waterbodies along the PTTL with planned water withdrawals that has EFH species present is the Shaviovik River East (PTMP 25.6), the Sagavanirktok River Main at PTMP 44.2, and Sagavanirktok River West (PTMP 53.0). The remaining lakes in the PTTL section have inaccurate AWC codes associated with the waterbodies, and there has been no documentation of EFH species in those lakes on the North Slope. Also see RFI-561-FERC-083 Attachment 1, Accession No. 20181126-5017(33254024) for updated list of waterbodies with planned water withdrawals with AWC/EFH presence.	AGDC respectfully suggests modification of Table 4.1.1-3 Waterbodies with Known Essential Fish Habitat and Planned Water Withdrawals as noted.	Review/incorporate the information noted by AGDC. In particular, consider modifying Table 4.1.1-3 as shown on the attached, to be consistent with planned water withdrawals and correct AWC codes. File Name: 217_Table 4.1.1-3 Appendix M Essential Fish Habitat Assessment	A1-218
Approximately 51 acres would be dredged and the Temporary MOF would encompass 30 acres; however these two areas overlap by 17 acres (MOF will be constructed in part on the dredged area) and to avoid double counting impacts, the total should be 64 acres.	AGDC respectfully suggests updating 7.12.2, Pg. 0-136 to correct the overestimate in acreage impacts because the two referenced areas have some overlap.	Review/incorporate the information noted by AGDC. In particular, consider revising section 7.12.2, Pg. 0-136, to correct the loss in foraging habitat from 81 to 64 acres because the two referenced sites have some overlap. "The Marine Terminal PLF and MOF would cause the permanent loss of about 20 acres of foraging habitat, and the Marine Terminal MOF and dredging would cause the temporary loss of about ~~81~~64 acres of foraging habitat in Cook Inlet."	A1-219
Project vessel traffic associated with the sealifts and work at West Dock would occur in July-October (RFI-561-FERC-166 (Accession Nos. 20181022-5218(33207233) and 20190531-5299(33600351) filed October 22, 2018 and May 31, 2019)). Ringed seals den and whelp pups in winter and early spring (Appendix O page O-124). Project vessel traffic will take place in open water and will not affect denning seals.	AGDC respectfully requests modification of section 7.9.3, Pg. 0-129 to delete reference to vessel traffic causing injury to denning seals, as vessels will be in open water.	Review/incorporate the information noted by AGDC. In particular, consider modifying section 7.9.3, Pg. 0-129, to indicate: "The Project is likely to adversely affect ringed seals because: the Project would cause Level A and Level B harassment to ringed seals from underwater noise~~; and vessel traffic could cause injury to denning seals~~."	A1-220
The barge bridge location is in shallow water where the sea ice freezes to the floor (grounded ice) making it impossible for ringed seals to use it. This grounded ice extends seaward along the causeway for a considerable distance. For any work that would occur in suitable habitats, AGDC has committed to conducting ringed seal lair surveys to avoid such possibilities.	AGDC respectfully requests modification of section 7.9.2.1, Pg. 0-126, to include reference to the occurrence of grounded sea ice, which does not support use by ringed seals.	Review/incorporate the information noted by AGDC. In particular, consider modifying section 7.9.2.1, Pg. 0-126, to be: "Winter activities at the GTP (prepping the seabed for the barge bridge) would occur in areas of grounded sea ice, which does not support the use of ringed seals~~when ice is present, could injure or kill adults and pups in dens (lairs)~~."	A1-221

A1-218 EFH consultation for the Project is complete (see the updates to table 1.6-1 and section 4.7.4 of the final EIS). The comments on table 4.1.1-3 of the EFH Assessment have been incorporated into appendix I of the final EIS.

A1-219 Sections 4.2.5.2 and 5.2 of the final EIS have been updated to address this comment.

A1-220 According to AGDC's IHA application for Prudhoe Bay, provided as part of AGDC's comments on the draft EIS, AGDC stated that vessels would begin arriving at West Dock Causeway when ice conditions of 3/10 or better occurred. Under those conditions, ice may be present and vessels could transit earlier in the season; therefore, impacts on ringed seals and bearded seals may occur, if present.

A1-221 As described in section 7.9.1 of the BA (provided as appendix O of the final EIS), ringed seals could have lairs over grounded sea ice (shorefast ice) in snowdrifts; therefore, winter construction activities at West Dock Causeway could affect adults or pups in dens (see https://www.adfg.alaska.gov/static/education/wns/ringed_seal.pdf).

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
As shown on Figure 7.8.1-1 in Appendix O, planned vessel routes avoid the right whale BIAs.	AGDC respectfully requests modification of section 7.8.2.1, Pg. 0-121 to be consistent with Figure 7.8.1-1 in Appendix O showing planned vessel routes avoid the right whale BIAs.	Review/incorporate the information noted by AGDC. In particular, consider modifying section 7.8.2.1, Pg. 0-121 to recognize and be consistent with Figure 7.8.1-1 in Appendix O which indicates planned vessel routes avoid the right whale BIAs. "Noise impacts from transiting vessels would be similar for North Pacific right whales as described for the Pacific walrus. Pipeline and materials would be transported to various ports in Alaska. Tug and barge combinations would be used to transport pipeline to the Mainline MOF during the open water period in Upper Cook Inlet and could affect north Pacific right whales but the risk has been minimized by avoiding BIAs with planned vessel traffic. ~~, these vessels would transit through a BIA for feeding.~~"	A1-222
Many of the referenced historical humpback whale strikes that were apparently used in the calculation of future strikes occurred east of the Kenai Peninsula and well outside from the Action Area with different vessel traffic and gray whale density. Such strikes should not be used to calculate potential future strikes from the Project as they exaggerate the results. The tables from the whale strike analyses in the aforementioned BA and data request response are attached as is the figure from Nielson et al. (2012) showing the location of historical humpback whale strikes. Only 4 of the strikes should be used, the remainder were in areas that would not be traveled by Project vessels and not applicable as data for strike analysis.	AGDC respectfully requests modification of section 7.7.2.2, Pg. 0-119 to better reflect potential for vessel strikes in the Project Area. We suggest that the predicted strikes calculated in Tables 2 and 3 of the vessel strike analysis in Appendix C (Biological Assessment) of the FERC Application for the Project be utilized for operations and the analysis provided in RFI-467_RR03-135 (Accession No. 20180102-5212(32605706) filed January 2, 2018) be used for construction. An attachment shows the locations of the historical humpback whale strikes.	Review/incorporate the information noted by AGDC. In particular, consider modifying Table 7.7.2.2 of Appendix O and the accompanying text consistent with the attached comment redlines and the attached backup technical information. File Names: 222a_Comment Redline and Table 7.2.2-1 222b_Historical Humpback Whale Strikes 222c_Vessel Whale Strike Tables BA and Data Responses	A1-223
AGDC has worked with NMFS in preparing an IHA application for the construction work at West Dock. Based on densities calculated from survey data and the expected area to be ensonified, it was determined that it is unlikely any (<1) gray whales would be exposed to Level A or Level B harassment. These types of calculations should be used to add context to statements regarding Level A and Level B exposures of gray whales. The IHA application is attached.	AGDC respectfully requests modification of section 7.6.2.1, Pg. 0-115, consistent with the IHA analysis of whale distributions and noise levels.	See the attached Prudhoe Bay IHA application. Also consider modifying section 7.6.2.1, Pg. 0-115 consistent with gray whale distribution analyses, as follows: "Gray whales within a 6.2-square mile area could receive Level B harassment from pile driving noise at West Dock (see table 6.5.2-3). However, based on the low use of this portion of the Beaufort Sea, such exposures are not expected. "	A1-224

A1-222 While noise impacts on North Pacific right whale critical habitat would be reduced by avoidance of BIAs by transiting vessels, noise impacts would not be avoided altogether. Noise from transiting vessels could reach BIAs depending on the noise transmission of the vessel and its distance from the BIA.

A1-223 Historical strike data outside of the Project area was not included in the vessel strike calculations.

A1-224 Because gray whales may occur in the vicinity of construction activities in Prudhoe Bay, they could be exposed to noise from pile driving or screeding.

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
		"...therefore, if activities occur during low lighting or inclement weather, some gray whales could be exposed to Level B harassment from screeding due to lack of visibility and the inability of the PSOs to implement shutdown procedures, although it is unlikely based on low densities of gray whales in the Beaufort." File Name: 79a_Prudhoe Bay IHA App_Rev 2	A1-224
The referenced historical gray whale strike occurred in coastal waters well outside the Project area, in far southeastern Alaska, 700 miles from the Action Area in a very different environment, level of vessel traffic, and gray whale density. Such historic strikes should not be used to calculate potential future strikes from the Project. See attachments which include the gray whale strike location, suggested revisions to Table 7.2.2-1, and supporting tables from the applicant-prepared BA and data request whale strike analyses. The subject DEIS text should be stricken as the revised estimated takes would then be zero.	AGDC respectfully suggests removing reference to the historic gray whale strike as it was approximately 700 miles from the Project/Action Area and in a different environment, level of vessel traffic, and gray whale density. This change would include removing the potential grey whale strikes from Table 7.2.2-1 and the Biological Assessment (Appendix O)--multiple locations.	Review/incorporate the information noted by AGDC. In particular, consider modifying Table 7.2.2-1 to remove text of potential grey whale strikes from the Biological Assessment (Appendix O)--multiple locations as shown in the attached table redline. Also see the attached historic strike information for background to the analysis. File Names: 224_Table 7.2.2-1 Vessel Strikes 222b_Historical Gray Whale Strikes	A1-225

A1-225 Comment noted.

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
There would be less than 39 acres of permanent impacts associated with the Mainline Pipeline (portion of the 14 acres where pipe is on the seafloor - see previous comments), Mainline MOFs (6 acres), the PLF (19 acres), and shoreline protection - not 336 acres. The PLF (19 acres) is not within PCE1. Of the 14 acres only about 2 acres would be within PCE1 on each side. Therefore acres of impact to PCE1 on the west side should be 8 acres and the impact on PCE1 on the east side would be 2 acres.	AGDC respectfully suggests modifying section 7.4.2-6, Pg. 0-105 acreage numbers associated with the Mainline Pipeline and Mainline MOF as indicated.	Review/incorporate the information noted by AGDC. In particular, consider correcting section 7.4.2-4, Pg. 0-104, as follows: "The Mainline Pipeline and Mainline MOF would contribute to 5,070 acres of temporary habitat loss and ~~336~~ 39 acres of permanent critical habitat loss (the Mainline MOF would be left in place after use, so it is considered a permanent impact). Only 68 acres of critical habitat lost permanently on the west side of Cook Inlet would meet the criteria of PCE 1. The Marine Terminal (PLF, Marine Terminal MOF, and dredging) would contribute to ~~100~~ 64 acres of temporary critical habitat loss and 19 acres of permanent critical habitat loss. ~~Twenty~~ Two acres of critical habitat lost permanently on the east side of Cook Inlet would meet the criteria of PCE 1."	A1-226
Table 7.2.2-1 indicates the increase in vessel traffic associated with the Project would not result in a beluga strike - the calculated number was 0.26 indicating an additional strike was not to be expected as you cannot strike part of a whale. Numbers less than one should be interpreted as no strikes.	AGDC respectfully suggests modifying 7.4.3, Pg. 0-109 to recognize beluga vessel strikes are not expected.	Review/incorporate the information noted by AGDC. In particular, consider modifying section 7.4.3, Pg. 0-109, to recognize beluga vessel strikes are not expected: "The Project is likely to adversely affect Cook Inlet beluga whales because: the Project would result in underwater noise that reached Level A and Level B harassment of Cook Inlet beluga whales; the Project would permanently affect Cook Inlet beluga whale habitat; and the Project could result in vessel strikes although not expected."	A1-227
There would be approximately 39 acres of permanent impacts to benthic prey habitats, calculated as acreage associated with the Mainline Pipeline (14 acres - see previous comments), Marine Terminal and Mainline MOFs (6 acres), the PLF (19 acres), and shoreline protection - not 356 acres. Anchor scars are expected to temporarily disturb 7 acres, the Temporary MOF construction would disturb an estimated 30 acres, and dredging would disturb about 51 acres (but 17 acres overlap and are counted as Temporary MOF) for a total of 71 acres.	AGDC respectfully suggests correcting section 7.4.2-4, Pg. 0-104 acreage numbers for Cook Inlet beluga benthic habitat impacts.	Review/incorporate the information noted by AGDC. In particular, consider correcting section 7.4.2-4, Pg. 0-104, as follows: "There would be about ~~356~~39 acres of prey habitat permanently lost under the Mainline Pipeline, Marine Terminal and Mainline MOFs, the PLF, and shoreline protection; and about ~~1004~~1 acres of prey habitat temporarily affected from anchor drop scars across the Cook Inlet seafloor and from dredging."	A1-228

A1-226 Based on our review, the entire offshore Project area is within designated critical habitat for Cook Inlet beluga whale.

A1-227 Strike estimates of less than one but greater than zero do not suggest that strikes are impossible. Our strike calculations, which are based on previously reported strikes, suggest that one whale may be struck due to Project-related vessel traffic.

A1-228 See the updates to section 4.6.3.2 of the final EIS.

CC-1072

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
As indicated in the Project ITR Petition and NMFS Proposed Rule for the ITRs, the single bean echosounder planned for use would operate at frequencies above 200 kHz and would therefore not affect marine mammals as opposed to what is stated in Section 7.4.2-1 of the DEIS. See suggested text revisions in the attachment. This same comment applies to other locations in Appendix O where the echosounders are discussed such as: Page O-119 Section 7.7.2.1 humpback whales Page O-137 Section 7.12.2.2 sea lions	AGDC respectfully suggests modifying section 7.4.2-1 to be consistent with the Project ITR Petition and NMFS Proposed Rule for the ITRs that indicate the single bean echosounder planned for use would operate at frequencies above 200 kHz and would therefore not affect marine mammals.	Review/incorporate the information noted by AGDC. In particular, consider revising Page O-102 of Appendix O, to correct frequencies of the echosounder that is planned for use. This same comment applies to other locations in Appendix O where the echosounders are discussed such as: Page O-119 Section 7.7.2.1, humpback whales, and Page O-137 Section 7.12.2.2, sea lions. "Before conducting pipeline construction and dredging in Cook Inlet, AGDC would conduct detailed geophysical surveys using single and multibeam echosounders and side scan sonar to determine the bathymetry of the seafloor. Echosounders~~Some of these instruments~~ can generate noise at levels that could affect marine mammals ~~(~~if operated at frequencies ~~less~~greater ~~~~than 200 kilohertz~~). ~~Typically, s~~Single beam echosounders can operate at frequencies of 3.5 to 750 kilohertz (which is within the frequency ~~have a~~ range that can affect marine mammals), and multibeam echosounders operate at frequencies of 200 to 400 kilohertz (which are not detectable by marine mammals); however, all eEchosounders planned ~~used~~ for the Project geophysical surveys would be operated at frequencies in excess of 200 kHz and would therefore not affect marine mammals. ~~could produce noise that would reach Level B harassment for marine mammals near the activity.~~"	A1-229
Acres of impact indicated in Table 7.4.2-1 are incorrect. The 330 acres is the permanent ROW but the only permanent impacts would be the surface covered by the pipeline, which would be 14 acres.	AGDC respectfully suggests correcting Table 7.4.2-1, Pg. 0-101, to change 330 acres to 14 acres since only permanent impacts would be the surface covered by the pipeline, which would be 14 acres.	Review/incorporate the information noted by AGDC. In particular, consider correcting the impact acreage in Table 7.4.2-1 as shown in the attachment. File Name: 229_Table 4.4.2-1	A1-230

A1-229 AGDC's Petition for Incidental Take Regulations for Construction of the Alaska LNG Project in Cook Inlet, Alaska, dated October 1, 2018, identifies the types of geophysical equipment expected to be used for surveys. Due to the lack of commitment by AGDC to avoid using echosounders that operate at frequencies that could not be detected by marine mammals, we analyzed the potential impact of this equipment.

A1-230 Based on our review, the entire offshore Project area is within designated critical habitat for Cook Inlet beluga whale.

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
Table 7.2.1 indicates that the identified numbers of strikes are per year. Text on page O-112 indicates these are actually cumulative totals over the years of construction and 30 years of operation. The methods used to arrive at these estimated strikes are not provided but appear to have incorporated historical vessel strikes of marine mammals far outside of the Project / Action Area which exaggerates the potential impacts associated with the Project. We suggest that the predicted strikes calculated in Appendix C of the Final Application for the Project be utilized. Historical strikes east of the Kenai Peninsula (Prince William Sound) should not be used in the analysis as these areas are not within the Action Area. For construction, a vessel strike analysis was provided with a data request response (RFI-467-RR03-135, Accession No. 20180102-5212(32605706)). We have attached a document with suggested revisions to Table 7.2.2-1 and another document with the supporting tables from the BA and Data Request response whale strike analyses. Any revisions to predicted strikes in Table 7.2.2-1 would need to be carried forward to those on: Page O-104 Section 7.4.2.3 belugas Page O-112 Section 7.5.2.2 fin whales Page O-113 Section 7.7.2.2 humpback whales Page O-133 Section 7.11.2.2 sperm whales	AGDC respectfully suggests modifying the header in Table 7.2.2-1 to indicate the numbers are for the life of the project (including operations), not 'Per Year', and updating numbers based on historic data in the Project/Action area. For references, see attached copy of Tables from the whale strike analysis in Attachment A of the Applicant-Prepared BA and Tables 2 and 3 of the analysis provided in RFI-467-RR03-135 (Accession No. 20180102-5212(32605706)) for construction vessel strikes (attached). Alternatively, all of the numbers could be recalculated to be per year.	Review/incorporate the information noted by AGDC. In particular, consider modifying headers and vessel strike information for Table 7.2.2-1, as indicate on the attached redline, to clarify they are for the life of the project and correct the numbers. These revisions would also apply in other areas of Appendix O, including: Page O-104, Section 7.4.2.3 belugas Page O-112, Section 7.5.2.2 fin whales Page O-113, Section 7.7.2.2 humpback whales Page O-133, Section 7.11.2.2 sperm whales For support, the second attachment provides supporting tables from the Biological Assessment and a FERC data request response. File Names: 230_Whale Strikes from BA 224_Table 7.2.2-1 Vessel Strikes	A1-231
There is no planned use of West Dock or vessel / aircraft traffic planned over marine waters of the Beaufort Sea for operations. The Project area on the North Slope during operations is terrestrial and confined to areas more than 0.5 miles from marine habitats. The Project would therefore not affect bearded seals during operations.	AGDC respectfully requests modification of section 7.1.3, Pg. 0-88, to delete references to bearded seal impacts during operations. Work over marine water is only planned during construction and not during operations.	Review/incorporate the information noted by AGDC. In particular, consider modifying section 7.1.3, Pg. 0-88, as follows: The Project may affect bearded seals because: bearded seals would occur within the Project area during construction ~~and operation~~ of the Project;	A1-232
Level A and B threshold zones are not aligned with the IHA application to NMFS, see attachments for suggested edits.	AGDC respectfully requests modification of section 7.1.2.2 of Appendix O and Tables L-1-1.1-3 and -5 of Appendix L to make them consistent with the AGDC IHA application that is under review by NMFS.	Review/incorporate the information noted by AGDC. In particular, consider modifying section 7.1.2.2 of Appendix O, as follows: A few bearded seals may occur near West Dock during pile driving activities and could be affected by pile driving noise. Bearded seals would be exposed to Level A harassment (injury) within 0.1 to 0.8 ~~0.1~~ square mile of pile driving and Level B harassment (disturbance) within 0.1 to 4.5 ~~0.1 to 6.2~~ square miles (see tables 6.5.2-2 and 6.5.2-3). Also consider amending Tables L-1.1-3 and L-1.1-5 of Appendix L to make them consistent with the AGDC IHA application under review by NMFS, as shown on the attached file. File Names: 212_Table L-1.1-3 210_Table L-1.1-5	A1-233

A1-231 Section 7.4.2.3 of the Biological Assessment, which is provided as appendix O of the final EIS, describes how vessel strikes were calculated. The heading for table 7.2.2-1 of the Biological Assessment should be "Estimated Number of Strikes" as the estimates provided in the table are for Project construction and operation. The strike calculations are correct.

A1-232 Comment noted. Project operation activities would not affect bearded seals.

A1-233 Appendix L (Wildlife and Fish Noise Calculated Results) has been updated to match the information from AGDC's Prudhoe Bay IHA application provided as part of this comment.

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
Placement of facilities at West Dock is not expected to affect sea ice in the area other than replace 31 acres of sea ice with Dock Head 4 (DH4). DH4 lies within an area of shorefast ice. The barge bridge would be located in an area where the ice is grounded (frozen to the seafloor) which would not be utilized by seals in the winter. Bearded seal use is largely restricted to areas outside the shorefast zone (Cameron et al. 2010), and thus would not be affected by seabed preparation that would occur more than a mile from the limits of shorefast ice.	AGDC respectfully requests modification of section 7.1.2.1, Pg. 0-83, to note that winter activities to prep the seabed for the barge bridge would be unlikely to disturb adult seals and pups because the ice is grounded and unsuitable seal habitat.	Review/incorporate the information noted by AGDC. In particular, consider modifying section 7.1.2.1, Pg. 0-83, as follows: "Bearded seals may be disturbed by construction activity and noise, which could make the area unsuitable and cause seals to avoid areas of construction. Placement of the West Dock structures would affect the availability of sea ice in the area. Winter activities at the GTP (prepping the seabed for the barge bridge) when ice is present, would be unlikely to disturb adults and pups on the sea ice because the ice in the area is grounded and unsuitable seal habitat."	A1-234
The acres of benthic habitats that would be affected are overstated. We estimate that approximately 67 acres or less of benthic habitat would be affected (RFI-467_FERC-089). This same comment applies to other locations in Appendix O where an impact of 166 acres of benthic habitat is referenced, including: Page O-126 Section 7.9.2.1 ringed seals	AGDC respectfully requests modification of section 7.1.2.1, Pg. 0-83, to be consistent with estimates of benthic marine substrate disturbed for Dock Head 4 construction.	Review/incorporate the information noted by AGDC. In particular, consider modifying section 7.1.2.1, Pg. 0-83, as follows: "Construction of West Dock at Dock Head 4 would result in loss and alteration of about ~~166~~ 67 acres of benthic marine substrate." Also, consider modifying other references in Appendix O where an impact of 166 acres of benthic habitat is referenced, including Section 7.9.2.1, ringed seals, Page O-126.	A1-235
As stated on page O-21 of the BA, AGDC would conduct FLIR surveys for denning bears, and prohibit activity within one mile of any identified den during the denning season. With this measure in place such impacts are unlikely and the determination should indicate that. Effects on denning bears from oil and gas on the North Slope have been few and mitigation measures have been effective (USFWS 2011). There is no expectation that negative bear-human interactions would occur from the Project.	AGDC respectfully requests modification of section 6.7.3, Pg. 0-80, to take into account FLIR checks for dens and the expectation that will help avoid denning polar bears on land.	Review/incorporate the information noted by AGDC. In particular, consider modifying 6.7.3, Pg. 0-80, as follows: "The Project is likely to adversely affect polar bears because: the proposed action~~would~~ could disturb denning polar bears on land; construction and operational activities ~~would~~ could potentially cause polar bear–human interactions which could lead to harassment or fatalities of polar bears for protection of human life; and the Project would cause permanent loss of denning habitat. However, North Slope techniques for identifying and avoiding denning polar bears on land are well proven and make increased bear-human and related harassment/fatalities of polar bears highly unlikely."	A1-236

A1-234 See response to comment A1-220.

A1-235 See the updates to section 4.6.3.2 of the final EIS.

A1-236 See the response to comment A1-1.

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
The number of vessel trips is referenced as 186, however 109 trips are planned. The top row in the DEIS table is for the 2 empty barges that would be used for the proposed barge bridge. These two barge bridges are brought to the West Dock area once and removed 6 years later. They will be moved empty of lightly loaded and will therefore be transited in tandem with other sealift barges and will not require separate trips with tugs (they are already included in sealift totals). The 9-12 vessels and 61 trips in the current DEIS table are ranges / totals for subsequent rows regarding the sealifts. See suggested changes to text (attached) and Table L-2-1 (attached). This comment also applies to the referenced 186 vessel trips where it is found on: Page O-86 Section 7.1.2.4 bearded seals Page O-94 Section 7.3.2.2 bowhead whales Page O-112 Section 7.5.2.2 fin whales Page O115 Section 7.6.2.2 gray whales Page O-119 Section 7.7.2.2 humpback whales Page O-123 Section 7.8.2.2 right whales Page O-127 Section 7.9.2.4 ringed seal Page O-133 Section 7.11.2.2 sperm whales	AGDC respectfully suggests modification of vessel trip numbers as indicated throughout Section O to reflect the planned 109 vessel trips rather than the 186 shown.	Review/incorporate the information noted by AGDC. In particular, consider modifying Page O-70 of Appendix O and Table L-2-1 of Appendix L (attached). "Female and young walruses will often haul out on the ice, and could encounter vessel traffic as they transit through the Chukchi Sea to West Dock for deliveries. The total number of vessel trips associated with Project construction and operation is provided in appendix L-2 of the EIS; up to ~~186~~ 109 vessel round trips could be made to West Dock during construction over 6 years." File Name: 215_Table L-2-1	A1-237
No offshore flights are planned for Project operations within the range of the Pacific walrus, so potential effects on walrus from these types of flights should not be indicated. Per Table 1.3.5-1 in Resource Report No.1, the helipad located at Milepost 0.6 is a temporary camp for GTP construction, not operations, and approximately 1.4 miles from the nearest estuarine waters and over 4 miles from the marine portion of the West Dock Causeway. Thus, noise from aircraft using the associated helipad would not reach West Dock. West dock is not a known walrus haulout. The cited document (USFWS 2011) states that few walruses occur in the entire Action Area, and notes that a total of 3 walruses have been observed hauled out on Northstar Island, and one walrus at the Endicott Causeway - none were referenced for West Dock.	AGDC respectfully requests modification of section 6.6.2.2, Pg. 0-69, to delete references to operations and to known walrus haulouts, and note the helipad is too far from West Dock to result in disturbance.	Review/incorporate the information noted by AGDC. In particular, consider modifying 6.6.2.2, Pg. 0-69 as follows: "Vessels and aircraft could disturb Pacific walruses during construction and operation. Vessels approaching haulout areas (land or sea ice) or swimming walruses typically cause walruses to move away from the transiting vessel (National Research Council, 2003). Walruses will stampede into the water in reaction to noise from aircraft overflights (National Research Council, 2003). ~~A~~ The most coastal helipad is located at Mainline MP 0.6, about ~~0.5~~ 4 miles from West Dock, Noise, would only exceed disturbance levels at about 80 feet from the helicopter (see Appendix L-1); therefore, helicopter noise during construction is too far from West Dock to cause disturbance. ~~be near a known walrus haulout. During construction, there would be a peak of six helicopter trips per day at construction camps, averaging three per day. Noise would reach disturbance levels at about 80 feet from the helicopter (see appendix L-1 of the EIS).~~ While small airplanes and helicopters used for the Project may not generate noise levels that reach NMFS disturbance levels at flying altitudes, research has shown that marine mammals are affected by aircraft overflights."	A1-238

A1-237 Appendix L (Wildlife and Fish Noise Calculated Results) has been updated to match the information from AGDC's Prudhoe Bay IHA application provided as part of this comment.

A1-238 Impacts from airborne noise from air traffic related to the Gas Treatment Facilities would not affect the three beaked whale species. See the updates to table 4.6.3-2 of the final EIS.

CC-1076

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
Level B impact area values in Table 6.5.2-3 are not aligned with the values in the Project IHA application and should be as this document was developed with NMFS and includes 14-inch vibratory and 48-inch impact piles. See suggested edits to Table 6.5.2-2 in Appendix O and Tables L-1-3 and L-1-4 in Appendix L.	AGDC respectfully requests modification of section Table 6.5.2-2 in Appendix O and Tables L-1.1-3 and L.1.1-4 in Appendix L for consistency with the IHA application developed in consultation with the NMFS.	Review/incorporate the information noted by AGDC. In particular, consider modifying Table 6.5.2-2 in Appendix O and Tables L-1.1-3 and L.1.1-4 in Appendix L as shown in the attached, to ensure consistency with the IHA application developed in consultation with the NMFS. File Names: 238_Table 6.5.2-2 212_Table L-1.1-3 211_Table L-1.1-4	A1-239
The cited paper (Leopold and Camphuysen 2007) found few such effects based on observed distribution. Results regarding gulls were mixed with observed numbers/densities sometimes greater or less than expected during pile driving. They concluded that significant effects are not expected on sea ducks. Few effects have been reported for sea ducks in the Beaufort Sea from sound underwater sounds such as seismic surveys; Lacroix et al. 2003 found no effect on site fidelity, movements, or diving behavior of long-tailed ducks during seismic surveys on coastal Beaufort Sea waters. Eiders could be expected to show similar tolerance. Additionally, we know of no instances of bird mortalities due to pile driving (Teachout 2012), and believe the reference to lethality should be removed. Lacroix, D.L., Lanctot, R.B., Reed, J.A., and T.L. McDonald. 2003. Effect of underwater seismic surveys on molting male long-tailed ducks in the Beaufort Sea, Alaska. Canadian Journal of Zoology 81:1862-1875. Teachout, E. 2012. Evaluating the Effects of Underwater Sound from Pile Driving on the Marbled Murrelet and the Bull Trout. US Fish and Wildlife Service, Washington Fish and Wildlife Office, Seattle WA. 35 pp.	AGDC respectfully suggests modification of Section 6.4.2.2, Pg. 0-50 consistent with cited studies.	Review/incorporate the information noted by AGDC. In particular, consider modifying Section 6.4.2.2, Pg. 0-50, as follows: "Underwater noise associated with pile driving could disturb spectacled eiders since they spend time underwater while foraging , but studies (Lacroix et al. 2003, Leopold and Camphuysen 2007) have reported few such effects regarding birds in the vicinity of underwater sound from such sources as pile driving or seismic surveys ~~and diving for prey up to 230 feet (70 meters) (Lovvorn et al., 2003); however, birds near pile driving would likely disperse prior to lethal noise levels (Leopold and Camphuysen, 2007).~~"	A1-240
Granular fill within portions of the Project that lie within the nesting range of spectacled eiders, would be placed in the winter months (Migratory Bird Conservation Plan, RFI-561-FERC-117 (Accession No. 20181022-5218(33207174)). Placement could therefore not destroy or disturb spectacled eider nests.	AGDC respectfully suggests modification of Section 6.4.2.1, Pg. 0-49, to note that AGDC has committed to conducting granular fill placement on the Beaufort Coastal Plain during winter months.	Review/incorporate the information noted by AGDC. In particular, consider modifying Section 6.4.2.1, Pg. 0-49, as follows: "Placement of granular fill, clearing, and grading during the summer nesting season could remove nesting habitat for spectacled eiders and/or disturb actively nesting birds, including destruction of nests resulting in nestling/egg mortality, however, AGDC has committed to conducting granular fill placement on the Beaufort Coastal Plain during winter months."	A1-241

A1-239 See the response to comment A1-233.

A1-240 Studies such as Teachout, 2012, Lacroix et al., 2003, and Leopold and Camphuysen, 2007 indicate that underwater noise could disturb diving seabirds, including spectacled eiders, though birds near pile driving would likely disperse prior to lethal noise levels.

Leopold, M.F., and K. (C.J.) Camphuysen. 2007. Did the Pile Driving During the Construction of the Offshore Wind Farm Egmond aan Zee, the Netherlands, Impact Local Seabirds? Wageningen IMARES Institute for Marine Resources & Ecosystem Studies.

Teachout, E. 2012. Evaluating the Effects of Underwater Sound from Pile Driving on the Marbled Murrelet and the Bull Trout. U.S. Fish and Wildlife Service, Washington Fish and Wildlife Office, Seattle WA. 35 pp.

Lacroix, D.L., R.B. Lanctot, J.A., Reed, and T.L. McDonald. 2003. Effect of underwater seismic surveys on molting male long-tailed ducks in the Beaufort Sea, Alaska. *Canadian Journal of Zoology* 81:1862-1875.

A1-241 Our analysis of impacts on spectacled eiders takes into account AGDC's commitment to avoid vegetation clearing and granular material placement in IBAs during nesting seasons, as described in sections 4.6.2.3 and 4.6.2.5.

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
There is no planned use of the airspace over Lower Cook Inlet so there is no potential for disturbance of Steller's eiders in these concentration areas from Project air travel.	AGDC respectfully suggests modification of Section 6.1.2.4, Pg. 0-39 to note there is no planned Project aircraft travel in the cited locations.	Review/incorporate the information noted by AGDC. In particular, consider modifying Section 6.1.2.4, Pg. 0-39 to be consistent with the lack of planned air travel in the area as follows: "After Steller's eiders' wing-molt, where large congregations disperse from Nelson and Izembek Lagoons to sites along the Alaska Peninsula, Kodiak Island, Aleutian Islands, and Lower Cook Inlet, These, birds would be susceptible to disturbance and displacement from air traffic within the Lower Cook Inlet where they occupy shallow waters to feed on bivalves (Fredrickson, 2001); however, there is no planned Project aircraft travel in these areas."	A1-242
The presence of Steller's eider (especially foraging area) in the Prudhoe Bay area is largely restricted to marine waters. Expected GTP generated sound levels and dissipation with distance as provided in RFI-561-FERC-113-1 (Accession Nos. 20181022-5218(33207170) and 20181120-5161(33247605) filed October 22 and November 20, 2018) indicates that noise above ambient levels from operations will not reach the marine environment more than a mile away. Sound levels are expected to be near ambient 130 feet from the GTP and be reduced to 40 dB well before reaching marine waters.	AGDC respectfully suggests modification of Section 6.1.2.2, Pg. 0-37 to be consistent with noise modeling relative to the position of the GTP and the marine waters used by Steller's eiders.	Review/incorporate the information noted by AGDC. In particular, consider modifying Section 6.1.2.2, Pg. 0-37, as follows: "Noise from the GTP is unlikely to ~~could~~ decrease the suitability of the area for Alaska-breeding Steller's eiders. The CGF, east of the GTP, contributes to the ambient noise levels in this region (Anderson et al., 1992) which have been measured at 67 dBA. Noise would be expected to dissipate to background levels within about 130 feet of the facility indicating there would be no effect on marine waters utilized by Steller's eiders for foraging, staging, or molting ~~2.25 miles of the facility. Alaska-breeding Steller's eiders would likely avoid foraging and resting in this area for the life of the Project due to the increased noise levels.~~"	A1-243
The cited paper (Leopold and Camphuysen 2007) found few such effects. Results regarding gulls were mixed with numbers/ densities sometimes greater or less than expected during pile driving. They concluded that significant effects are not expected on sea ducks. Few effects have been reported for sea ducks in the Beaufort Sea from underwater sounds such as seismic surveys (Lacroix et al. 2003). We know of no instances of bird mortalities (Teachout 2012) due to pile driving, and believe the reference to lethality should be removed. No blasting is planned in Prudhoe Bay, so references to blasting effects on Steller's eiders should be deleted. Lacroix, D.L., Lanctot, R.B., Reed, J.A., and T.L. McDonald. 2003. Effect of underwater seismic surveys on molting male long-tailed ducks in the Beaufort Sea, Alaska. Canadian Journal of Zoology 81:1862-1875.	AGDC respectfully suggests modification of section 6.1.2.2, Pg. 0-36, to remove references to blasting. No blasting is planned in Prudhoe Bay, so references to blasting effects on Steller's eiders should be deleted. In addition, consider modifying the statement on pile driving impacts and reference: Lacroix et al. 2003, Leopold and Camphuysen 2007.	Review/incorporate the information noted by AGDC. In particular, consider modifying section 6.1.2.2, Pg. 0-36 to delete blasting impacts (no blasting is planned in Prudhoe Bay) and modify potential impacts based on the reference cited, as follows: "Underwater noise associated with pile driving could disturb Alaska-breeding Steller's eiders since they spend time underwater while foraging, but studies (Lacroix et al. 2003, Leopold and Camphuysen, 2007) have reported few such effects regarding sea ducks. ~~birds in the vicinity would likely disperse prior to lethal noise levels (Leopold and Camphuysen, 2007).~~	A1-244

A1-242 According to AGDC's response to question 6 of our EIR dated August 31, 2017, helicopters and other aircraft would be used during Project operation to inspect the Mainline Pipeline, including sections of the pipeline along the Kenai Peninsula and within Cook Inlet (Accession No. 20180102-5212). Additionally, based on AGDC's response to question 168 of our EIR dated October 2, 2018, airplane trips to and from Kenai Municipal airport to support construction would overlap the molting and winter range for Alaska-breeding Steller's eider (Accession No. 20190524-5248).

A1-243 Based on AGDC's response to question 113 of our EIR dated October 2, 2018, noise due to operation of the GTP would reach background levels (e.g., 40 dBA) approximately 2.25 miles from the facility (Accession No. 20181120-5161).

A1-244 See the response to comment A1-240. Based on the information provided in AGDC's Blasting Plan, blasting would occur on the North Slope (e.g., for gravel mining).

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
Teachout, E. 2012. Evaluating the Effects of Underwater Sound from Pile Driving on the Marbled Murrelet and the Bull Trout. US Fish and Wildlife Service, Washington Fish and Wildlife Office, Seattle WA. 35 pp.		~~Blasting could have a direct effect on Alaska-breeding Steller's eider hearing.~~"	A1-244
The recommended shutdown and harassment zones differ from those in the Proposed Rule issued by NMFS for the Project ITRs and those proposed by AGDC in their IHA application. The recommendation should be aligned with those issued by NMFS as AGDC would have to abide by them or any changes to them that occur during the rulemaking and application processes (see previous comment). The referenced distances in Appendix L tables also differ from those currently in the ITR Petition / Proposed Rule and IHA application. See comments (0169-175) on Appendix L and Comment 0134.	AGDC respectfully requests replacement of AGDC-proposed shutdown, harassment and mitigation zones in section 2.3.2, Pg. 0-11 to be consistent with updated requirements from NMFS and USFWS authorizations.	Review/incorporate the information noted by AGDC. In particular, consider replacing the AGDC-proposed shutdown, harassment and mitigation zones in section 2.3.2, Pg. 0-11 to be consistent with final authorizations by NMFS and USFWS, as follows: "AGDC will establish shutdown and harassment zones and mitigation in compliance with the requirements in NMFS and USFWS final authorizations. ~~The distances to the shutdown, harassment, and mitigation zones AGDC committed to above do not apply to all activities and do not match the modeled distances provided in appendix L-1 of the EIS. Because these distances would not be sufficiently protective to marine mammals for all underwater noise-generating activities that could cause marine mammal disturbance, we have recommended AGDC file revised shutdown distances for all underwater noise generating activities (i.e., pile driving [impact, vibratory, and all pile types], dredging, screeding, anchor handling, Mainline Pipeline shoreline installation, and Marine Terminal MOF removal). For the revised shutdown distances, we have recommended AGDC establish:~~ ~~a. shutdown zones for Level A harassment for all marine mammals based on the modeled distances in appendix L-1, tables L-1.1-3, L-1.1-4, L-1.1-8, and L-1.1-9 of the EIS (pile driving activities should stop until the animal moves out of the shutdown injury zone);~~ ~~b. shutdown zones for Level B harassment for Cook Inlet beluga whales based on the modeled distances in appendix L-1, tables L-1.1-10 and L-1.1-12 of the EIS (pile driving and dredging activities should stop until the animal moves out of the shutdown harassment zone); and~~ ~~c. harassment zones for Level B harassment for all marine mammals (except Cook Inlet beluga whales) based on the modeled distances in appendix L-1, tables L-1.1-5, L-1.1-10, L-1.1-11, L-1.1-12, and L-1.1-13 of the EIS (activity noise	A1-245

A1-245 Section 4.6.3.2 of the final EIS has been updated to acknowledge that shutdown and harassment distances may change with NMFS and USFWS review and issuance of the MMPA authorizations.

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
		~~levels should be lowered when animals enter these zones, until they leave the area, if possible).~~"	A1-245
The referenced Marine Mammal Monitoring and Mitigation Plans were drafts and are now superseded by more recent filings with the NMFS including an application for an IHA at West Dock and a proposed ITR published by NMFS for Cook Inlet. The PSO requirements in the EIS and authorization documents (IHAs, LOAs) need to be aligned. NMFS has now published a Proposed Rule that contains requirements for PSOs and PSO placement and they differ from those provided in the FERC's recommendation. The Proposed Rule can be seen at https://www.fisheries.noaa.gov/action/incidental-take-authorization-alaska-gasline-development-corporation-liquefied-natural-gas. A proposed IHA has not been published by NMFS - a copy of the application is included in our comments on this DEIS. NMFS also does not consider the sound pressure levels generated by the dredging and screeding to rise to the level of takes as indicated in the preambles of NMFS Proposed Rule, and has not requested exclusion or harassment zones. Therefore, on NMFS' advice, AGDC has requested no PSOs for dredging because this is consistent with how all dredging is treated in Cook Inlet by NMFS. AGDC has volunteered to have a PSO on the screeding barge at West Dock. We are aware of no such requirements for past dredging activities in Cook Inlet, including large scale dredging for the Port of Anchorage and the navigation channel. See suggested edits to the DEIS text in the attached document.	AGDC respectfully requests modification of 2.3.2, Pg. 0-11, to be consistent with NMFS requirements.	Review/incorporate the information noted by AGDC. In particular, consider modifying 2.3.2, Pg. 0-11, to be consistent with NMFS requirements, as shown below: AGDC committed to having at least two PSOs on watch during pile driving activities in Cook Inlet, and at least one PSO on the barge and on watch during pipe laying activities. However, in AGDC's draft Marine Mammal Monitoring and Mitigation Plans for Cook Inlet and Prudhoe Bay, AGDC committed to using land-based PSOs only. AGDC is now in the process of obtaining ITRs and IHAs from NMFS, ~~Due to the large radius required for pile driving monitoring (up to 2.9 miles), and lack of information on PSOs for removal of the Marine Terminal MOF in Cook Inlet and pile driving in Prudhoe Bay,~~ and we recommend that: Prior to construction, AGDC should file with the Secretary, for the review and written approval of the Director of the OEP, a revised PSO deployment plan that includes the following: a. numbers and placements of PSOs for pile driving activities in Cook Inlet and Prudhoe Bay, that meet the requirements of NMFS and USFWS as promulgated in IHAs and ITRs and the first annual LOAs issued under these ITRs~~AGDC should station at least one PSO at sea near the edge of the shutdown zone (for Level A) and one PSO stationed at sea or on land near the edge of the harassment zone (for Level B); and station at least one PSO on the pile-driving barge, or in an adjacent land-based vantage point~~; b. for anchor handling activities in Cook Inlet, AGDC should station at least one PSO on the pipelay vessel and meet the other applicable requirements set forth in the IHA, ITRs, and LOAs; and c. for ~~dredging and~~ screeding activities ~~and Mainline Pipeline shoreline installation~~, AGDC should station at least one PSO on the ~~each dredging and~~ screeding vessel or land-based location ~~accompanying vessel~~.	A1-246

A1-246 See response to comment A1-96.

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC
The AGDC proposed shutdown and harassment zones provided in Section 2.3.2 are now superseded by those in the Proposed Rule issued by NMFS for the Project ITRs and those proposed by AGDC in their IHA application. The Proposed Rule is attached, and can also be seen at https://www.fisheries.noaa.gov/action/incidental-take-authorization-alaska-gasline-development-corporation-liquefied-natural-gas. The current IHA application is attached. These documents reference established Level A and Level B ensonified areas / distances to thresholds in those documents. AGDC comments on the DEIS Appendix L also reference and include the NMFS values.	AGDC respectfully requests modification of text on shutdown and harassment zones in 2.3.2, Pg. 0-10, with updated requirements from the NMFS proposed rule and the IHA application (attached). Alternatively, note that those zones will be designated by NMFS in their final authorizations.	Review/incorporate the information noted by AGDC. In particular, consider replacing current text on shutdown and harassment zones with updated requirements from the NMFS proposed rule and the IHA application (attached), as noted in revised requirements below. Alternatively, note that those zones will be designated by NMFS in their final ITR and IHAs. ~~AGDC is proposing the following shutdown and harassment zones for pile driving:~~ Recommended zones required by NMFS in the Proposed Rule are as follows: • For all relevant in-water construction activity, AGDC will designate Level B harassment zones with radial distances as identified in any LOA issued under these ITRs. • For all in-water pile driving work, AGDC will implement a shutdown zone for each specific activity as identified in any LOA issued under these ITRs. If a marine mammal comes within or enters the shutdown zone, AGDC will cease operations. ◦ For mid-frequency cetaceans and otariids during in-water pile driving activity, the exclusion zones must be based on the Level A harassment distances, but will not be less than 10 m from the pile. ◦ For low- and high-frequency cetaceans and phocids during in-water pile driving activity, if the species' Level A harassment distance is less than 500 m, the exclusion zone will match that distance. ◦ For low- and high-frequency cetaceans and phocids during in-water pile driving activity, if the species' Level A harassment distance is greater than 500 m, the exclusion zone will be 500 m from the pile. AGDC-proposed zones in the IHA are as follows: Based on the estimated sound levels determined for pile installation (Section 6), a 328-foot (100-meter) shutdown zone is proposed for all marine mammals.

A1-247

A1-247 See response to comment A1-80. Appendix L (Wildlife and Fish Noise Calculated Results) has been updated to match the information from AGDC's Prudhoe Bay IHA application provided as part of this comment. Information from AGDC's Petition for Incidental Take Regulations for Construction of the Alaska LNG Project in Cook Inlet, Alaska, dated October 1, 2018, was used to develop the Biological Assessment.

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
		File Names: 79a_Prudhoe Bay IHA App_Rev 2 79b_NMFS Cook Inlet ITR	A1-247
Level B impact area values in Table 6.5.2-3 are not aligned with the values in the Project IHA application developed with NMFS. See suggested edits to Table 6.5.2-3 (attached) as well as edits to Table L-1.1-5 in Appendix L (attached).	AGDC respectfully requests modification of Table 6.5.2-3 in Appendix O and L-1.1-5 to align the numbers with the IHA application submitted to the NMFS.	Review/incorporate the information noted by AGDC. In particular, consider modifying Table 6.5.2-3 in Appendix O and L-1.1-5, as shown on the attached, to align the numbers with the IHA application submitted to the NMFS. File Names: 247_Table 6.5.2-3 210_Table L-1.1-5	A1-248
The location of KOP 47, as shown on the maps of KOPs (see sheet 36 of 36 of Appendix S-3), is incorrect. Also KOP 46 is not shown.	AGDC respectfully requests correction of Appendix S-3 with the correct Mileposts of KOPs 46 and 47 per Appendix L of Resource Report No. 8 (see attached Sheet 30 of 32 of Attachment B).	Review/incorporate the information noted by AGDC. In particular, consider updating Appendix S-3 with the correct Mileposts of KOPs 46 and 47 per Appendix L of Resource Report No. 8 (see attached Sheet 30 of 32 of Attachment B). File Name: 248_Corrected KOP Sites	A1-249
The location (approx. MP) for KOP 2018-1 in Table S-2-70 is incorrect and should be 517.6 instead of 332.6.	AGDC respectfully requests correction of section milepost for KOP 2018-1 in Table S-2-70, Page S-82, FROM MP 332.6 TO MP 517.6, as filed in updates to Resource Report No. 8 Appendices L and M (provided in response RFI-561-FERC-156-1 (Accession No. 20181119-5181(33244546), filed 11/19/18).	Review/incorporate the information noted by AGDC. In particular, consider modifying the 'Approximate Milepost' in Table S-2-70 for KOP 2018-1, Healy Compressor Station. The milepost is currently listed as 332.6 and should be 517.6.	A1-250
In Appendix U, the BLM evaluated cumulative impacts per ANILCA Section 810 and concluded that there would be a significant restriction to subsistence uses of caribou. However, in the same evaluation, the BLM concluded that the Alaska LNG Project would NOT significantly restrict subsistence uses because it would be effectively mitigated through BMPs (see Section U.2.2 of Appendix U). The Alaska LNG Project, and all other North Slope projects considered in the cumulative analysis, would be held to the same standard to implement BMPs that would effectively mitigate impacts to caribou. AGDC provided a detailed literature review and supports that impacts to caribou habitat would be expected to be limited to calving caribou and to a few weeks each of the eight years of GTP construction (see RFI-528-FERC-163, Accession No. 20180427-	AGDC respectfully requests modification of U.4 (second paragraph) to recognize BMPs will be implemented by the Alaska LNG project and other reasonably foreseeable projects in the area.	Review/incorporate the information noted by AGDC. In particular, consider modifying U.4 as follows: "The BLM has found in this preliminary evaluation that the cumulative case may significantly restrict subsistence uses, however, it would be effectively mitigated through the implementation of BMPs by the Alaska LNG Project and other reasonably foreseeable projects. Overall, the cumulative impacts could increase the area considered to be undesirable by subsistence users and require subsistence users to travel farther to harvest subsistence foods at a greater cost in terms of time, fuel,	A1-251

CC-1082

A1-248 Appendix L (Wildlife and Fish Noise Calculated Results) has been updated to match the information from AGDC's Prudhoe Bay IHA application provided as part of this comment. Information from AGDC's Petition for Incidental Take Regulations for Construction of the Alaska LNG Project in Cook Inlet, Alaska, dated October 1, 2018, was used to develop the Biological Assessment.

A1-249 Appendix S of the final EIS has been revised to address this comment.

A1-250 Appendix S of the final EIS has been revised to address this comment.

A1-251 The BLM guidance on the ANILCA 810 process is given in Instruction Memorandum (IM) AK-2011-008.[1] This IM requires the BLM to evaluate the potential impacts to subsistence resources and uses from a proposed action. The policy further states that the evaluation must apply to each alternative analyzed in the EIS, including the cumulative analysis.

Despite the negative finding for the proposed action, when considered in combination with past, present, and reasonably foreseeable future actions the cumulative case presents a positive finding. A positive finding in the cumulative case triggers the Notice, Hearing, and Determination requirements of ANILCA Section 810(a).

The cumulative case takes past, proposed, and reasonably foreseeable development in to consideration. There have been positive ANILCA 810 evaluation findings for past and recently proposed projects. The mitigation measures proposed as part of the AK LNG Project and EIS are not comprehensive with regard to other projects. Therefore, the evaluation finding in the cumulative case stands.

[1] BLM, 2011, Instruction Memorandum No. AK-2011- 008: Instructions and policy for compliance with Section 810 the Alaska National Interest Lands Conservation Act (ANILCA).

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC
5256(32852131)). The effects are therefore considered to be short term and minor. While temporary displacement from more preferred habitats with concomitant increases in caribou density elsewhere could potentially have some effects on habitat quality or nutritional status of caribou (Cameron et al., 2005), those types of effects appear to be unlikely or at least not significant at a population level. The increased traffic within PBU and along the Dalton Highway bringing equipment and materials to PBU could potentially result in some collisions and caribou mortalities, but given the apparent low frequency of such occurrences under current conditions any increase would be expected to involve small numbers of caribou if any, and have no effect on the caribou population. The DEIS states that for Kaktovik, "during Project operation, impacts on Kaktovik's caribou subsistence use area would occur in a previously developed area with an existing aboveground pipeline and in an area of limited harvest activity. While impacts could include temporary disruptions to migrating caribou, a significant reduction in the availability of caribou during operation is not anticipated" (p. 4-735). The same is true for GTP, subsistence use areas would occur in a previously developed area and in an area of limited harvest activity. A reduction in the availability of caribou during operation is not anticipated. Literature supports the conclusion that elevated pipelines (of 7 feet or higher) have insignificant impacts on caribou movements during summer and winter (Lawhead 2006 and Lawhead 2009). The PTTL would be built to that height as well as collocated with the Badami and Point Thomson pipelines for much of the route. Therefore, impacts to caribou movements would be insignificant.		wear and tear on equipment, and harvester's lost wages and increased safety risks. Siting of the GTP facilities within the vicinity of existing North Slope infrastructure reduces the potential for cumulative impacts to previously undisturbed areas. In addition, siting of the GTP was done within the designated Prudhoe Bay Unit, an area set aside for oil and gas development by authorities, and in an area of limited harvest activity. The PTTL is unlikely to affect the movement of caribou to insect relief habitat on the coast (where some subsistence hunting may occur). Caribou have accessed the coast by traversing the existing North Slope oil fields for many years. The potential for the PTTL to obstruct caribou movements will be reduced by AGDC's installation of the PTTL with a minimum pipeline height of 7 feet. Literature supports the conclusion that elevated pipelines (of 7 feet or higher) have insignificant impacts on caribou movements. The BLM will undertake the notice and hearing procedures required by ANILCA Section 810 (a)(1) and (2), in conjunction with the release of the draft EIS in order to solicit public comment from these potentially affected communities."

A1-251

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
In Appendix U, the BLM evaluated cumulative impacts per ANILCA Section 810 and concluded that there would be a significant restriction to subsistence uses of caribou. However, in the same evaluation, the BLM concluded that the Alaska LNG Project would NOT significantly restrict subsistence uses because it would be effectively mitigated through BMPs (see Section U.2.2 of Appendix U). The Alaska LNG Project, and all other North Slope projects considered in the cumulative analysis, would be held to the same standard to implement BMPs that would effectively mitigate impacts to caribou. AGDC provided a detailed literature review that supports the conclusion that impacts to caribou habitat would be expected to be limited to calving caribou and to a few weeks each of the eight years of GTP construction (see RFI-528_FERC-163). The effects are therefore considered to be short term and minor. While temporary displacement from more preferred habitats with concomitant increases in caribou density elsewhere could potentially have some effects on habitat quality or nutritional status of caribou (Cameron et al., 2005), those types of effects appear to be unlikely and not significant at a population level. The increased traffic within PBU and along the Dalton Highway bringing equipment and materials to PBU could potentially result in some collisions and caribou mortalities, but given the apparent low frequency of such occurrences under current conditions, any increase would be expected to involve small numbers of caribou if any, and have no effect on the caribou population. The DEIS states that for Kaktovik, "during Project operation, impacts on Kaktovik's caribou subsistence use area would occur in a previously developed area with an existing aboveground pipeline and in an area of limited harvest activity. While impacts could include temporary disruptions to migrating caribou, a significant reduction in the availability of caribou during operation is not anticipated" (p. 4-735). The same is true for GTP, subsistence use areas would occur in a previously developed area and in an area of limited harvest activity. A reduction in the availability of caribou during operations is not anticipated. Literature supports the conclusion that elevated pipelines (of 7 feet or higher) have insignificant impacts on caribou movements during summer and winter (Lawhead 2006 and Lawhead 2009). The PTTL would be built to that height as well as co-located with the Badami and Point Thomson pipelines for much of the route. Therefore, impacts to caribou movements would be insignificant.	AGDC respectfully suggests modifying the section U.2.3.4 analysis of caribou impacts for consistency with conclusions in other portions of the DEIS and to include expectations for implementation of BMPs.	Review/incorporate the information noted by AGDC. In particular, consider modifying U.2.3.4, as follows: "The cumulative case could result in restrictions on subsistence uses, however this would be effectively mitigated through the implementation of BMPs by the Alaska LNG Project and other reasonably foreseeable projects. ~~This evaluation concludes that the cumulative case, when taken in conjunction with the proposed action, may result in a significant restriction to subsistence uses for the communities of Nuiqsut, Kaktovik, Utqiaġvik, and Anaktuvuk Pass due to potential decline in the availability of caribou for subsistence use. A positive determination pursuant to ANILCA Section 810 is required.~~"	A1-252
The Alaska Roads to Resources projects, including Ambler Road, should be added to the mapping for consistency.	AGDC respectfully requests addition of the Alaska Roads to Resources projects, including Ambler Road to the mapping in Appendix W-2.	Review/incorporate the information noted by AGDC. In particular, consider modifying Appendix W-2 mapping to include the Alaska Roads to Resources projects, including Ambler Road.	A1-253

A1-252 See the response to comment A1-251.

A1-253 Appendix W of the final EIS has been updated to address this comment.

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
The Eva Creek Wind Project Expansion and Maintenance project is noted to not share a watershed with Alaska LNG. Based on the figure on Page W-31, it is also not within the same HUC 10 watershed. Therefore, it should not be noted to have potential cumulative impacts with WL (wildlife) based on the geographic scope.	AGDC respectfully suggests modification of Page W-7 for the Eva Creek Wind Project Expansion and Maintenance project. That project is noted in the DEIS to not share a watershed with Alaska LNG. Based on the figure on Page W-31, it is also not within the same HUC 10 watershed. Therefore, it should not be noted to have potential cumulative impacts with WL (wildlife) based on the geographic scope.	Review/incorporate the information noted by AGDC. On page W-7, in the "Resources with Potential Cumulative Impacts" column of Table W-1, consider removing WL for the Eva Creek Wind Project Expansion and Maintenance and deleting reference to the project having cumulative impacts on wildlife.	A1-254
The U.S. Army Corps of Engineers Anchorage Harbor Maintenance Dredging project does not qualify for potential cumulative impacts to A (air quality) based on the scope of the project and its distance (>35 miles) from the Alaska LNG Project.	AGDC respectfully suggests modification of DEIS text to remove cumulative impacts to air for the U.S. Army Corps of Engineers Anchorage Harbor Maintenance Dredging project.	Review/incorporate the information noted by AGDC. In particular, consider revising text for the "Resources with Potential Cumulative Impacts column" of Table W-1 by removing "A" for the U.S. Army Corps of Engineers Anchorage Harbor Maintenance Dredging project.	A1-255
Based on the figure on Page W-34, the Cook Inlet area oil and gas development project is not within the HUC12 Watershed shared with Alaska LNG, but Table W-1 on page W-6 indicates it is in the same HUC12 watershed.	AGDC respectfully suggests modification of text in the "HUC 12 Watershed Shared with Alaska LNG" Column of Table W-1 to recognize the Cook Inlet area oil and gas development project is in the same HUC10 watershed as the Alaska LNG project, but not the same HUC12.	Review/incorporate the information noted by AGDC. In particular, consider revising text in the "HUC 12 Watershed Shared with Alaska LNG" Column of Table W-1 to: "No, but lies within HUC10 watershed" for the Cook Inlet area oil and gas development project.	A1-256
The project is located over 35 miles away but is noted in the table as the same HUC 12 Watershed as the Alaska LNG Project.	AGDC respectfully suggests excluding the USACE Anchorage Harbor Maintenance Dredging project from Page W-19, since it is not within the same HUC12 Watershed as Alaska LNG.	Review/incorporate the information noted by AGDC. In particular, consider revising Page W-9 text to recognize USACE Anchorage Harbor Maintenance Dredging project is too far removed (>35 miles) to be considered for cumulative impacts.	A1-257
The Great Bear Shale Oil Development, Chuitna Coal Mine and Donlin Gold Mine Pipeline projects are located within the 15 mile geographic scope for visual resources, however V (visual resources) is not listed as one of the Resources with Potential Cumulative Impacts in Table W-1.	AGDC respectfully suggests modifying Table W-1 in the "Resources with Potential Cumulative Impacts" column to recognize the Great Bear Shale Oil Development, Chuitna Coal Mine and Donlin Gold Mine Pipeline projects are located within the 15 mile geographic scope for visual resources.	Review/incorporate the information noted by AGDC. In particular, consider revising Table W-1 in the "Resources with Potential Cumulative Impacts" column to insert a "V" for the Great Bear Shale Oil Development, Chuitna Coal Mine and Donlin Gold Mine Pipeline projects.	A1-258
The Livengood Gold project does not show up on the mapping in Appendix W-2. Confirm it is within the HUC10 watershed as noted in Table W-1.	AGDC respectfully requests revision of Appendix W-2 mapping to include the Livengood Gold project since it is stated to be within the same HUC10 as Alaska LNG in Table W-1.	Review/incorporate the information noted by AGDC. In particular, consider modifying Appendix W-2 mapping to include the Livengood Gold project.	A1-259
The TAPS and Quintillion Terrestrial and GCI Alaska United Fiber Optic projects were not included in the W-2 mapping.	AGDC respectfully requests addition of the TAPS and Quintillion Terrestrial and GCI Alaska United Fiber Optic projects to the mapping in Appendix W.	Review/incorporate the information noted by AGDC. In particular, consider modifying Appendix W-2 mapping to include the TAPS and Quintillion Terrestrial and GCI Alaska United Fiber Optic projects.	A1-260

A1-254 Appendix W of the final EIS has been updated to address this comment.

A1-255 Appendix W of the final EIS has been updated to address this comment.

A1-256 Appendix W of the final EIS has been updated to address this comment.

A1-257 The Anchorage dredging project is within the same HUC-12 watershed as the proposed Project.

A1-258 Appendix W of the final EIS has been updated to address this comment.

A1-259 Appendix W of the final EIS has been updated to address this comment.

A1-260 Appendix W of the final EIS has been updated to address this comment. TAPS is not shown on the map set.